

OFFICIAL STATEMENT

NEW ISSUES **Book-Entry**

Water Ratings: S&P: “AAA”
Moody’s: “Aa1”
Wastewater Ratings: S&P: “AA+”
Moody’s: “Aa2”
(See “MISCELLANEOUS: Ratings” herein)

In the opinion of Bond Counsel, based on existing law and assuming compliance with certain tax covenants of the Knoxville Utilities Board (“KUB”), interest on the Bonds will be excluded from gross income for federal income tax purpose and is not an item of tax preference for purposes of the federal alternative minimum tax. For an explanation of certain tax consequences under federal law which may result from the ownership of the Bonds, see the discussion under the heading “LEGAL MATTERS – Tax Matters” herein. Under existing law, the Bonds and the income therefrom will be exempt from all state, county and municipal taxation in the State of Tennessee, except Tennessee franchise and excise taxes. (See “LEGAL MATTERS – Tax Matters” herein).

\$35,995,000

CITY OF KNOXVILLE, TENNESSEE

\$19,995,000 Water System Revenue Bonds, Series II-2019

\$16,000,000 Wastewater System Revenue Bonds, Series 2019

Dated: August 20, 2019

Due: As shown herein

The \$19,995,000 Water System Revenue Bonds, Series II-2019 (“Water Bonds” or “Series II-2019 Bonds”), and the \$16,000,000 Wastewater System Revenue Bonds, Series 2019 (“Wastewater Bonds” or “Series 2019 Bonds”), collectively, referred to as the “Bonds” are issuable in book-entry-only form. The Bonds will be registered in the name of Cede & Co., as nominee of The Depository Trust Company, New York, New York (“DTC”). DTC will act as securities depository of the Bonds. So long as Cede & Co. is the registered owner of the Bonds, as the nominee for DTC, principal and interest with respect to the Bonds shall be payable to Cede & Co., as nominee for DTC, which will, in turn, remit such principal and interest to the DTC participants for subsequent disbursements to the Beneficial Owners of the Bonds. Individual purchases of the Bonds will be made in book-entry form only, in denominations of \$5,000 or integral multiples thereof and will bear interest at the annual rates as shown on the inside cover. Interest on the Water Bonds will be payable semi-annually on March 1 and September 1 each year, commencing March 1, 2020. Interest on the Wastewater Bonds will be payable semi-annually on April 1 and October 1 each year, commencing April 1, 2020. Beneficial Owners of the Bonds will not receive physical delivery of Bond certificates. (See “The Bonds” - Book-Entry-Only System herein.)

The Bonds are being issued to provide funds to pay the costs of extensions and improvements to the Water System and the Wastewater System, as described herein, and to pay the cost of issuing the Bonds as more fully described in a subsequent part of this OFFICIAL STATEMENT.

The Bonds will be issued pursuant to and secured by bond resolutions of the City of Knoxville (“City”) and will be payable solely from the net revenues of the Water System and the Wastewater System, respectively, of the City of Knoxville, which are operated by the Knoxville Utilities Board (“KUB”). The Bonds do not constitute a debt of the City within the meaning of any constitutional, City Charter or statutory limitation, and neither the faith and credit of the State of Tennessee nor the faith and credit of the City or any other political subdivision are pledged to the payment of the principal of or premium or interest on the Bonds.

A portion of the Bonds are subject to optional redemption prior to maturity as described herein.

Bonds are offered when, as and if issued by the City of Knoxville subject to the approval of the legality thereof by Bass, Berry & Sims PLC, Knoxville, Tennessee, Bond Counsel, whose opinions will be delivered with the Bonds. Certain legal matters will be passed upon for Knoxville Utilities Board by Hodges, Doughty & Carson, PLLC, Knoxville, Tennessee, General Counsel to the Knoxville Utilities Board. It is expected the Bonds will be available for delivery in book-entry-only form, through the facilities of The Depository Trust Company, New York, New York on or about August 20, 2019.

Cumberland Securities Company, Inc.
Municipal Advisor

July 29, 2019

**WATER SYSTEM REVENUE BONDS
SERIES II-2019**

<u>Maturity (March 1)</u>	<u>Amount</u>	<u>Interest Rate</u>	<u>Yield</u>	<u>CUSIP**</u>	<u>Maturity (March 1)</u>	<u>Amount</u>	<u>Interest Rate</u>	<u>Yield</u>	<u>CUSIP**</u>
2020	\$ 400,000	5.00%	1.09%	499818 T28	2031	\$ 590,000	4.00%	1.86%	c 499818 U59
2021	365,000	5.00	1.11	499818 T36	2032	615,000	3.00	2.32	c 499818 U67
2022	380,000	5.00	1.13	499818 T44	2033	635,000	3.00	2.38	c 499818 U75
2023	400,000	5.00	1.15	499818 T51	2034	655,000	3.00	2.48	c 499818 U83
2024	420,000	5.00	1.17	499818 T69	2035	675,000	3.00	2.58	c 499818 U91
2025	440,000	5.00	1.24	499818 T77	2036	695,000	3.00	2.62	c 499818 V25
2026	465,000	5.00	1.34	499818 T85	2037	715,000	3.00	2.66	c 499818 V33
2027	485,000	5.00	1.44	499818 T93	2038	735,000	3.00	2.70	c 499818 V41
2028	510,000	5.00	1.52	499818 U26	2039	760,000	3.00	2.74	c 499818 V58
2029	535,000	5.00	1.59	c 499818 U34	2040	780,000	3.00	2.78	c 499818 V66
2030	565,000	5.00	1.66	c 499818 U42	2041	805,000	3.00	2.82	c 499818 V74

c = Yield to call on March 1, 2028.

\$2,565,000	3.00%	Term Bond Due	March 1, 2044	@	3.00%	499818 W24
\$2,795,000	3.00%	Term Bond Due	March 1, 2047	@	3.03%	499818 W57
\$2,010,000	3.00%	Term Bond Due	March 1, 2049	@	3.05%	499818 W73

**WASTEWATER SYSTEM REVENUE BONDS
SERIES 2019**

<u>Maturity (April 1)</u>	<u>Amount</u>	<u>Interest Rate</u>	<u>Yield</u>	<u>CUSIP**</u>	<u>Maturity (April 1)</u>	<u>Amount</u>	<u>Interest Rate</u>	<u>Yield</u>	<u>CUSIP**</u>
2020	\$ 250,000	5.00%	1.09%	499815 WU8	2030	\$ 455,000	4.00%	1.75%	c 499815 XE3
2021	300,000	5.00	1.12	499815 WV6	2031	475,000	4.00	1.90	c 499815 XF0
2022	315,000	5.00	1.17	499815 WW4	2032	495,000	4.00	2.00	c 499815 XG8
2023	330,000	5.00	1.19	499815 WX2	2033	515,000	3.00	2.55	c 499815 XH6
2024	345,000	5.00	1.21	499815 WY0	2034	530,000	3.00	2.60	c 499815 XJ2
2025	360,000	5.00	1.28	499815 WZ7	2035	545,000	3.00	2.65	c 499815 XK9
2026	380,000	5.00	1.36	499815 XA1	2036	560,000	3.00	2.70	c 499815 XL7
2027	400,000	5.00	1.44	499815 XB9	2037	580,000	3.00	2.76	c 499815 XM5
2028	420,000	5.00	1.52	499815 XC7	2038	595,000	3.00	2.81	c 499815 XN3
2029	435,000	5.00	1.59	c 499815 XD5	2039	615,000	3.00	2.86	c 499815 XP8

c = Yield to call on April 1, 2028.

\$4,000,000	3.00%	Term Bond Due	April 1, 2045	@	3.00%	499815 XV5
\$3,100,000	3.00%	Term Bond Due	April 1, 2049	@	3.02%	499815 XZ6

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This Official Statement speaks only as of its date, and the information contained herein is subject to change.

This Official Statement may contain forecasts, projections, and estimates that are based on current expectations but are not intended as representations of fact or guarantees of results. If and when included in this Official Statement, the words "expects," "forecasts," "projects," "intends," "anticipates," "estimates," and analogous expressions are intended to identify forward-looking statements as defined in the Securities Act of 1933, as amended, and any such statements inherently are subject to a variety of risks and uncertainties, which could cause actual results to differ materially from those contemplated in such forward-looking statements. These forward-looking statements speak only as of the date of this Official Statement. The Issuer disclaims any obligation or undertaking to release publicly any updates or revisions to any forward-looking statement contained herein to reflect any change in the Issuer's expectations with regard thereto or any change in events, conditions, or circumstances on which any such statement is based.

This Official Statement and the Appendices hereto contain brief descriptions of, among other matters, KUB, the Bonds, the Resolution, the Disclosure Certificate (as defined herein), and the security and sources of payment for the Bonds. Such descriptions and information do not purport to be comprehensive or definitive. The summaries of various constitutional provisions and statutes, the Resolution, the Disclosure Certificate, and other documents are intended as summaries only and are qualified in their entirety by reference to such documents and laws, and references herein to the Bonds are qualified in their entirety to the forms thereof included in the Resolution.

The Bonds have not been registered under the Securities Act of 1933, and the Resolution has not been qualified under the Trust Indenture Act of 1939, in reliance on exemptions contained in such Acts. This Official Statement does not constitute an offer to sell or the solicitation of an offer to buy, nor shall there be any sale of the Bonds by any person in any jurisdiction in which it is unlawful for such person to make such offer, solicitation, or sale.

No dealer, broker, salesman, or other person has been authorized by the Issuer or the Underwriter to give any information or to make any representations other than those contained in this Official Statement, and, if given or made, such other information or representations should not be relied upon as having been authorized by the Issuer or the Underwriter. Except where otherwise indicated, all information contained in this Official Statement has been provided by KUB. The information set forth herein has been obtained by KUB from sources which are believed to be reliable but is not guaranteed as to accuracy or completeness by, and is not to be construed as a representation of the Underwriter. The information contained herein is subject to change without notice, and neither the delivery of this Official Statement nor any sale made hereunder shall under any circumstances create an implication that there has been no change in the affairs of the Issuer, or the other matters described herein since the date hereof or the earlier dates set forth herein as of which certain information contained herein is given.

In connection with this offering, the Underwriter may over-allot or effect transactions which stabilize or maintain the market prices of the Bonds at a level above that which might otherwise prevail in the open market. Such stabilizing, if commenced, may be discontinued at any time.

CITY OF KNOXVILLE, TENNESSEE
KNOXVILLE UTILITIES BOARD

COMMISSIONERS

Kathy Hamilton, Chair
Tyvi Small, Vice Chair
Jerry Askew
Celeste Herbert
Sara Hedstrom Pinnell
Adrienne Simpson-Brown
John Worden

OFFICERS

Gabriel J. Bolas II, President and Chief Executive Officer
Mark A. Walker, Senior Vice President and Chief Financial Officer
Susan F. Edwards, Senior Vice President and Chief Administrative Officer
H. Edward Black, Senior Vice President and Chief Technology Officer
Derwin G. Hagood, Senior Vice President and Chief Operating Officer
John W. Williams III, Vice President of Construction

GENERAL COUNSEL

Hodges, Doughty & Carson, PLLC
Knoxville, Tennessee

UNDERWRITERS

Water
Series II-2019
Citigroup Global
Markets Inc.

Wastewater
Series 2019
FTN Financial
Capital Markets

MUNICIPAL ADVISOR

Cumberland Securities Company, Inc.
Knoxville, Tennessee

BOND COUNSEL

Bass, Berry & Sims PLC
Knoxville, Tennessee

INDEPENDENT ACCOUNTANTS

Coulter & Justus, P.C.
Knoxville, Tennessee

REGISTRATION AND PAYING AGENT

Regions Bank
Nashville, Tennessee

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REPORT OF INDEPENDENT ACCOUNTANTS AND FINANCIAL STATEMENTS

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APPENDIX F: SUMMARY OF CERTAIN PROVISIONS OF WASTEWATER BOND RESOLUTIONS

SUMMARY STATEMENT

The information set forth below is provided as a summary for convenient reference only; the information is not and does not purport to be complete and is qualified in its entirety by the information and financial statements appearing elsewhere in this OFFICIAL STATEMENT. No person is authorized to distribute or rely upon all or any part of the information in this "Summary Statement" without the balance of this OFFICIAL STATEMENT, including, all exhibits and appendices hereto.

The Bonds.....City of Knoxville, Tennessee (the "City") \$19,995,000 Water System Revenue Bonds, Series II-2019 ("Water Bonds" or "Series II-2019 Bonds"), and the \$16,000,000 Wastewater System Revenue Bonds, Series 2019 ("Wastewater Bonds" or "Series 2019 Bonds"), dated August 20, 2019. The Water Bonds and the Wastewater Bonds will be collectively referred to as the "Bonds".

Purpose The Bonds are being issued to provide funds to pay the costs of extensions and improvements to the Water System and the Wastewater System, as described herein, and to pay the cost of issuing the Bonds as more fully described in a subsequent part of this OFFICIAL STATEMENT.

Security.....The Bonds will be issued pursuant to and secured by bond resolutions of the City and will be payable solely from the net revenues of the Systems, respectively, as further described herein.

Redemption.....The Water Bonds maturing on and after March 1, 2029 will be subject to redemption prior to maturity at the option of the Board on or after March 1, 2028 at the redemption price of par plus accrued interest as provided herein. The Wastewater Bonds maturing on and after April 1, 2029 will be subject to redemption prior to maturity at the option of the Board on or after April 1, 2028 at the redemption price of par plus accrued interest as provided herein.

Rates Rates and fees for services provided by the Systems are established by the Board of Commissioners of the Knoxville Utilities Board (the "Board"). The Water System and the Wastewater System are not otherwise subject to rate regulation, and KUB is not aware of any pending legislation which would make its rates and fees subject to regulation.

Rate Covenants.....The bond resolutions require the Board to fix rates as to each System to provide revenues sufficient to pay related expenses and obligations and to meet a 1.20 debt service coverage ratio, all as more fully hereinafter described.

Additional Water

Revenue Bonds.....The City, acting by and through KUB, or KUB may issue additional bonds, notes or other obligations pursuant to the Water Bond Resolutions (as defined herein), provided that all payments required to be made to the Water Debt Service Fund and into any reserve fund which may be required under resolutions authorizing parity indebtedness are current as of the date of issuance of the additional bonds, notes or other obligations, on a parity and equality of lien with the outstanding parity indebtedness with respect to the lien and claim of such additional bonds, notes or other obligations to the net revenues of the Water System and the money on deposit in the Water Debt Service Fund for the purpose of (i) refunding any outstanding parity indebtedness, subordinate bonds, notes, loan agreements or other obligations, provided that after the issuance of such additional parity indebtedness, the Aggregate Debt Service (as defined in the Water Bond Resolutions) on all outstanding parity indebtedness, including the additional parity indebtedness to be issued, in any fiscal year shall not increase by more than ten percent (10%) after the issuance of such additional parity indebtedness; (ii) for the purpose of financing the completion or equipping of improvements to the Water System for which outstanding parity indebtedness have previously been issued but only to the extent necessary to complete such improvements in the manner contemplated at the time of the issuance of the outstanding parity indebtedness that financed such improvements; and (iii) for the purposes of refunding any outstanding parity indebtedness or any prior lien bonds, subordinated bonds, notes or other obligations or extending, improving or replacing the Water System or for any other lawful purpose under applicable law, if one of the following conditions shall have been met: (A) the Net Revenues (as defined in the Water Bond Resolutions) for any twelve-month period selected by the Board ending within the twelve months prior to the date of the issuance of the additional

parity indebtedness must have been equal to at least 120% of the Maximum Annual Aggregate Debt Service (as defined in the Water Bond Resolutions) on outstanding parity indebtedness plus the Debt Service on the additional parity indebtedness proposed to be issued or (B) the estimated Net Revenues of the Water System for each of the three fiscal years next succeeding the issuance of the additional parity indebtedness, must be equal at least to 120% of Maximum Annual Aggregate Debt Service, any other outstanding parity indebtedness and all outstanding prior lien bonds plus the Debt Service on the additional parity indebtedness proposed to be issued; provided, however, that if the additional parity indebtedness is to be issued for the acquisition or construction of any extension, improvement or replacement to the Water System, then the estimate of Net Revenues may be for the three fiscal years ensuing after the time that such improvement, extension or replacement is expected to be placed in service.

Additional Wastewater

Revenue Bonds.....The City, acting by and through KUB, or KUB may issue additional bonds, notes or other obligations pursuant to the Wastewater Bond Resolution provided that all payments required to be made to the Wastewater Debt Service Fund and into any reserve fund which may be required under resolutions authorizing parity indebtedness are current as of the date of issuance of the additional bonds, notes or other obligations, on a parity and equality of lien with the outstanding parity indebtedness under the Wastewater Bond Resolution, with respect to the lien and claim of such additional bonds, notes or other obligations to the net revenues of the Wastewater System and the money on deposit in the Wastewater Debt Service Fund (i) for the purpose of refunding any outstanding parity indebtedness, subordinate bonds, notes, loan agreements or other obligations, provided that after the issuance of such additional parity indebtedness, the Aggregate Debt Service (as defined in the Wastewater Resolution) on all outstanding parity indebtedness, including the additional parity indebtedness to be issued, in any fiscal year shall not increase by more than ten percent (10%) after the issuance of such additional parity indebtedness; (ii) for the purpose of financing the completion or equipping of improvements to the Wastewater System for which outstanding parity indebtedness have previously been issued but only to the extent necessary to complete such improvements in the manner contemplated at the time of the issuance of the outstanding parity indebtedness that financed such improvements; and (iii) for the purposes of refunding any outstanding parity indebtedness or any prior lien bonds, subordinated bonds, notes or other obligations or extending, improving or replacing the Wastewater System or for any other lawful purpose under applicable law, if one of the following conditions shall have been met: (A) the Net Revenues (as defined in the Wastewater Bond Resolution) for any twelve-month period selected by the Board ending within the twelve months prior to the date of the issuance of the additional parity indebtedness must have been equal to at least 120% of the Maximum Annual Aggregate Debt Service (as defined in the Wastewater Bond Resolution) on outstanding parity indebtedness plus the Debt Service on the additional parity indebtedness proposed to be issued or (B) the estimated Net Revenues of the Wastewater System for each of the three fiscal years next succeeding the issuance of the additional parity indebtedness, must be equal at least to 120% of Maximum Annual Aggregate Debt Service, any other outstanding parity indebtedness and all outstanding prior lien bonds plus the Debt Service on the additional parity indebtedness proposed to be issued; provided, however, that if the additional parity indebtedness is to be issued for the acquisition or construction of any extension, improvement or replacement to the Wastewater System, then the estimate of Net Revenues may be for the three fiscal years ensuing after the time that such improvement, extension or replacement is expected to be placed in service.

Combined Operation of

Any System Permitted

in the Future.....To the extent permitted by law, the Board may combine any or all the City's utility systems into a single unified operation (the "Combined System") and commingle the revenues of the System in the Combined System without keeping separate accounts of the funds of each of such System, provided payments from the funds of the Combined System are required to be made into the respective Debt Service Funds from time to time in amounts sufficient to pay the principal of and interest as such principal and interest becomes due. Bonds and notes ("Parity Bonds") payable from revenues of the Combined System may be issued on a parity with outstanding bonds secured by a System's revenues provided at the time of the issuance of any such Parity Bonds, among other things, the net earnings of the Combined System after making provision for the payment of periodic installments of principal and interest on any bonds having a superior

lien on a system or the revenues of any such system, for a period of twelve consecutive months (the "Twelve-Month Period") out of the fifteen months immediately preceding the issuance of such Parity Bonds shall be equal to at least 1.2 times the highest combined principal and interest requirement for any period of twelve consecutive months beginning on July 1 of any succeeding calendar year on all bonds outstanding and to be then issued directly payable from the revenues of the Combined System.

If within twelve months prior to the issuance of the Parity Bonds, the Board shall have put into effect a revised schedule of rates for the Combined System or any part thereof, then the net earnings of the Combined System for the Twelve-Month Period, as certified by independent consultants, that would have resulted from such revised rates had they been in effect for the Twelve-Month Period, may be used in lieu of the actual net earnings for such Twelve-Month Period.

Tax Matters.....In the opinion of Bond Counsel, based on existing law and assuming compliance with certain tax covenants by KUB, interest on the Bonds will be excluded from gross income for federal income tax purposes and is not an item of tax preference for purposes of the federal alternative minimum tax. For an explanation of certain tax consequences under federal law which may result from the ownership of the Bonds, see the discussion under the heading "LEGAL MATTERS – Tax Matters" herein. Under existing law, the Bonds and the income therefrom will be exempt from all state, county and municipal taxation in the State of Tennessee, except Tennessee franchise and excise taxes. (See "LEGAL MATTERS – Tax Matters" herein).

Registration and
Paying Agent Regions Bank, Nashville, Tennessee.

Bond Counsel Bass, Berry & Sims PLC, Knoxville, Tennessee.

Underwriters*Water Series Bonds:* Citigroup Global Markets Inc.
Wastewater Bonds: FTN Financial Capital Markets.

Municipal Advisor..... Cumberland Securities Company, Inc., Knoxville, Tennessee.

General..... The Bonds will be issued pursuant to Chapter 34, Title 7, and Chapter 21, Title 9, *Tennessee Code Annotated*, as amended (the "Act"). See the sections entitled SECURITIES OFFERED, herein. The Bonds will be issued with CUSIP numbers through the facilities of The Depository Trust Company, New York, New York.

Disclosure In accordance with Rule 15c2-12 promulgated under the Securities Exchange Act of 1934 as amended, the County will provide the Municipal Securities Rulemaking Board ("MSRB") through the operation of the Electronic Municipal Market Access system ("EMMA") and the State Information Depository ("SID") established in Tennessee, if any, annual financial statements and other pertinent credit information, including the Comprehensive Annual Financial Reports of KUB for the Systems. For additional information, see the section entitled "MISCELLANEOUS - Continuing Disclosure" for additional information.

Other Information..... For more information concerning the City and the Board or the OFFICIAL STATEMENT, contact Cumberland Securities Company, Inc., P.O. Box 22715, Knoxville, Tennessee, 37933 Telephone: (865) 988-2663.

WATER DIVISION
For the Years Ended June 30

	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
Operating Revenues	\$39,373,714	\$44,173,190	\$47,453,401	\$50,769,639	\$54,365,215
Operating Expenses*	<u>(22,871,480)</u>	<u>(22,694,149)</u>	<u>(23,334,846)</u>	<u>(25,036,614)</u>	<u>(25,679,753)</u>
Net Income Before Depreciation & Taxes	\$16,502,234	\$21,479,041	\$24,118,555	\$25,733,025	\$28,685,462
Other Revenue	125,448	134,691	194,146	307,829	588,153
FICA Tax Expense	<u>(664,594)</u>	<u>(678,049)</u>	<u>(740,757)</u>	<u>(791,923)</u>	<u>(846,313)</u>
Income Available for Debt Service	\$15,963,088	\$20,935,683	\$23,571,944	\$25,248,931	\$28,427,302
Debt Service on Senior Bonds	\$7,983,219	\$8,894,814	10,162,232	10,759,521	11,630,115
Bond Coverage	2.00x	2.35x	2.32x	2.35x	2.44x

WASTEWATER DIVISION
For the Years Ended June 30

	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
Operating Revenues	\$75,041,645	\$79,206,028	\$83,645,509	\$88,517,210	\$94,715,764
Operating Expenses*	<u>(29,652,128)</u>	<u>(30,889,188)</u>	<u>(31,511,199)</u>	<u>(31,930,440)</u>	<u>(30,939,200)</u>
Net Income Before Depreciation & Taxes	\$45,389,517	\$48,316,840	\$52,134,310	\$56,586,770	\$63,776,564
Other Revenue	291,711	301,292	461,544	641,747	1,205,290
FICA Tax Expense	<u>(719,291)</u>	<u>(725,205)</u>	<u>(747,389)</u>	<u>(778,144)</u>	<u>(820,374)</u>
Income Available for Debt Service	\$44,961,937	\$47,892,927	\$51,848,465	\$56,450,373	\$64,161,480
Debt Service on Senior Bonds	\$28,041,968	\$29,023,441	30,819,779	31,494,379	32,372,447
Bond Coverage	1.60x	1.65x	1.68x	1.79x	1.98x

Source: The above amounts have been derived from the Annual Audited Financial Statements for the Knoxville Utilities Board, Water and Wastewater Divisions and should be read in conjunction therewith.

*Excluding Provision for Depreciation and Taxes.

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\$35,995,000
CITY OF KNOXVILLE, TENNESSEE
\$19,995,000 Water System Revenue Bonds, Series II-2019
\$16,000,000 Wastewater System Revenue Bonds, Series 2019

SECURITIES OFFERED

AUTHORITY AND PURPOSE

This OFFICIAL STATEMENT, which includes the cover page and “Summary Statement” hereof and the appendices hereto, is furnished in connection with the offering by the City of Knoxville, Tennessee (the “City”) of its \$19,995,000 Water System Revenue Bonds, Series II-2019 (“Water Bonds” or “Series II-2019 Water Bonds”), and the \$16,000,000 Wastewater System Revenue Bonds, Series 2019 (“Wastewater Bonds” or “Series 2019 Bonds”). The Water Bonds and the Wastewater Bonds will be collectively referred to as the “Bonds”.

The Water Bonds are being issued pursuant to the Act, the City Charter, other applicable statutes, and pursuant to Resolution No. 2075 duly adopted by the City Council of the City on April 20, 1954, as amended and supplemented by Resolution No. 3633 duly adopted by the City on March 19, 1968; Resolution No. R-26-88 duly adopted by the City on February 9, 1988; Resolution No. R-318-90 duly adopted by the City on October 30, 1990; Resolution No. R-470-92 duly adopted by the City on October 13, 1992; Resolution No. R-474-93 duly adopted by the City on October 26, 1993; Resolution No. R-8-98 duly adopted by the City on January 27, 1998; Resolution No. R-65-01 duly adopted by the City on February 20, 2001; Resolution No. R-151-01 duly adopted by the City on March 20, 2001; Resolution No. R-482-01 duly adopted by the City on October 30, 2001; Resolution No. R-57-04 duly adopted by the City on March 2, 2004; Resolution No. R-263-05 duly adopted by the City on July 5, 2005; Resolution No. R-346-07 duly adopted by the City on August 28, 2007; Resolution No. R-211-09 duly adopted by the City on June 30, 2009; Resolution No. R-133-10 duly adopted by the City on May 4, 2010; Resolution No. R-285-2011 duly adopted by the City on October 4, 2011; Resolution No. R-337-2011 adopted by the City on December 13, 2011; Resolution No. R-323-2012 adopted by the City on November 13, 2012; Resolution No. R-243-2013 adopted by the City on July 23, 2013; Resolution No. R-214-2014 adopted by the City on June 24, 2014; Resolution No. R-83-2015 adopted by the City on March 3, 2015; Resolution No. R-127-2015 adopted by the City on March 31, 2015; Resolution No. R-316-2016 adopted by the City on June 21, 2016; Resolution No. R-318-2016 adopted by the City on June 21, 2016; Resolution No. R-50-2017 adopted by the City on January 31, 2017; Resolution No. R-226-2017 adopted by the City on July 18, 2017; Resolution No. R-228-2018 adopted by the City on June 20, 2018; and Resolution No. R-207-2019 adopted by the City on June 4, 2019. Resolution Nos. 2075, 3633, R-26-88, R-318-90, R-470-92, R-474-93, R-8-98, R-65-01, R-151-01, R-482-01, R-57-04, R-263-05, R-346-07, R-211-09, R-133-10, R-285-2011, R-337-2011, R-323-2012, R-243-2013, R-214-2014, R-83-2015, R-127-2015, R-316-2016, R-318-2016, R-50-2017, R-226-2017, R-228-2018, and R-207-2019 are hereinafter sometimes collectively referred to as the “Water Bond Resolutions.” All Water System Revenue Bonds issued pursuant to such Water Bond Resolutions are hereinafter referred to as the “Water System Bonds.”

The Wastewater Bonds are being issued pursuant to the Act, the City Charter, other applicable statutes for the purpose of providing funds to pay for the construction of improvements to and extending of the City’s Wastewater System, and pursuant to Resolution No. R-129-90 adopted by the City on May 15, 1990, as amended and supplemented by Resolution No. R-130-90 adopted May 15, 1990, Resolution No. R-473-93 adopted by the City on October 26, 1992, Resolution No. R-5-98 adopted by the City on January 27, 1998, and Resolution No. R-67-01 adopted by the City on February 20, 2001; Resolution No. R-148-01 adopted by the City on March 20, 2001; Resolution No. R-481-01 adopted by the City on October 30, 2001; Resolution No. R-56-04 adopted by the City on March 2, 2004; Resolution No. R-264-05 adopted by the City on July 5, 2005; Resolution No. R-347-07 adopted by the City on August 28, 2007; Resolution No. R-252-08 adopted by the City on July 29, 2008; Resolution No. R-

11-S adopted by the City on December 15, 2009; Resolution No. R-134-2010 adopted by the City on May 4, 2010; Resolution No. R-334-2010 adopted by the City on November 2, 2010; Resolution No. R-338-2011 adopted by the City on December 13, 2011; Resolution No. R-291-2012 adopted by the City on October 16, 2012; Resolution No. R-324-2012 adopted by the City on November 13, 2012; Resolution No. R-212-2014 adopted by the City on June 24, 2014; Resolution No. R-84-2015 adopted by the City on March 3, 2015; Resolution No. R-128-2015 adopted by the City on March 31, 2015; Resolution No. R-317-2016 adopted by the City on June 21, 2016; Resolution No. R-49-2017 adopted by the City on January 31, 2017; Resolution No. R-225-2017 adopted by the City on July 18, 2017; Resolution No. R-233-2018 adopted by the City on June 20, 2018; and Resolution No. R-208-2019 adopted by the City on June 4, 2019. Resolution Nos. R-129-90, R-130-90, R-473-93, R-5-98, R-67-01, R-148-01, R-481-01, R-56-04, R-264-05, R-347-07, R-252-08, R-11-S, R-134-2010, R-334-2010, R-338-2011, R-291-2012, R-324-2012, R-212-2014, R-84-2015, R-128-2015, R-317-2016, R-49-2017, R-225-2017, R-233-2018, and R-208-2019 are hereinafter sometimes collectively referred to as the “Wastewater Bond Resolutions.” All Wastewater System Revenue Bonds issued pursuant to such Wastewater Bond Resolutions are hereinafter referred to as the “Wastewater System Bonds.”

In 1939 the City Charter was amended to create the Knoxville Electric Power and Water Board which name was changed in 1947 to the Knoxville Utilities Board (“KUB”). KUB provides electric, gas, water and wastewater utility services through separate City owned electric, gas, water, and wastewater systems, and is governed by a seven-member Board of Commissioners (the “Board”).

The Bonds are being issued to provide funds to pay the costs of extensions and improvements to the Water System and the Wastewater System (collectively, the “Systems”), and the payment of legal, fiscal, administrative costs incident thereto and incident to the issuance and sale of the Bonds.

DESCRIPTION OF THE BONDS

General Terms

The Bonds will be initially dated August 20, 2019 and will be issued in book-entry-only form, without coupons, in denominations of \$5,000 each and integral multiples thereof.

The Water Bonds will bear interest from their dated date at the rate or rates per annum set forth on the inside cover page hereof, such interest (computed on the basis of a 360-day year of twelve 30-day months) being payable semi-annually on the first days of March and September of each year, commencing on March 1, 2020.

The Wastewater Bonds will bear interest from their dated date at the rate or rates per annum set forth on the inside cover page hereof, such interest (computed on the basis of a 360-day year of twelve 30-day months) being payable semi-annually on the first days of April and October of each year, commencing on April 1, 2020.

The Bonds will be initially registered only in the name of Cede & Co., as nominee of The Depository Trust Company, New York, New York (“DTC”), which will act as securities depository for the Bonds. Regions Bank, Nashville, Tennessee (the “Registration Agent”) will make all interest payments with respect to the Bonds on each interest payment date directly to Cede & Co., as nominee of DTC, the registered owner as shown on the Bond registration records maintained by the Registration Agent as of the close of business on the fifteenth day of the month next preceding the interest payment date (the “Regular Record Date”) by check or draft mailed to such owner at its address shown on said Bond registration records, without, except for final payment, the presentation or surrender of such registered Bonds, and all such payments shall discharge the obligations of KUB in respect of such Bonds to the extent of the payments so made. Payment of principal of the Bonds shall be made upon presentation and surrender of such Bonds to the Registration Agent as the same shall become due and payable.

Any interest on any Bond which is payable but is not punctually paid or duly provided for on any interest payment date (hereinafter “Defaulted Interest”) shall forthwith cease to be payable to the registered owner on the relevant Regular Record Date; and, in lieu thereof, such Defaulted Interest shall be paid by KUB to the persons in whose names the Bonds are registered at the close of business on a date (the “Special Record Date”) for the

payment of such Defaulted Interest, which shall be fixed in the following manner: KUB shall notify the Registration Agent in writing of the amount of Defaulted Interest proposed to be paid on each Bond and the date of the proposed payment, and at the same time KUB shall deposit with the Registration Agent an amount of money equal to the aggregate amount proposed to be paid in respect of such Defaulted Interest or shall make arrangements satisfactory to the Registration Agent for such deposit prior to the date of the proposed payment, such money when deposited to be held in trust for the benefit of the persons entitled to such Defaulted Interest. Thereupon, not less than ten (10) days after the receipt by the Registration Agent of the notice of the proposed payment, the Registration Agent shall fix a Special Record Date for the payment of such Defaulted Interest which date shall be not more than fifteen (15) nor less than ten (10) days prior to the date of the proposed payment to the registered owners. The Registration Agent shall promptly notify KUB of such Special Record Date and, in the name and at the expense of KUB, not less than ten (10) days prior to such Special Record Date, shall cause notice of the proposed payment of such Defaulted Interest and the Special Record Date therefor to be mailed, first class postage prepaid, to each registered owner at the address thereof as it appears in the Bond registration records maintained by the Registration Agent as of the date of such notice. Nothing contained in the Water Bond Resolutions or the Wastewater Bond Resolutions (the "Resolutions") or in the Bonds shall impair any statutory or other rights in law or in equity of any registered owner arising as a result of the failure of KUB to punctually pay or duly provide for the payment of principal of, premium, if any, and interest on the Bonds when due.

So long as Cede & Co. is the Registered Owner of the Bonds, as nominee of DTC, references herein to the Bondholders, Holders or Registered Owners of the Bonds shall mean Cede & Co. and shall not mean the Beneficial Owners of the Bonds. See "The Book-Entry-Only System."

Optional Redemption

The Water Bonds maturing on and after March 1, 2029 will be subject to redemption prior to maturity at the option of the Board on or after March 1, 2028 at the redemption price of par plus accrued interest as provided herein. The Wastewater Bonds maturing on and after April 1, 2029 will be subject to redemption prior to maturity at the option of the Board on or after April 1, 2028 at the redemption price of par plus accrued interest as provided herein.

Mandatory Redemption Of The Bonds

Water Bonds. Subject to the credit hereinafter provided, the City, acting by and through KUB, shall redeem Water Bonds maturing March 1, 2044, March 1, 2047 and March 1, 2049 on the redemption dates set forth on the following table, in aggregate principal amounts equal to the respective dollar amounts set forth below opposite the respective redemption dates at a price of par plus accrued interest thereon to the date of redemption. DTC, as securities depository for the Water Bonds or such Person as shall then be serving as the securities depository for the Bonds, shall determine the interest of each Participant in the Water Bonds to be redeemed using its procedures generally in use at that time. If DTC, or another securities depository is no longer serving as securities depository for the Water Bonds, the Water Bonds to be redeemed within a maturity shall be selected by the Registration Agent by lot or such other random manner as the Registration Agent in its discretion shall select. The dates of redemption and principal amount of Water Bonds to be redeemed on said dates are as on the following page:

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<u>Final Maturity</u>	<u>Redemption Date</u>	<u>Principal Amount of Water Bonds Redeemed</u>
March 1, 2044	March 1, 2042	\$830,000
	March 1, 2043	\$855,000
	March 1, 2044*	\$880,000
March 1, 2047	March 1, 2045	\$905,000
	March 1, 2046	\$930,000
	March 1, 2047*	\$960,000
March 1, 2049	March 1, 2048	\$990,000
	March 1, 2049*	\$1,020,000

*Final Maturity of Water Bonds

Wastewater Bonds. Subject to the credit hereinafter provided, the City, acting by and through KUB, shall redeem Wastewater Bonds maturing April 1, 2045 and April 1, 2049 on the redemption dates set forth on the following table, in aggregate principal amounts equal to the respective dollar amounts set forth below opposite the respective redemption dates at a price of par plus accrued interest thereon to the date of redemption. DTC, as securities depository for the Wastewater Bonds or such Person as shall then be serving as the securities depository for the Bonds, shall determine the interest of each Participant in the Wastewater Bonds to be redeemed using its procedures generally in use at that time. If DTC, or another securities depository is no longer serving as securities depository for the Wastewater Bonds, the Wastewater Bonds to be redeemed within a maturity shall be selected by the Registration Agent by lot or such other random manner as the Registration Agent in its discretion shall select. The dates of redemption and principal amount of Wastewater Bonds to be redeemed on said dates are as follows:

<u>Final Maturity</u>	<u>Redemption Date</u>	<u>Principal Amount of Wastewater Bonds Redeemed</u>
April 1, 2045	April 1, 2040	\$615,000
	April 1, 2041	\$635,000
	April 1, 2042	\$655,000
	April 1, 2043	\$675,000
	April 1, 2044	\$700,000
	April 1, 2045*	\$720,000
April 1, 2049	April 1, 2046	\$740,000
	April 1, 2047	\$765,000
	April 1, 2048	\$785,000
	April 1, 2049*	\$810,000

*Final Maturity of Wastewater Bonds

At its option, to be exercised on or before the forty-fifth (45th) day next preceding any such redemption date, the City, acting by and through KUB, may (i) deliver to the Registration Agent for cancellation Bonds of the applicable series to be redeemed, in any aggregate principal amount desired, and/or (ii) receive a credit in respect

of its redemption obligation under this mandatory redemption provision for any Bonds of the maturity to be redeemed which prior to said date have been purchased or redeemed (otherwise than through the operation of this mandatory sinking fund redemption provision) and canceled by the Registration Agent and not theretofore applied as a credit against any redemption obligation under this mandatory sinking fund provision. Each Bond so delivered or previously purchased or redeemed shall be credited by the Registration Agent at 100% of the principal amount thereof on the obligation of KUB on such payment date and any excess shall be credited on future redemption obligations in chronological order, and the principal amount of Bonds to be redeemed by operation of this mandatory sinking fund provision shall be accordingly reduced.

Selection Of Bonds For Redemption And Notice Of Redemption

If less than all the Bonds of a series shall be called for redemption, the maturities to be redeemed shall be designated by the Board, in its discretion. If less than all the principal amount of the Bonds of a maturity shall be called for redemption, the interests within the maturity to be redeemed shall be selected as follows:

- (i) if the Bonds are being held under a Book-Entry-Only System by DTC, or a successor Depository, the amount of the interest of each DTC Participant in the Bonds to be redeemed shall be determined by DTC, or such successor Depository, by lot or such other manner as DTC, or such successor Depository, shall determine; or
- (ii) if the Bonds are not being held under a Book-Entry-Only System by DTC, or a successor Depository, the Bonds within the maturity to be redeemed shall be selected by the Registration Agent by lot or such other random manner as the Registration Agent in its discretion shall determine.

Notice of call for redemption, whether optional or mandatory, shall be given by the Registration Agent not less than twenty (20) nor more than sixty (60) days prior to the date fixed for redemption by sending an appropriate notice to the registered owners of the Bonds to be redeemed by first-class mail, postage prepaid, at the addresses shown on the Bond registration records of the Registration Agent as of the date of the notice; but neither failure to mail such notice nor any defect in any such notice so mailed shall affect the sufficiency of the proceedings for the redemption of any of the Bonds for which proper notice was given. The notice may state that it is conditioned upon the deposit of moneys in an amount equal to the amount necessary to effect the redemption with the Registration Agent no later than the redemption date ("Conditional Redemption"). As long as DTC, or a successor Depository, is the registered owner of the Bonds, all redemption notices shall be mailed by the Registration Agent to DTC, or such successor Depository, as the registered owner of the Bonds, as and when above provided, and neither the District nor the Registration Agent shall be responsible for mailing notices of redemption to DTC Participants or Beneficial Owners. Failure of DTC, or any successor Depository, to provide notice to any DTC Participant will not affect the validity of such redemption. From and after any redemption date, all Bonds called for redemption shall cease to bear interest if funds are available at the office of the Registration Agent for the payment thereof and if notice has been duly provided as set forth in the Resolution. In the case of a Conditional Redemption, the failure of the Board to make funds available in part or in whole on or before the redemption date shall not constitute an event of default, and the Registration Agent shall give immediate notice to the Depository or the affected Bondholders that the redemption did not occur and that the Bonds called for redemption and not so paid remain outstanding.

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ESTIMATED SOURCES AND USES OF FUNDS

The tables on the following pages set forth the estimated sources and uses of funds in connection with the issuance of the Bonds.

The Water Bonds

Sources:

Principal amount of the Water Bonds	\$19,995,000.00
Net Reoffering Premium	<u>\$ 1,211,303.60</u>
Total Sources	\$21,206,303.60

Uses:

Underwriter's Discount	\$ 74,981.25
Cost of Issuance	\$ 109,884.00
Deposit to the Construction Fund	<u>\$21,021,438.35</u>
Total Uses:	\$21,206,303.60

The Wastewater Bonds

Sources:

Principal amount of the Wastewater Bonds	\$16,000,000.00
Net Reoffering Premium	<u>\$ 970,122.15</u>
Total Sources	\$16,970,122.15

Uses:

Underwriter's Discount	\$ 27,162.50
Cost of Issuance	\$ 100,895.00
Deposit to the Construction Fund	<u>\$16,842,064.65</u>
Total Uses:	\$16,970,122.15

PAYMENT OF BONDS

The Bonds will bear interest from their date or from the most recent interest payment date to which interest has been paid or duly provided for, on the dates provided herein, such interest being computed upon the basis of a 360-day year of twelve 30-day months. Interest on each Bond shall be paid by check or draft of the Registration Agent to the person in whose name such Bond is registered at the close of business on the 15th day of the month next preceding the interest payment date. The principal of and premium, if any, on the Bonds shall be payable in lawful money of the United States of America at the principal corporate trust office of the Registration Agent.

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SECURITY FOR THE BONDS

SECURITY FOR THE WATER SYSTEM REVENUE BONDS, SERIES II-2019

Pledge Under the Water Bond Resolutions

The Water Bonds constitute and, when issued, will be part of an issue known as “Water System Revenue Bonds” under the Water Bond Resolutions. All Water Bonds are limited obligations of the City payable solely and ratably from the net revenues of the Water System of the City and are on a parity and equality of lien with the City's outstanding: (i) Water System Revenue Bonds, Series W-2011, dated December 1, 2011; (ii) Water System Revenue Refunding Bonds, Series X-2012, dated April 20, 2012; (iii) Water System Revenue Refunding Bonds, Series Y-2013, dated March 15, 2013; (iv) Water System Revenue Bonds, Series Z-2013, dated October 1, 2013; (v) Water System Revenue Bonds, Series AA-2014, dated September 18, 2014; (vi) Water System Revenue Refunding Bonds, Series BB-2015, dated May 1, 2015; (vii) Water System Revenue Bonds, Series CC-2015, dated May 20, 2015; (viii) Water System Revenue Bonds, Series DD-2016, dated August 5, 2016; (ix) Water System Revenue Refunding Bonds, Series EE-2016, dated August 5, 2016; (x) Water System Revenue Refunding Bonds, Series FF-2017, dated April 7, 2017; (xi) Water System Revenue Bonds, Series GG-2017, dated September 15, 2017; and (xii) Water System Revenue Bonds, Series HH-2018, dated September 14, 2018 (collectively, the “Outstanding Water System Bonds”). The Water Bonds, the Outstanding Water System Bonds and any future parity Water Bonds are sometimes hereinafter referred to as the “Water System Bonds”.

Neither the Water Bonds nor any of the Outstanding Water System Bonds are general obligations of the City, and no owner thereof shall have the right to compel the City to exercise its taxing power to pay principal of or premium or interest on the Water Bonds or any Outstanding Water System Bonds of the City.

Rate Covenant

The Water Bond Resolutions provide that the Board will fix rates and collect charges for water and the services, facilities and commodities furnished by the Water System to provide revenues sufficient to pay expenses and obligations related to the Water System and to meet a 1.20 debt service coverage ratio. See APPENDIX G “Summary of Certain Provisions of the Water Bond Resolutions – Rate Covenant” for additional information.

Additional Water Bonds

The City, acting through the Board, has covenanted in the Water Bond Resolutions that it will incur no indebtedness payable from the revenues of the Water System having priority over the Water System Bonds, including the Water Bonds.

The City, acting by and through KUB, or KUB may issue additional Water Bonds, notes or other obligations pursuant to the Water Bond Resolutions, provided that all payments required to be made to the Water Debt Service Fund and into any reserve fund which may be required under resolutions authorizing parity indebtedness are current as of the date of issuance of the additional Water Bonds, notes or other obligations, on a parity and equality of lien with the outstanding parity indebtedness with respect to the lien and claim of such additional Water Bonds, notes or other obligations to the net revenues of the Water System and the money on deposit in the Water Debt Service Fund for the purpose of (i) refunding any outstanding parity indebtedness, subordinate Water Bonds, notes, loan agreements or other obligations, provided that after the issuance of such additional parity indebtedness, the Aggregate Debt Service (as defined in the Water Bond Resolutions) on all outstanding parity indebtedness, including the additional parity indebtedness to be issued, in any fiscal year shall not increase by more than ten percent (10%) after the issuance of such additional parity indebtedness; (ii) for the purpose of financing the completion or equipping of improvements to the Water System for which outstanding parity indebtedness have previously been issued but only to the extent necessary to complete such improvements in the manner contemplated at the time of the issuance of the outstanding parity indebtedness that financed such

improvements; and (iii) for the purposes of refunding any outstanding parity indebtedness or any prior lien Water Bonds, subordinated Water Bonds, notes or other obligations or extending, improving or replacing the Water System or for any other lawful purpose under applicable law, if one of the following conditions shall have been met: (A) the Net Revenues (as defined in the Water Bond Resolutions) for any twelve-month period selected by the Board ending within the twelve months prior to the date of the issuance of the additional parity indebtedness must have been equal to at least 120% of the Maximum Annual Aggregate Debt Service (as defined in the Water Bond Resolutions) on outstanding parity indebtedness plus the Debt Service on the additional parity indebtedness proposed to be issued or (B) the estimated Net Revenues of the Water System for each of the three fiscal years next succeeding the issuance of the additional parity indebtedness, must be equal at least to 120% of Maximum Annual Aggregate Debt Service, any other outstanding parity indebtedness and all outstanding prior lien Water Bonds plus the Debt Service on the additional parity indebtedness proposed to be issued; provided, however, that if the additional parity indebtedness is to be issued for the acquisition or construction of any extension, improvement or replacement to the Water System, then the estimate of Net Revenues may be for the three fiscal years ensuing after the time that such improvement, extension or replacement is expected to be placed in service. **See APPENDIX E “Summary of Certain Provisions of the Water Bond Resolution – Additional Indebtedness” for additional information.**

SECURITY FOR THE WASTEWATER SYSTEM REVENUE BONDS, SERIES 2019

Pledge Under the Bond Resolution

The Wastewater Bonds constitute and, when issued, will be part of an issue known as “Wastewater System Revenue Bonds” under the Wastewater System Bond Resolutions. All Wastewater Bonds are limited obligations of the City payable solely and ratably from the net revenues of the Wastewater System of the City and are on a parity and equality of lien with the City's outstanding: (i) Wastewater System Revenue Bonds, Series 2010 (Federally Taxable Build America Bonds), dated February 10, 2010; (ii) Wastewater System Revenue Bonds, Series 2010C (Federally Taxable Build America Bonds), dated December 8, 2010; (iii) Wastewater System Revenue Refunding Bonds, Series 2012A, dated April 20, 2012; (iv) Wastewater System Revenue Bonds, Series 2012B, dated December 18, 2012 ; (v) Wastewater System Revenue Refunding Bonds, Series 2013A, dated March 15, 2013; (vi) Wastewater System Revenue Bonds, Series 2014A, dated September 18, 2014; (vii) Wastewater System Revenue Refunding Bonds, Series 2015A, dated May 1, 2015; (viii) Wastewater System Revenue Bonds, Series 2015B, dated May 20, 2015; (ix) Wastewater System Revenue Bonds, Series 2016, dated August 5, 2016; (x) Wastewater System Revenue Refunding Bonds, Series 2017A, dated April 7, 2017; (xi) Wastewater System Revenue Bonds, Series 2017B, dated September 15, 2017; and (xii) Wastewater System Revenue Bonds, Series 2018, dated September 14, 2018 (collectively, the “Outstanding Wastewater System Bonds”). The Wastewater Bonds, the Outstanding Wastewater System Bonds and any future parity bonds are sometimes hereinafter referred to as the “Wastewater System Bonds”.

Neither the Wastewater Bonds nor any of the Outstanding Wastewater System Bonds are general obligations of the City, and no owner thereof shall have the right to compel the City to exercise its taxing power to pay principal of or premium or interest on the Wastewater Bonds or any other Outstanding Wastewater System Bonds of the City.

Rate Covenant

The Wastewater Bond Resolutions provide that the Board will fix rates and collect charges for wastewater and the services, facilities and commodities furnished by the Wastewater System to provide revenues sufficient to pay expenses and obligations related to the Wastewater System and to meet a 1.20 debt service coverage ratio. See APPENDIX H “Summary of Certain Provisions of the Wastewater Bond Resolutions – Rate Covenant” for additional information.

Additional Wastewater Bonds

The City and the Board have covenanted in the Wastewater Bond Resolutions that it will incur no indebtedness payable from the revenues of the Wastewater System having priority over the Wastewater System Bonds, including the Wastewater Bonds.

The City, acting by and through KUB, or KUB may issue additional bonds, notes or other obligations pursuant to the Wastewater Bond Resolutions provided that all payments required to be made to the Wastewater Debt Service Fund and into any reserve fund which may be required under resolutions authorizing parity indebtedness are current as of the date of issuance of the additional bonds, notes or other obligations, on a parity and equality of lien with the outstanding parity indebtedness under the Wastewater Bond Resolution, with respect to the lien and claim of such additional bonds, notes or other obligations to the net revenues of the Wastewater System and the money on deposit in the Wastewater Debt Service Fund (i) for the purpose of refunding any outstanding parity indebtedness, subordinate bonds, notes, loan agreements or other obligations, provided that after the issuance of such additional parity indebtedness, the Aggregate Debt Service (as defined in the Wastewater Resolution) on all outstanding parity indebtedness, including the additional parity indebtedness to be issued, in any fiscal year shall not increase by more than ten percent (10%) after the issuance of such additional parity indebtedness; (ii) for the purpose of financing the completion or equipping of improvements to the Wastewater System for which outstanding parity indebtedness have previously been issued but only to the extent necessary to complete such improvements in the manner contemplated at the time of the issuance of the outstanding parity indebtedness that financed such improvements; and (iii) for the purposes of refunding any outstanding parity indebtedness or any prior lien bonds, subordinated bonds, notes or other obligations or extending, improving or replacing the Wastewater System or for any other lawful purpose under applicable law, if one of the following conditions shall have been met: (A) the Net Revenues (as defined in the Wastewater Resolution) for any twelve-month period selected by the Board ending within the twelve months prior to the date of the issuance of the additional parity indebtedness must have been equal to at least 120% of the Maximum Annual Aggregate Debt Service (as defined in the Wastewater Resolution) on outstanding parity indebtedness plus the Debt Service on the additional parity indebtedness proposed to be issued or (B) the estimated Net Revenues of the Wastewater System for each of the three fiscal years next succeeding the issuance of the additional parity indebtedness, must be equal at least to 120% of Maximum Annual Aggregate Debt Service, any other outstanding parity indebtedness and all outstanding prior lien bonds plus the Debt Service on the additional parity indebtedness proposed to be issued; provided, however, that if the additional parity indebtedness is to be issued for the acquisition or construction of any extension, improvement or replacement to the Wastewater System, then the estimate of Net Revenues may be for the three fiscal years ensuing after the time that such improvement, extension or replacement is expected to be placed in service. **See APPENDIX F “Summary of Certain Provisions of the Wastewater Bond Resolutions – Additional Indebtedness” for additional information.**

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BASIC DOCUMENTATION

BOOK-ENTRY-ONLY SYSTEM

The Bonds, when issued, will be registered in the name of Cede & Co., DTC's partnership nominee. When the Bonds are issued, ownership interests will be available to purchasers only through a book-entry-only system maintained by DTC (the "**Book-Entry-Only System**"). One or more fully-registered bond certificates will be issued for each maturity, in the entire aggregate principal amount of the Bonds and will be deposited with DTC.

DTC and its Participants. DTC is a limited-purpose trust company organized under the New York Bank Law, a "**banking organization**" within the meaning of the New York Banking Law, a member of the Federal Reserve System, a "**clearing corporation**" within the meaning of the New York Uniform Commercial Code, and a "**clearing agency**" registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934. DTC holds and provides asset servicing for securities that its participants (the "**Direct Participants**") deposit with DTC. DTC also facilitates the settlement among Direct Participants of securities transactions, such as transfers and pledges, in deposited securities through electronic computerized book-entry-only changes in DTC Participants' accounts, thereby eliminating the need for physical movement of securities certificates. Direct Participants include both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations. DTC is a wholly-owned subsidiary of The Depository Trust & Clearing Corporation ("**DTCC**"). DTCC, in turn, is owned by a number of its Direct Participants and Members of the National Securities Clearing Corporation, Government Securities Clearing Corporation, MBS Clearing Corporation, and Emerging Markets Clearing Corporation, (the "**NSCC**", "**GSCC**", "**MBSCC**", and "**EMCC**", also subsidiaries of DTCC), as well as by the New York Stock Exchange, Inc. (the "**NYSE**"), the American Stock Exchange LLC and the National Association of Securities Dealers, Inc. Access to the DTC system is also available to others, such as both U.S. and non-U.S. securities brokers and dealers, banks and trust companies that clear through or maintain a custodial relationship with a Direct DTC Participant, either directly or indirectly (the "**Indirect Participants**" and, together with the Direct Participants, the "**Participants**"). DTC has S&P's rating of "**AA+**." The rules applicable to DTC and its Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at www.dtcc.com.

Purchase of Ownership Interests. Purchases of the Bonds under the DTC system must be made by or through Direct Participants, which will receive a credit for the Bonds on DTC's records. The ownership interest of each actual purchaser of each Bond (a "**Beneficial Owner**") is in turn to be recorded on the Direct and Indirect Participants' records. Beneficial owners will not receive written confirmation from DTC of their purchase, but Beneficial Owners are expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the Direct or Indirect Participant through whom such Beneficial Owners entered into the transaction. Transfers of ownership interests in the Bonds are to be accomplished by entries made on the books of Direct and Indirect Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in the Bonds, except as specifically provided in the Bonds in the event that use of the book-entry-only system is discontinued.

Payments of Principal and Interest. Principal and interest payments on the Bonds will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit Direct Participants' accounts, upon DTC's receipt of funds and corresponding detail information from the Registration Agent on the payable date in accordance with their respective holdings shown on DTC's records, unless DTC has reason to believe it will not receive payment on such date. Payments by Direct and Indirect Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with municipal securities held for the accounts of customers in bearer form or registered in "**street name**", and will be the responsibility of such Participant and not of DTC, the City or the Registration Agent subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of redemption proceeds, principal, tender price and interest payments to Cede & Co. (or such other nominee as

may be requested by an authorized representative of DTC) is the responsibility of the Registration Agent, disbursement of such payments to Direct Participants shall be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners shall be the responsibility of Direct and Indirect Participants.

Notices. Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time. Beneficial Owners of Bonds may wish to take certain steps to augment transmission to them of notices of significant events with respect to the Bonds, such as redemptions, tenders, defaults, and proposed amendments to the bond documents. Beneficial Owners of the Bonds may wish to ascertain that the nominee holding the Bonds for their benefit has agreed to obtain and transmit notices to Beneficial Owners, or in the alternative, Beneficial Owners may wish to provide their names and addresses to the Registration Agent and request that copies of the notices be provided directly to them.

Redemption notices shall be sent to DTC. If less than all of the Bonds within a maturity are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in such maturity to be redeemed.

Neither DTC nor Cede & Co. (nor any other DTC nominee) will consent or vote with respect to the Bonds unless authorized by a Direct Participant in accordance with DTC's procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the City as soon as practicable after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).

NONE OF THE CITY, KUB, THE MUNICIPAL ADVISOR, THE UNDERWRITER OR THE REGISTRATION AGENT WILL HAVE ANY RESPONSIBILITY OR OBLIGATION TO SUCH PARTICIPANTS OR THE PERSONS FOR WHOM THEY ACT AS NOMINEES WITH RESPECT TO THE PAYMENT TO, OR THE PROVIDING OF NOTICE FOR, SUCH PARTICIPANTS OR THE PERSONS FOR WHOM THEY ACT AS NOMINEES.

Transfers of Bonds. To facilitate subsequent transfers, all Bonds deposited by Direct Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co. or such other name as may be requested by an authorized representative of DTC. The deposit of the Bonds with DTC and their registration in the name of Cede & Co. or such other nominee do not effect any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the Bonds; DTC's records reflect only the identity of the Direct Participants to whose accounts such Bonds are credited, which may or may not be the Beneficial Owners. The Direct and Indirect Participants will remain responsible for keeping account of their holdings on behalf of their customers.

None of the City, KUB, the Municipal Advisor, the Registration Agent or the Underwriter will have any responsibility or obligation, legal or otherwise, to any party other than to the registered owners of any Bond on the registration books of the Registration Agent.

NO ASSURANCE REGARDING DTC PRACTICES

The foregoing information in this section concerning DTC and DTC's book-entry-only system has been obtained from sources that the City acting by and through KUB, believes to be reliable, but the City, KUB, the Registration Agent and the Underwriter do not take any responsibility for the accuracy thereof.

So long as Cede & Co. is the registered owner of the Bonds as nominee of DTC, references herein to the holders or registered owners of the Bonds will mean Cede & Co. and will not mean the Beneficial Owners of the Bonds.

None of the City, KUB, the Registration Agent, the Municipal Advisor or the Underwriter will have any responsibility or obligation to the Participants, DTC or the persons for whom they act with respect to (i) the accuracy of any records maintained by DTC or by any Direct or Indirect Participant of DTC, (ii) payments or the providing of notice to Direct Participants, the Indirect Participants or the Beneficial Owners or (iii) any other action taken by DTC or its partnership nominee as owner of the Bonds.

For more information on the duties of the Registration Agent, please refer to the Resolution.

DEBT LIMITATIONS

Pursuant to Title 7, Chapter 34, Tennessee Code Annotated, as amended, there is no limit on the amount of bonds that may be issued when the City uses the statutory authority granted therein to issue bonds.

DISPOSITION OF BOND PROCEEDS

Water Bonds

The proceeds of the sale of the Water Bonds shall be applied as follows:

(a) an amount equal to interest accrued on the Water Bonds, if any, from the dated date until the date of delivery of the Water Bonds, if any, shall be deposited to the Water Debt Service Fund to be used to pay interest on the Water Bonds on the first interest payment date following delivery of the Water Bonds; and

(b) the remainder of the proceeds of the sale of the Water Bonds shall be used to pay the costs of the construction of improvements to and extensions to the Water System, cost related to the issuance and sale of the Water Bonds, including necessary legal, accounting and fiscal expenses, printing, engraving, advertising and similar expenses, administrative and clerical costs, rating agency fees, Registration Agent Fees and other necessary miscellaneous expenses incurred in connection with the issuance and sale of the Water Bonds (as more fully described in the Water Bond Resolutions) and other necessary miscellaneous expenses incurred in connection with the issuance and sale of the Water Bonds.

Wastewater Bonds

The proceeds of the sale of the Wastewater Bonds shall be applied as follows:

(a) an amount equal to interest accrued on the Wastewater Bonds from the dated date until the date of delivery of the Wastewater Bonds, if any, shall be deposited to the Wastewater Debt Service Fund to be used to pay interest on the Bonds on the first interest payment date following delivery of the Wastewater Bonds; and

(b) the remainder of the proceeds of the sale of the Wastewater Bonds shall be used to pay the costs of the construction of improvements to and extensions to the Wastewater System, cost related to the issuance and sale of the Wastewater Bonds, including necessary legal, accounting and fiscal expenses, printing, engraving, advertising and similar expenses, administrative and clerical costs, rating agency fees, Registration Agent Fees and other necessary miscellaneous expenses incurred in connection with the issuance and sale of the Wastewater Bonds (as more fully described in the Wastewater Bond Resolutions) and other necessary miscellaneous expenses incurred in connection with the issuance and sale of the Wastewater Bonds.

DISCHARGE AND SATISFACTION OF BONDS

The respective series of Bonds may be discharged and deemed paid as described in Appendix E, and Appendix F, which are "Summaries of Resolutions".

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LEGAL MATTERS

LITIGATION

There are no suits pending or, to KUB's knowledge, threatened challenging the legality or validity of the Bonds or the right of KUB to sell or issue the Bonds, or that will have an adverse impact on KUB's ability to pay debt service on the Bonds.

TAX MATTERS

Federal

General. Bass, Berry & Sims PLC, Knoxville, Tennessee, is Bond Counsel for the Bonds. Their opinion under existing law, relying on certain statements by KUB and assuming compliance by KUB with certain covenants, is that interest on the Bonds:

- is excluded from a bondholder's federal gross income under the Internal Revenue Code of 1986, as amended (the "Code"), and
- is not a preference item for a bondholder under the federal alternative minimum tax.

The Code imposes requirements on the Bonds that KUB must continue to meet after the Bonds are issued. These requirements generally involve the way that Bond proceeds must be invested and ultimately used. If KUB does not meet these requirements, it is possible that a bondholder may have to include interest on the Bonds in its federal gross income on a retroactive basis to the date of issue. KUB has covenanted to do everything necessary to meet these requirements of the Code.

A bondholder who is a particular kind of taxpayer may also have additional tax consequences from owning the Bonds. This is possible if a bondholder is:

- an S corporation,
- a United States branch of a foreign corporation,
- a financial institution,
- a property and casualty or a life insurance company,
- an individual receiving Social Security or railroad retirement benefits,
- an individual claiming the earned income credit or
- a borrower of money to purchase or carry the Bonds.

If a bondholder is in any of these categories, it should consult its tax advisor.

Bond Counsel is not responsible for updating its opinion in the future. It is possible that future events or changes in applicable law could change the tax treatment of the interest on the Bonds or affect the market price of the Bonds. See also the section "CHANGES IN FEDERAL AND STATE LAWS" below.

Bond Counsel expresses no opinion on the effect of any action taken or not taken in reliance upon an opinion of other counsel on the federal income tax treatment of interest on the Bonds, or under State, local or foreign tax law.

Bond Premium. If a bondholder purchases a Bond for a price that is more than the principal amount, generally the excess is "bond premium" on that Bond. The tax accounting treatment of bond premium is complex. It is amortized over time and as it is amortized a bondholder's tax basis in that Bond will be reduced. The holder of a Bond that is callable before its stated maturity date may be required to amortize the premium over a shorter period, resulting in a lower yield on such Bonds. A bondholder in certain circumstances may realize a taxable gain upon the sale of a Bond with bond premium, even though the Bond is sold for an amount less than or equal to the

owner's original cost. If a bondholder owns any Bonds with bond premium, it should consult its tax advisor regarding the tax accounting treatment of bond premium.

Original Issue Discount. A Bond will have "original issue discount" if the price paid by the original purchaser of such Bond is less than the principal amount of such Bond. Bond Counsel's opinion is that any original issue discount on these Bonds as it accrues is excluded from a bondholder's federal gross income under the Internal Revenue Code. The tax accounting treatment of original issue discount is complex. It accrues on an actuarial basis and as it accrues a bondholder's tax basis in these Bonds will be increased. If a bondholder owns one of these Bonds, it should consult its tax advisor regarding the tax treatment of original issue discount.

Information Reporting and Backup Withholding. Information reporting requirements apply to interest on tax-exempt obligations, including the Bonds. In general, such requirements are satisfied if the interest recipient completes, and provides the payor with a Form W-9, "Request for Taxpayer Identification Number and Certification," or if the recipient is one of a limited class of exempt recipients. A recipient not otherwise exempt from information reporting who fails to satisfy the information reporting requirements will be subject to "backup withholding," which means that the payor is required to deduct and withhold a tax from the interest payment, calculated in the manner set forth in the Code. For the foregoing purpose, a "payor" generally refers to the person or entity from whom a recipient receives its payments of interest or who collects such payments on behalf of the recipient.

If an owner purchasing a Bond through a brokerage account has executed a Form W-9 in connection with the establishment of such account, as generally can be expected, no backup withholding should occur. In any event, backup withholding does not affect the excludability of the interest on the Bonds from gross income for Federal income tax purposes. Any amounts withheld pursuant to backup withholding would be allowed as a refund or a credit against the owner's Federal income tax once the required information is furnished to the Internal Revenue Service.

State Taxes

Under existing law, the Bonds and the income therefrom are exempt from all present state, county and municipal taxes in Tennessee except (a) Tennessee excise taxes on interest on the Bonds during the period the Bonds are held or beneficially owned by any organization or entity, or other than a sole proprietorship or general partnership doing business in the State of Tennessee, and (b) Tennessee franchise taxes by reason of the inclusion of the book value of the Bonds in the Tennessee franchise tax base of any organization or entity, other than a sole proprietorship or general partnership, doing business in the State of Tennessee.

CHANGES IN FEDERAL AND STATE TAX LAW

From time to time, there are Presidential proposals, proposals of various federal committees, and legislative proposals in the Congress and in the states that, if enacted, could alter or amend the federal and state tax matters referred to herein or adversely affect the marketability or market value of the Bonds or otherwise prevent holders of the Bonds from realizing the full benefit of the tax exemption of interest on the Bonds. Further, such proposals may impact the marketability or market value of the Bonds simply by being proposed. It cannot be predicted whether or in what form any such proposal might be enacted or whether if enacted it would apply to bonds issued prior to enactment. In addition, regulatory actions are from time to time announced or proposed and litigation is threatened or commenced which, if implemented or concluded in a particular manner, could adversely affect the market value, marketability or tax status of the Bonds. It cannot be predicted whether any such regulatory action will be implemented, how any particular litigation or judicial action will be resolved, or whether the Bonds would be impacted thereby. Purchasers of the Bonds should consult their tax advisors regarding any pending or proposed legislation, regulatory initiatives or litigation. The opinions expressed by Bond Counsel are based upon existing legislation and regulations as interpreted by relevant judicial and regulatory authorities as of the date of issuance and delivery of the Bonds, and Bond Counsel has expressed no opinion as of any date subsequent thereto or with respect to any proposed or pending legislation, regulatory initiatives or litigation.

Prospective purchasers of the Bonds should consult their own tax advisors regarding the foregoing matters.

CLOSING CERTIFICATES

Upon delivery of the Bonds, the Board and / or KUB will execute in a form satisfactory to Bond Counsel, certain closing certificates (which may be combined into one or more certificates) including the following: (i) A certificate as to the OFFICIAL STATEMENT, in final form, signed by the President & Chief Executive Officer and the Chief Financial Officer of KUB acting in their official capacity to the effect that to the best of their knowledge and belief, and after reasonable investigation, (a) neither the OFFICIAL STATEMENT, in final form, nor any amendment or supplement thereto, contains any untrue statements of material fact or omits to state any material fact necessary to make statements therein, in light of the circumstances in which they are made, misleading, (b) since the date of the OFFICIAL STATEMENT, in final form, no event has occurred which should have been set forth in such a memo or supplement, (c) there has been no material adverse change in the operation or the affairs of KUB since the date of the OFFICIAL STATEMENT, in final form, and having attached thereto a copy of the OFFICIAL STATEMENT, in final form, and (d) there is no litigation of any nature pending or threatened seeking to restrain the issuance, sale, execution and delivery of the Bonds, or contesting the validity of the Bonds or any proceeding taken pursuant to which the Bonds were authorized; (ii) a non-arbitrage certificate which supports the conclusions that based upon facts, estimates and circumstances in effect, upon delivery of the Bonds, the proceeds of the Bonds will not be used in a manner which would cause the Bonds to be arbitrage Bonds; (iii) certificates as to the delivery and payment, signed by the President and CEO and the CFO acting in their official capacity, evidencing delivery of and payment for the Bonds; and (iv) a signature identification and incumbency certificate, signed by the President and Chief Executive Officer and the CFO of KUB acting in their official capacities certifying as to the due execution of the Bonds.

APPROVAL OF LEGAL PROCEEDINGS

Certain legal matters relating to the authorization and the validity of the Bonds are subject to the approval of Bass, Berry & Sims PLC, Knoxville, Tennessee, Bond Counsel. Bond counsel has not prepared the PRELIMINARY OFFICIAL STATEMENT or the OFFICIAL STATEMENT, in final form, or verified their accuracy, completeness or fairness. Accordingly, bond counsel expresses no opinion of any kind concerning the PRELIMINARY OFFICIAL STATEMENT or OFFICIAL STATEMENT, in final form, except for the information under the caption "LEGAL MATTERS- Tax Matters". The opinion of Bond Counsel will be limited to matters relating to authorization and validity of the Bonds and to the tax-exemption of interest on the Bonds under present federal income tax laws, both as described above. The legal opinion will be delivered with the Bonds and is included in APPENDIX A, hereto.

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MISCELLANEOUS

RATINGS

S&P Global Ratings (“S&P”) and Moody’s Investor Services, Inc. (“Moody’s”) have given the Water Bonds the ratings of “AAA” and “Aa1”, respectively. S&P and Moody’s have given the Wastewater Bonds the ratings of “AA+” and “Aa2”, respectively.

KUB furnished S&P and Moody’s with certain information and materials concerning the Bonds, the City and KUB. Generally, S&P and Moody’s base their ratings on such information and materials and also on such investigations, studies and assumptions that they may undertake independently. Such ratings reflect only the views of such organizations and explanations of the significance of such ratings should be obtained from such agencies.

There is no assurance that such ratings will continue for any given period of time or that the ratings may not be suspended, lowered or withdrawn entirely by S&P and Moody’s, if circumstances so warrant. Due to the ongoing uncertainty regarding the economy of the United States of America, including, without limitation, matters such as the future political uncertainty regarding the United States debt limit, obligations issued by state and local governments, such as the Bonds, could be subject to a rating downgrade. Additionally, if a significant default or other financial crisis should occur in the affairs of the United States or of any of its agencies or political subdivisions, then such event could also adversely affect the market for and ratings, liquidity, and market value of outstanding debt obligations, including the Bonds. Any such downward change in or withdrawal of the ratings may have an adverse effect on the secondary market price of the Bonds.

Any explanation of the significance of the ratings may be obtained only from S&P and Moody’s.

COMPETITIVE PUBLIC SALE

The Bonds were offered for sale at competitive public bidding on the sale date indicated in the OFFICIAL NOTICE OF SALE. Details concerning the public sale were provided to potential bidders and others in the PRELIMINARY OFFICIAL STATEMENT dated July 18, 2019.

The successful bidder for the Water Bonds was an account led by Citigroup Global Markets Inc. (the “Water Underwriters”) who contracted with the City, acting by and through KUB, subject to the conditions set forth in the Official Notice of Sale and Bid Form, to purchase the Water Bonds at a purchase price of \$21,131,322.35 (consisting of the par amount of the Water Bonds, plus a net reoffering premium of \$1,211,303.60 and less an underwriter’s discount of \$74,981.25) or 105.683033% of par.

The successful bidder for the Wastewater Bonds was an account led by FTN Financial Capital Markets (the “Wastewater Underwriters”) who contracted with the City, acting by and through KUB, subject to the conditions set forth in the Official Notice of Sale and Bid Form, to purchase the Wastewater Bonds at a purchase price of \$16,942,959.65 (consisting of the par amount of the Wastewater Bonds, plus a net reoffering premium of \$970,122.15 and less an underwriter’s discount of \$27,162.50) or 105.893498% of par.

MUNICIPAL ADVISOR; RELATED PARTIES; OTHER

Municipal Advisor. Cumberland Securities Company, Inc., Knoxville, Tennessee, has served as Municipal Advisor (the “Municipal Advisor”) to KUB for purposes of assisting with the development and implementation of a bond structure in connection with the issuance of the Bonds. The Municipal Advisor has not been engaged by KUB to compile, create, or interpret any information in the PRELIMINARY OFFICIAL STATEMENT and OFFICIAL STATEMENT relating to KUB, including without limitation any of KUB’s financial and operating data, whether historical or projected. Any information contained in the PRELIMINARY OFFICIAL STATEMENT and OFFICIAL STATEMENT concerning KUB, any of its affiliates or contractors and

any outside parties has not been independently verified by the Municipal Advisor, and inclusion of such information is not, and should not be construed as, a representation by the Municipal Advisor as to its accuracy or completeness or otherwise. The Municipal Advisor is not a public accounting firm and has not been engaged by KUB to review or audit any information in the PRELIMINARY OFFICIAL STATEMENT and OFFICIAL STATEMENT in accordance with accounting standards.

Regions Bank. Regions Bank (the “Bank”) is a wholly-owned subsidiary of Regions Financial Corporation. The Bank provides, among other services, commercial banking, investments and corporate trust services to private parties and to State and local jurisdictions, including serving as registration, paying agent, filing agent or escrow agent related to debt offerings. The Bank will receive compensation for its role in serving as Registration and Paying Agent for the Bonds. In instances where the Bank serves KUB in other normal commercial banking capacities, it will be compensated separately for such services.

Official Statements. Certain information relative to the location, economy and finances of the Issuer is found in the PRELIMINARY OFFICIAL STATEMENT, in final form and the OFFICIAL STATEMENT, in final form. Except where otherwise indicated, all information contained in this Official Statement has been provided by KUB. The information set forth herein has been obtained by KUB from sources which are believed to be reliable but is not guaranteed as to accuracy or completeness by, and is not to be construed as a representation of, the Municipal Advisor or the Underwriter. The information contained herein is subject to change without notice, and neither the delivery of this Official Statement nor any sale made hereunder shall under any circumstances create an implication that there has been no change in the affairs of KUB, or the other matters described herein since the date hereof or the earlier dates set forth herein as of which certain information contained herein is given.

Cumberland Securities Company, Inc. distributed the PRELIMINARY OFFICIAL STATEMENT, in final form, and the OFFICIAL STATEMENT, in final form on behalf of KUB and will be compensated and/or reimbursed for such distribution and other such services.

Bond Counsel. From time to time, Bass, Berry & Sims PLC has represented the Bank on legal matters unrelated to KUB and may do so again in the future.

Other. Among other services, Cumberland Securities Company, Inc. and the Bank may also assist local jurisdictions in the investment of idle funds and may serve in various other capacities, including Cumberland Securities Company’s role as serving as KUB’s Dissemination Agent. If KUB chooses to use one or more of these other services provided by Cumberland Securities Company, Inc. and/or the Bank, then Cumberland Securities Company, Inc. and/or the Bank may be entitled to separate compensation for the performance of such services.

INDEPENDENT ACCOUNTANTS

The financial statements of the Water Division and the Wastewater Division of KUB, as of June 30, 2018 for the year then ended, included in this Official Statement, have been audited by Coulter & Justus, P.C., independent accountants, as stated in their report appearing herein.

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FUTURE BONDS

KUB does expect to occasionally sell, from time to time, additional Water System Bonds and Wastewater System Bonds to finance normal and customary extensions and improvements to the Systems, and to refinance certain outstanding bonds at lower interest rates.

CONTINUING DISCLOSURE

KUB will at the time the Bonds are delivered execute a Continuing Disclosure Certificate as to each System under which it will covenant for the benefit of holders and Beneficial Owners of the Bonds to provide certain financial information and operating data relating to KUB by not later than twelve months after the end of each fiscal year commencing with the fiscal year ending June 30, 2019 (the "Annual Report"), and to provide notice of the occurrence of certain significant events not later than ten business days after the occurrence of the events and notice of failure to provide any required financial information of KUB. The issuer will provide notice in a timely manner to the MSRB of a failure by KUB to provide the annual financial information on or before the date specified in the continuing disclosure agreement. The Annual Report (and audited financial statements if filed separately) and notices described above will be filed by KUB with the Municipal Securities Rulemaking Board ("MSRB") at www.emma.msrb.org and with any State Information Depository which may be established in Tennessee (the "SID"). The specific nature of the information to be contained in the Annual Report or the notices of events is summarized below. These covenants have been made in order to assist the Underwriters in complying with Securities Exchange Act Rule 15c2-12(b), as it may be amended from time to time (the "Rule 15c2-12").

Five-Year History of Filing. While it is believed that all appropriate filings were made with respect to the ratings of KUB's outstanding bond issues, some of which were insured by the various municipal bond insurance companies, no absolute assurance can be made that all such rating changes of the bonds or various insurance companies which insured some transaction were made or made in a timely manner as required by Rule 15c2-12. KUB does not deem any of the forgoing omissions to be material, and therefore, in the judgment of KUB for the past five years, KUB has complied in all material respects with its existing continuing disclosure agreements in accordance with Rule 15c2-12.

Content of Annual Reports. KUB's Annual Report shall contain or incorporate by reference the audited financial statements of each System for the prior fiscal year, prepared in accordance with accounting principles generally accepted in the United States of America, and audited in accordance with auditing standards generally accepted in the United States of America; provided, however, if KUB's audited financial statements are not available by the time the Annual Report is required to be filed, the Annual Report shall contain unaudited financial statements in a format similar to the financial statements contained herein, and the audited financial statements shall be filed when available. The Annual Report shall also include in a similar format the following information included in APPENDIX B entitled "SUPPLEMENTAL INFORMATION STATEMENT."

Water System.

1. Water Rates of the Water Division as shown on page B-13 through B-18;
2. Operating statistics and customer numbers for such year as shown on page B-20;
3. Statement of revenues, expenses and changes in net position - Knoxville Utilities Board Water Division for the fiscal year as shown on page B-21;
4. The ten largest Water customers of the Water Division as shown on page B-23;
5. Summary of outstanding bonded indebtedness as shown on page B-24;
6. Summary of bonded debt service requirements as shown on page B-25; and

7. Historical Debt Service Coverages on Outstanding Water Bonds as shown on page B-26.

Wastewater System.

1. Wastewater Rates of the Wastewater Division as shown on page C-13 through C-21;
2. Operating statistics and customer numbers for such year as shown on page C-23;
3. Statement of revenues, expenses and changes in net position - Knoxville Utilities Board Wastewater Division for the fiscal year as shown on page C-24;
4. The ten largest Wastewater customers of the Wastewater Division as shown on page C-25;
5. Summary of outstanding bonded indebtedness as shown on page C-26;
6. Summary of bonded debt service requirements as shown on page C-27; and
7. Historical Debt Service Coverages as shown on page C-28.

Any or all of the items listed above may be incorporated by reference from other documents, including OFFICIAL STATEMENTS in final form for debt issues of KUB or the City or related public entities, which have been submitted to the MSRB's EMMA site. If the document incorporated by reference is a final OFFICIAL STATEMENT, in final form, it will be available from the Municipal Securities Rulemaking Board. KUB or the City shall clearly identify each such other document so incorporated by reference.

Reporting of Significant Events. KUB will file notice regarding material events with the MSRB and the SID, if any, as follows:

1. Upon the occurrence of a Listed Event (as defined in (3) below), KUB shall in a timely manner, but in no event more than ten (10) business days after the occurrence of such event, file a notice of such occurrence with the MSRB and SID, if any.
2. For Listed Events where notice is only required upon a determination that such event would be material under applicable Federal securities laws, KUB shall determine the materiality of such event as soon as possible after learning of its occurrence.
3. The following are the Listed Events:
 - a. Principal and interest payment delinquencies;
 - b. Non-payment related defaults, if material;
 - c. Unscheduled draws on debt service reserves reflecting financial difficulties;
 - d. Unscheduled draws on credit enhancements reflecting financial difficulties;
 - e. Substitution of credit or liquidity providers, or their failure to perform;
 - f. Adverse tax opinions, the issuance by the Internal Revenue Service of proposed or final determinations of taxability, Notices of Proposed Issue (IRS Form 5701-TEB) or other material notices or determinations with respect to the tax status of the Bonds or other material events affecting the tax status of the Bonds;

- g. Modifications to rights of Bondholders, if material;
- h. Bond calls, if material, and tender offers;
- i. Defeasances;
- j. Release, substitution, or sale of property securing repayment of the securities, if material;
- k. Rating changes;
- l. Bankruptcy, insolvency, receivership or similar event of the obligated person;
- m. The consummation of a merger, consolidation or acquisition involving an obligated person or the sale of all or substantially all of the assets of the obligated person, other than in the ordinary course of business, the entry into a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms, if material;
- n. Appointment of a successor or additional trustee or the change of name of a trustee, if material;
- o. Incurrence of a financial obligation (which includes a debt obligation, a derivative instrument entered into connection with, or pledged as security or as a source of payment for, an existing or planned debt obligation, or a guarantee of debt obligation or derivative instrument) of KUB, if material, or agreement as to covenants, events of default, remedies, priority rights, or other similar terms of a financial obligation of KUB, any of which affect security holders, if material; and
- p. Default, event of acceleration, termination event, modification of terms, or other similar events under the terms of a financial obligation (as described above) of KUB, any of which reflect financial difficulties.

Termination of Reporting Obligation. KUB's obligations under the Disclosure Certificate shall terminate upon the legal defeasance, prior redemption or payment in full of all of the Bonds.

Amendment; Waiver. Notwithstanding any other provision of a Disclosure Certificate, KUB may amend any Disclosure Certificate, and any provision of a Disclosure Certificate may be waived, provided that the following conditions are satisfied:

(a) If the amendment or waiver relates to the provisions concerning the Annual Report and reporting of material significant events it may only be made in connection with a change in circumstances that arises from a change in legal requirements, change in law, or change in the identity, nature or status of an obligated person with respect to the Bonds, or the type of business conducted;

(b) The undertaking, as amended or taking into account such waiver, would, in the opinion of nationally recognized bond counsel, have complied with the requirements of the Rule at the time of the original issuance of the Bonds, after taking into account any amendments or interpretations of the Rule, as well as any change in circumstances; and

(c) The amendment or waiver either (i) is approved by the holders of the applicable Bonds, or (ii) does not, in the opinion of nationally recognized bond counsel, materially impair the interests of the holders or Beneficial Owners of the Bonds.

In the event of any amendment or waiver of a provision of a Disclosure Certificate, KUB shall describe such amendment in the next Annual Report, and shall include, as applicable, a narrative explanation of the reason for the amendment or waiver and its impact on the type (or, in the case of a change of accounting principles, on the presentation) of financial information or operating data being presented by KUB. In addition, if the amendment relates to the accounting principles to be followed in preparing financial statements, (i) notice of such change shall be given, and (ii) the Annual Report for the year in which the change is made should present a comparison (in narrative form and also, if feasible, in quantitative form) between the financial statements as prepared on the basis of the new accounting principles and those prepared on the basis of the former accounting principles.

Default. In the event of a failure of KUB to comply with any provision of a Disclosure Certificate, any holder or any beneficial owner may take such actions as may be necessary and appropriate, including seeking mandate or specific performance by court order, to cause KUB to comply with its obligations under the Disclosure Certificate. A default under a Disclosure Certificate shall not be deemed an event of default, if any, under any Resolution and the sole remedy under each Disclosure Certificate in the event of any failure of KUB to comply with the Disclosure Certificate shall be an action to compel performance.

ADDITIONAL INFORMATION

Use of the words "shall," "must," or "will" in the OFFICIAL STATEMENT in summaries of documents or laws to describe future events or continuing obligations is not intended as a representation that such event will occur or obligation will be fulfilled but only that the document or law contemplates or requires such event to occur or obligation to be fulfilled.

Any statements made in the OFFICIAL STATEMENT involving estimates or matters of opinion, whether or not so expressly stated, are set forth as such and not as representations of fact, and no representation is made that any of the estimates or matters of opinion will be realized. Neither the OFFICIAL STATEMENT nor any statement which may have been made orally or in writing is to be construed as a contract with the owners of the Bonds.

The references, excerpts and summaries contained herein of certain provisions of the laws of the State of Tennessee, and any documents referred to herein, do not purport to be complete statements of the provisions of such laws or documents, and reference should be made to the complete provisions thereof for a full and complete statement of all matters of fact relating to the Bonds, the security for the payment of the Bonds, and the rights of the holders thereof.

The OFFICIAL STATEMENT, in final form, and any advertisement of the Bonds, is not to be construed as a contract or agreement between the City and the purchasers of any of the Bonds. Any statements or information printed in this OFFICIAL STATEMENT, in final form, involving matters of opinions or of estimates, whether or not expressly so identified, is intended merely as such and not as representation of fact.

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CERTIFICATION OF ISSUER

On behalf of the City and KUB, we hereby certify that to the best of our knowledge and belief, the information contained herein as of this date is true and correct in all material respects, and does not contain an untrue statement of material fact or omit to state a material fact required to be stated where necessary to make the statement made, in light of the circumstance under which they were made, not misleading.

KNOXVILLE UTILITIES BOARD

/s/ Gabriel J. Bolas II
President and CEO

/s/ Mark A. Walker
Senior Vice President and CFO

APPENDIX A

LEGAL OPINIONS

**LAW OFFICES OF
BASS, BERRY & SIMS PLC
900 SOUTH GAY STREET, SUITE 1700
KNOXVILLE, TENNESSEE 37902**

Ladies and Gentlemen:

We have acted as bond counsel in connection with the issuance by the City of Knoxville, Tennessee (the "Issuer") of \$19,995,000 Water System Revenue Bonds, Series II-2019, dated August 20, 2019 (the "Bonds"). In such capacity, we have examined the law and such certified proceedings and other papers as we deemed necessary to render this opinion.

As to questions of fact material to our opinion, we have relied upon the certified proceedings and other certifications of public officials and others furnished to us without undertaking to verify such facts by independent investigation.

Based on the foregoing, we are of the opinion, as of the date hereof, as follows:

1. The Bonds have been duly authorized, executed and issued in accordance with the constitution and laws of the State of Tennessee and are valid and binding obligations of the Issuer.

2. Resolution No. R-207-2019 of the City Council of the Issuer authorizing the Bonds has been duly and lawfully adopted, is in full force and effect and is a valid and binding agreement of the Issuer enforceable in accordance with its terms.

3. The principal of, premium, if any, and interest on the Bonds are payable solely from and secured by a pledge of the income and revenues to be derived from the operation of the water distribution and treatment system of the Issuer, subject only to the payment of the reasonable and necessary costs of operating, maintaining, repairing, and insuring said system and on a parity and equality of lien with the Issuer's outstanding Water System Revenue Bonds, Series W-2011, dated December 1, 2011, maturing March 1, 2020 and thereafter, its outstanding Water System Revenue Refunding Bonds, Series X-2012, dated April 20, 2012, maturing March 1, 2020 and thereafter, its outstanding Water System Revenue Refunding Bonds, Series Y-2013, dated March 15, 2013, maturing March 1, 2020 and thereafter, its outstanding Water System Revenue Bonds, Series Z-2013, dated October 1, 2013, maturing March 1, 2020 and thereafter, its outstanding Water System Revenue Bonds, Series AA-2014, dated September 18, 2014, maturing March 1, 2020 and thereafter, its outstanding Water System Revenue Refunding Bonds, Series BB-2015, dated May 1, 2015, maturing March 1, 2020 and thereafter, its outstanding Water System Revenue Bonds, Series CC-2015, dated May 20, 2015, maturing March 1, 2020 and thereafter, its outstanding Water System Revenue Bonds, Series DD-2016, dated August 5, 2016, maturing March 1, 2020 and thereafter, its outstanding Water System Revenue Refunding Bonds, Series EE-2016, dated August 5, 2016, maturing March 1, 2020 and thereafter, its outstanding Water System Revenue Refunding Bonds, Series FF-2017, dated April 7, 2017, maturing March 1, 2020 and thereafter, its outstanding Water System Revenue Bonds, Series GG-2017, dated September 15, 2017, maturing March 1, 2020 and thereafter, and its outstanding Water System Revenue Bonds, Series HH-2018, dated September 14, 2018, maturing March 1, 2020 and thereafter. We express no opinion as to the sufficiency of such revenues for the payment of principal of, premium, if any, or interest on the Bonds. The owners of the Bonds shall have no recourse to the power of taxation of the Issuer.

4. Interest on the Bonds (including any original issue discount properly allocable to an owner thereof) is excluded from gross income for federal income tax purposes and is not an item of tax preference for purposes of the federal alternative minimum tax. The opinion set forth in the preceding sentence is subject to the condition that the Issuer comply with all requirements of the Internal Revenue Code of 1986, as amended, that must be satisfied subsequent to the issuance of the Bonds in order that interest thereon be, or continue to be, excluded from gross income for federal income tax purposes. The Issuer has covenanted to comply with all such requirements. Failure to comply with certain of such requirements could cause interest on the Bonds to be so included in gross income retroactive to the date of issuance of the Bonds. Except as set forth in this Paragraph 4, we express no opinion regarding other federal tax consequences arising with respect to the Bonds.

5. Under existing law, the Bonds and the income therefrom are exempt from all present state, county and municipal taxation in Tennessee except (a) Tennessee excise taxes on all or a portion of the interest on any of the Bonds during the period such Bonds are held or beneficially owned by any organization or entity, other than a sole proprietorship or general partnership, doing business in the State of Tennessee, and (b) Tennessee franchise taxes by reason of the inclusion of the book value of the Bonds in the Tennessee franchise tax base or any organization or entity, other than a sole proprietorship or general partnership, doing business in the State of Tennessee.

It is to be understood that the rights of the owners of the Bonds and the enforceability of the Bonds and the resolution authorizing the Bonds may be limited by bankruptcy, insolvency, reorganization, moratorium and other similar laws affecting creditors' rights generally and by equitable principles, whether considered at law or in equity.

We express no opinion herein as to the accuracy, adequacy or completeness of the Official Statement relating to the Bonds.

This opinion is given as of the date hereof and we assume no obligation to update or supplement this opinion to reflect any facts or circumstances that may hereafter come to our attention or changes in law that may hereafter occur.

Very truly yours,

26788891.1

**LAW OFFICES OF
BASS, BERRY & SIMS PLC
900 SOUTH GAY STREET, SUITE 1700
KNOXVILLE, TENNESSEE 37902**

Ladies and Gentlemen:

We have acted as bond counsel in connection with the issuance by the City of Knoxville, Tennessee (the "Issuer") of \$16,000,000 Wastewater System Revenue Bonds, Series 2019, dated August 20, 2019 (the "Bonds"). In such capacity, we have examined the law and such certified proceedings and other papers as we deemed necessary to render this opinion.

As to questions of fact material to our opinion, we have relied upon the certified proceedings and other certifications of public officials and others furnished to us without undertaking to verify such facts by independent investigation.

Based on the foregoing, we are of the opinion, as of the date hereof, as follows:

1. The Bonds have been duly authorized, executed and issued in accordance with the constitution and laws of the State of Tennessee and are valid and binding obligations of the Issuer.

2. Resolution No. R-208-2019 of the City Council of the Issuer authorizing the Bonds has been duly and lawfully adopted, is in full force and effect and is a valid and binding agreement of the Issuer enforceable in accordance with its terms.

3. The principal of, premium, if any, and interest on the Bonds are payable solely from and secured by a pledge of the income and revenues to be derived from the operation of the wastewater treatment and collection system of the Issuer, subject only to the payment of the reasonable and necessary costs of operating, maintaining, repairing, and insuring said system and on a parity and equality of lien with the Issuer's outstanding Wastewater System Revenue Bonds, Series 2010 (Federally Taxable Build America Bonds), dated February 10, 2010, maturing April 1, 2043 and thereafter, its outstanding Wastewater System Revenue Bonds, Series 2010C (Federally Taxable Build America Bonds), dated December 8, 2010, maturing April 1, 2020 and thereafter, its outstanding Wastewater System Revenue Refunding Bonds, Series 2012A, dated April 20, 2012, maturing April 1, 2020 and thereafter, its outstanding Wastewater System Revenue Bonds, Series 2012B, dated December 18, 2012, maturing April 1, 2020 and thereafter, its outstanding Wastewater System Revenue Refunding Bonds, Series 2013A, dated March 15, 2013, maturing April 1, 2020 and thereafter, its outstanding Wastewater System Revenue Bonds, Series 2014A, dated September 18, 2014, maturing April 1, 2020 and thereafter, its outstanding Wastewater System Revenue Refunding Bonds, Series 2015A, dated May 1, 2015, maturing April 1, 2020 and thereafter, its outstanding Wastewater System Revenue Bonds, Series 2015B, dated May 20, 2015, maturing April 1, 2020 and thereafter, its outstanding Wastewater System Revenue Bonds, Series 2016, dated August 5, 2016, maturing April 1, 2020 and thereafter, its outstanding Wastewater System Revenue Refunding Bonds, Series 2017A, dated April 7, 2017, maturing April 1, 2020 and thereafter, its outstanding Wastewater System Revenue Bonds, Series 2017B, dated September 15, 2017, maturing April 1, 2020 and thereafter, and its outstanding Wastewater System Revenue Bonds, Series 2018, dated September 14, 2018, maturing April 1, 2020 and thereafter. We express no opinion as to the sufficiency of such revenues for the payment of principal of, premium, if any, or interest on the Bonds. The owners of the Bonds shall have no recourse to the power of taxation of the Issuer.

4. Interest on the Bonds (including any original issue discount properly allocable to an owner thereof) is excluded from gross income for federal income tax purposes and is not an item of tax preference for purposes of the federal alternative minimum tax. The opinion set forth in the preceding sentence is subject to the condition that the Issuer comply with all requirements of the Internal Revenue Code of 1986, as amended, that must be satisfied subsequent to the issuance of the Bonds in order that interest thereon be, or continue to be, excluded from gross income for federal income tax purposes. The Issuer has covenanted to comply with all such requirements. Failure to comply with certain of such requirements could cause interest on the Bonds to be so included in gross income retroactive to the date of issuance of the Bonds. Except as set forth in this Paragraph 4, we express no opinion regarding other federal tax consequences arising with respect to the Bonds.

5. Under existing law, the Bonds and the income therefrom are exempt from all present state, county and municipal taxation in Tennessee except (a) Tennessee excise taxes on all or a portion of the interest on any of the Bonds during the period such Bonds are held or beneficially owned by any organization or entity, other than a sole proprietorship or general partnership, doing business in the State of Tennessee, and (b) Tennessee franchise taxes by reason of the inclusion of the book value of the Bonds in the Tennessee franchise tax base or any organization or entity, other than a sole proprietorship or general partnership, doing business in the State of Tennessee.

It is to be understood that the rights of the owners of the Bonds and the enforceability of the Bonds and the resolution authorizing the Bonds may be limited by bankruptcy, insolvency, reorganization, moratorium and other similar laws affecting creditors' rights generally and by equitable principles, whether considered at law or in equity.

We express no opinion herein as to the accuracy, adequacy or completeness of the Official Statement relating to the Bonds.

This opinion is given as of the date hereof and we assume no obligation to update or supplement this opinion to reflect any facts or circumstances that may hereafter come to our attention or changes in law that may hereafter occur.

Very truly yours,

26788926.1

THE WATER DIVISION

THE WATER DIVISION

INTRODUCTION

The Water Division has been owned and operated by the City since 1909. The Water Division consists of a complete system for the treatment, storage and distribution of water.

The Water Division distributes water to 79,923 customers on an exclusive basis covering 188 square miles throughout the City and on a non-exclusive basis in portions of Knox, Sevier and Jefferson counties.

SOURCE OF WATER SUPPLY

The KUB service area is supplied with water from the Tennessee River. The river furnishes an abundant supply of water for the Mark B. Whitaker Plant (the "MBW"), which is KUB's sole water plant and has a capacity of 62 million gallons per day (MGD).

Tennessee Valley Authority reservoirs are upstream, providing the river a year-round flow far in excess of the City's needs. Even during drought conditions, Knoxville's water supply has been more than adequate to meet customer requirements. MBW's average flow for fiscal year 2018 was 34.1 MGD.

KUB is committed to delivering a reliable supply of high quality drinking water to its customers. KUB's water quality laboratory is one of the few utility laboratories in the state certified by the State Department of Health and Environment to perform the complicated analysis necessary to maintain compliance with all federal drinking water regulations. The Safe Drinking Water Act of 1986 provides for mandatory disinfection and filtration treatment processes, which the Water Division has constantly maintained.

Capital projects that have recently improved the water filtration facilities at MBW include new filter valves and actuators. Those upgrades provide more operational flexibility for the plant.

KUB's excellent track record in providing high quality, reliable water supply to its customers has been achieved by maintaining excess capacity. KUB's reliance on a single water treatment plant combined with rising customer expectations and the potential for natural and man-made impacts on the water system provided the impetus to reassess KUB's long-term strategy.

With an objective of achieving redundant firm capacity of approximately 40 MGD, two major options were considered, including (1) the construction of a second water plant on a different portion of KUB's water system and (2) a combination of projects that would provide redundancy at MBW and "harden" key elements of KUB's existing treatment processes at MBW.

After careful consideration, KUB is in the process of implementing redundancy and hardening at MBW through a series of capital projects, including the construction of a second full treatment train adjacent to the current plant. This additional treatment train will include dual

intakes upstream of MBW on the Holston and French Broad Rivers, additional filters/clarifiers, new pumping and storage facilities, and new high service transmission mains extending from MBW.

This approach will meet reliability goals, mitigate primary risk factors at MBW, and provide additional operational flexibility for day-to-day plant operations, while achieving a considerable savings compared to the construction of a second treatment plant. KUB will invest approximately \$149 million in various redundant facilities at its existing MBW Treatment Plant over a 14-year period that began in fiscal year 2017. This cost is significantly less than the estimated \$250 million it would cost to construct a second water plant with 40 MGD treatment capacity. The deployment will be funded by debt and incremental rate increases beginning fiscal year 2017. In April 2015, KUB management presented a modified long-term funding plan for the Water Division to the KUB Board of Commissioners that accommodates the projected level of capital investment. The water rate increases previously adopted by the Board for July 2015 and July 2016 were not modified.

KUB constructed a new Low Service Pump Station (LSPS) in May 2014 to address the reliability of the raw water pumping system at MBW. The system moves raw water from the Tennessee River to the MBW clarification system. The \$8.5 million project included a new 70 MGD pump station with four submersible pumps, a new electrical building, piping, and controls to help KUB provide safe, high quality water for many years to come.

In fiscal year 2017, KUB completed the transition to a new disinfection system at the MBW Treatment plant.

THE WATER DISTRIBUTION SYSTEM

KUB's water distribution system territory covers 188 square miles. The system includes 24 pump stations, 28 storage facilities, and 1,407 miles of water service main.

Century II is KUB's proactive long-range program to improve and maintain the electric, natural gas, water and wastewater systems for its customers. It includes the maintenance and asset replacement strategies for each system and establishes sustainable replacement cycles. Century II moves KUB into its second century of service by improving each system through sound planning, resource allocation, and continued, but accelerated, investment.

KUB's Century II programs were resumed in 2011, after a break due to the economic recession. At that time, the KUB Board formally endorsed a ten-year funding plan for the water system, including a combination of rate increases and debt issues. The Board also approved three years of annual water rate increases for fiscal years 2012 through 2014.

In April 2014, KUB management provided the Board an updated assessment of the overall condition of each utility system and the progress made during the resumption of the Century II program. A revised ten-year funding plan for the water system, including recommendations for annual rate increases and debt issues to fully fund the programs for each division, was included in the assessment.

In June 2014, the Board approved three annual rate increases for the Water Division. The three rate increases were effective July 2014, July 2015 and July 2016. The July 2014, July 2015, and July 2016 rate increases provided an additional \$3.6 million, \$2 million, and \$2 million of additional annual Water Division revenue, respectively.

In fiscal year 2015, KUB concluded the smart grid pilot project, of which a portion of the project was funded by a United States Department of Energy Smart Grid Investment Grant (SGIG). This grant was received by KUB in 2009 as part of the American Reinvestment and Recovery Act (ARRA). Based upon the success of that pilot, KUB formed a plan to move forward with a Century II initiative, which includes advanced metering for all KUB customers, a telecommunication system linking critical KUB infrastructure, and an increased investment in automation technology to help operate KUB's energy and water distribution systems. Over the course of ten years, KUB plans to spend \$124.4 million in this effort, of which the Water Division's share is \$25.1 million. The deployment is funded in large part by debt issues and system revenues. As of June 30, 2018, KUB completed the second year of the advanced meter deployment. KUB has replaced approximately 46 percent of its water meters, spending \$10.8 million on the advanced meter deployment.

In May 2017, a new Century II funding resolution was adopted by the KUB Board to express the continued commitment to funding Century II programs for the next ten years. The funding will be achieved through a combination of rate increases and debt issues supplemented by cost savings and new revenue from net customer additions.

In June 2017, the Board approved the next phase of water rate increases to support the Century II program. The first two of the three rate increases went into effect July 2017 and July 2018, generating \$3.1 million of additional annual Water Division revenue each. The remaining rate increase is effective in July 2019 and is expected to provide an additional \$3.3 million in annual revenue to help fund the Water Division.

KUB staff and the Board are beginning discussions on the future rate increases beginning to provide for funding of Century II programs. Future increases are anticipated to be effective July 2020 and follow the three-year annual increase format previously utilized by the Board.

KUB remains on track with its Century II water system infrastructure program. In fiscal year 2018, KUB replaced 6.4 miles of galvanized water main and 6.6 miles of cast iron main.

PENSION PLAN

Description of Plan

The Knoxville Utilities Board Pension Plan (the Plan) is a governmental plan as defined by the Employee Retirement Income Security Act of 1974 (ERISA or the Act), is not subject to any of the provisions of the Act, and was revised January 1, 2017 to include all prior approved amendments. The Plan is a single-employer contributory, defined benefit pension plan established by Knoxville Utilities Board Resolution No. 980 dated February 18, 1999, effective July 1, 1999, as authorized by the Charter of the City of Knoxville §1107(J). The Plan is designed to provide

retirement, disability and death benefits to KUB employees. KUB administers the Plan through an Administrative Committee consisting of seven KUB employees that are appointed by KUB's President and CEO. Any amendments to the Plan involving costs not approved in the operating budget must be adopted by KUB's Board of Commissioners, upon recommendation by KUB's President and CEO. All other amendments to the Plan may be approved by KUB's President and CEO upon 60 days notification to the Board's Audit and Finance Committee. The Plan issues a financial report, which includes financial statements and required supplementary information. The report may be obtained by writing the Knoxville Utilities Board Retirement System, P.O. Box 59017, Knoxville, TN 37950-9017. For purposes of this disclosure, presentation is on a consolidated basis unless division's share is specified.

Effective January 1, 2011, KUB closed the Plan such that persons employed or re-employed by KUB on or after January 1, 2011, are not eligible to participate, but that eligible employees hired prior to January 1, 2011, who have not separated from service, shall continue as Participants and to accrue benefits under the Plan.

Participants in the Plan consisted of the following as of December 31:

	2017	2016
Inactive plan members:		
Terminated vested participants	34	43
Retirees and beneficiaries	602	605
Active plan members	<u>629</u>	<u>662</u>
Total	<u>1,265</u>	<u>1,310</u>

Retirement Benefits

The Plan provides three benefit arrangements for KUB participants, retirees, and beneficiaries.

The Plan provides pension benefits through the Career Equity Program ("CEP") for eligible employees hired on or after January 1, 1999, and for eligible former "City System Plan A" participants who elected CEP coverage as of July 1, 1999. The guaranteed pension benefit payable to a participant who has completed five or more years of service (or reached the normal retirement date, if earlier) upon termination of KUB employment shall be a lump sum equal to the participant's average compensation times their benefit percentage, as defined in the Plan document, or an annuity may be chosen by the participant.

In addition, the Plan provided retirement benefits through "Plan A" for former City System Plan A participants who elected not to participate in the CEP. Plan A is a closed plan and is not available to KUB employees hired after July 1, 1999. Plan A provides for early retirement benefits with 25 years of service and normal retirement benefits at age 62 or later. Benefits provided to Plan A participants include several different forms of monthly annuity payments.

The Plan also provides retirement benefits through "Plan B" for former "City System Plan B" participants. Plan B is a closed plan providing benefits to participants not covered by Social Security. Benefits provided to Plan B participants include several different forms of monthly

annuity payments available to participants.

Effective January 1, 2012, KUB began to provide for additional monthly supplements, which are not subject to cost of living adjustments, to certain former employees and surviving dependents of former employees who are eligible for and have elected coverage under the KUB retiree medical plan and are eligible for Medicare. This was done to compensate for the elimination of drug coverage under the KUB retiree medical plan and to assist such individuals in obtaining prescription drug coverage under Medicare Part D.

Contributions

Participation in Plan A requires employee contributions of 3 percent of the first \$4,800 of annual earnings and 5 percent of annual earnings in excess of \$4,800. KUB contributions are determined by the enrolled actuary of the Plan and equal the amount necessary to provide the benefits under the Plan determined by the application of accepted actuarial methods and assumptions. The method of funding shall be consistent with Plan objectives.

Plan Funding

KUB maintains a Funding Policy for the Plan in accordance with Tennessee State Law. The primary goal of the Policy is to document the method KUB has adopted to provide assurance that future KUB and employee contributions and current Plan assets will be sufficient to fund all benefits expected to be paid to current active, inactive and retired Plan participants and their beneficiaries. Per the Funding Policy, KUB fully funds its annual Actuarially Determined Contribution.

Investments

The Plan's investments are held by State Street Bank and Trust Company (the "Trustee"). The Plan's policy in regard to the allocation of invested assets is established by the Retirement System Investment Committee and approved by the KUB Board of Commissioners and may only be amended by the KUB Board of Commissioners. It is the policy of the Retirement System Investment Committee to pursue an investment strategy that reduces risk through the prudent diversification of the portfolio across a broad selection of distinct asset classes. The following was the Plan's adopted asset allocation policy as of December 31, 2017:

Asset Class	Target
Domestic equity – large cap	20% - 50%
Domestic equity – mid cap	0% - 15%
Domestic equity – small cap	0% - 15%
Domestic equity – convertible securities	0% - 10%
Non-U.S. equity	0% - 20%
Real estate equity	0% - 10%
Fixed income – aggregate bonds	5% - 25%
Fixed income – long-term bonds	10% - 25%
Cash and deposits	0% - 5%

Contributions of \$3,756,283 and \$4,816,913 for 2016 and 2015, respectively, were made

during the Plan sponsor's fiscal years ending June 30, 2018 and 2017, respectively. Of these amounts, \$488,317 and \$626,199 are attributable to the Water Division. The fiscal year 2018 contribution was determined as part of the January 1, 2016 valuation using the Individual Entry Age Normal funding method. The objective under this method is to fund each participant's benefits under the Plan as payments which are level as a percentage of salary, starting on the original participation date (employment date) and continuing until the assumed retirement, termination, disability or death.

The Pension Plan actuarial valuation for the Plan year ending December 31, 2017 resulted in an actuarially determined contribution of \$3,156,661 for the fiscal year ending June 30, 2019, based on the Plan's current funding policy. The Water Division's portion of this contribution is \$410,366. Subsequent to June 30, 2018, the actuarial valuation for the Plan year ending December 31, 2018 was completed. The actuarial valuation resulted in an actuarially determined contribution of \$2,585,824 for the fiscal year ending June 30, 2020, based on the Plan's current funding policy. The Water Division's portion of this contribution is \$336,157. For the Plan year ending December 31, 2018, the Plan's actuarial funded ratio was 107.84 percent.

See Appendix D-2 for additional pension plan information.

QUALIFIED EXCESS BENEFIT ARRANGEMENT (QEBA)

Description

In fiscal year 2017, KUB implemented a qualified governmental excess benefit arrangement (QEBA) under IRC section 415(m), which was created by Congress to allow the payment of pension benefits that exceed the IRC section 415(b) limits (and therefore cannot be paid from a qualified retirement plan). The QEBA is a single-employer defined benefit pension plan, administered by KUB. The number of participants in any given year for the QEBA is determined by the number of KUB Pension Plan participants who exceed the current year's section 415(b) limitations, as calculated by the KUB Pension Plan actuary. The amount of QEBA benefit will be the amount specified by the terms of the KUB Pension Plan without regard to Section 415(b) limitations minus the amount payable from the KUB Pension Plan as limited by Section 415(b). QEBA benefits are not subject to cost of living adjustments.

As of June 30, 2018, there are 602 active employees eligible for the KUB Pension Plan who are potentially eligible to receive QEBA benefits. There are no inactive employees or retirees currently in the QEBA. The KUB Pension Plan was closed effective January 1, 2011, such that persons employed or re-employed by KUB on or after January 1, 2011, are not eligible to participate, but that eligible employees hired prior to January 1, 2011, who have not separated from service, shall continue as Participants and accrue benefits under the KUB Pension Plan. The KUB Pension Plan was amended to include the provision of QEBA benefits, therefore, amendments to the QEBA require the same authority as amendments to the KUB Pension Plan. As required by federal tax law, the QEBA is unfunded within the meaning of the federal tax laws. KUB may not pre-fund the QEBA to cover future liabilities beyond the current year. KUB has established procedures to pay for these benefits on a pay-as-you-go basis, funded by KUB. There are no assets accumulated in a trust that meets the GASB's criteria.

Implementation of GASB 73

In fiscal year 2016, KUB adopted GASB Statement No. 73, *Accounting and Financial Reporting for Pensions and Related Assets That Are Not within the Scope of GASB Statement 68, and Amendments to Certain Provisions of GASB Statements 67 and 68* ("GASB 73"). GASB 73 extends a similar approach of financial reporting to plans meeting specific criteria that are not administered through trusts that GASB 68 established for pension plans. GASB 73 requires measurement of the total pension liability of the QEBA. The amounts reported as of June 30 must be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 and 2017 will be based on the December 31, 2017 and 2016 measurement dates, respectively. The Division's share of the total pension liability at June 30, 2018 is \$36,444 and at June 30, 2017 is \$24,060.

GASB 73 requires certain disclosures related to the total pension liability of the QEBA, as disclosed below:

	2017	2016
Total pension liability	\$280,341	\$185,077
Deferred outflows	(69,716)	-
Deferred inflows	-	-
Net impact on Statement of Net Position	<u>\$210,625</u>	<u>\$185,077</u>
Covered payroll	\$43,309,374	\$44,437,747
Total pension liability as a % of covered payroll	0.65%	0.42%

Changes in total pension liability of the QEBA are as follows:

	<u>Increase (Decrease)</u>
	<u>Total Pension Liability</u>
Balances at December 31, 2016	\$ 185,077
Changes for the year:	
Service cost	584
Interest	7,535
Changes of Benefits	-
Differences between Expected and Actual Experience	13,684
Changes of Assumptions	73,461
Contributions – employer	-
Contributions – rollovers	-
Contributions – member	-
Net investment income	-
Benefit payments	-
Net changes	<u>95,264</u>
Balances at December 31, 2017	<u>\$ 280,341</u>

Actuarial Assumptions

The total pension liability of the QEBA was determined by an actuarial valuation as of January 1, 2017 and projected to December 31, 2017, using the following actuarial assumptions, applied to all periods included in the measurement:

Actuarial cost method	Individual entry age
Asset valuation method	5-year smoothed market
Amortization method	Level dollar closed period with 24 years remaining as of January 1, 2017 and 25 years remaining as of January 1, 2016
Salary increase	From 2.80% to 5.15% for January 1, 2017 and January 1, 2016, based on years of service
Mortality	Sex distinct RP-2000 Combined Mortality projected to 2024 using Scale AA
Inflation	2.8 percent

The actuarial assumptions used in the January 1, 2017 valuation were based on the results of an actuarial experience study for the period January 1, 2009 through December 31, 2013.

Discount rate

The QEBA is not funded. In accordance with paragraph 31 of GASB 73, the discount rate is based on the Bond Buyer 20-Bond GO index. This rate was 3.44% at December 31, 2017.

Sensitivity of the total pension liability to changes in the discount rate

The following presents the total pension liability of the QEBA as of December 31, 2017, calculated using the discount rate of 3.44 percent, as well as what the QEBA's total pension liability would be if it were calculated using a discount rate that is one percent lower (2.44 percent) or one percent higher (4.44 percent) than the current rate:

	1% Decrease (2.44%)	Current Discount Rate (3.44%)	1% Increase (4.44%)
QEBA's total pension liability	\$ 307,013	\$ 280,341	\$ 257,483

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

For the year ended June 30, 2018, KUB recognized pension expense of \$29,527 for the QEBA (Division's share \$3,838). This amount is not expected to be the same as KUB's contribution to the QEBA (\$3,979), but instead represents the change in the net impact on KUB's Statement of Net Position plus employer contributions [\$210,625 - \$185,077 + \$3,979].

The impact of experience gains or losses and assumption changes on the total pension liability are recognized in the pension expense over the average expected remaining service life of all active and inactive members, determined as of the beginning of the measurement period. As

of December 31, 2016, this average was 5 years. During the measurement year, there was an experience loss of \$13,684 with approximately \$2,737 recognized in the current year and each of the next four years, resulting in a deferred outflow of \$10,947 (Division's share \$1,423).

During the measurement year, there were no benefit changes. There was an increase in the total pension liability due to assumption changes of \$73,461 with approximately \$14,692 recognized in the current year and each of the next four years, resulting in a deferred outflow of \$58,769 (Division's share \$7,640).

The table below summarizes the current balances of deferred outflows and deferred inflows of resources along with the net recognition over future years:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 10,947	\$ -
Changes in assumptions	58,769	-
Total	<u>\$ 69,716</u>	<u>\$ -</u>
Division's share	<u>\$ 9,063</u>	<u>\$ -</u>

Year ended June 30:

2019	\$ 17,429
2020	17,429
2021	17,429
2022	17,429
Thereafter	-

For the year ended June 30, 2017, KUB recognized pension expense of \$185,077 for the QEBA (Division's share \$24,060). This amount is not expected to be the same as KUB's contribution to the QEBA (\$0), but instead represents the change in the net impact on KUB's Statement of Net Position plus employer contributions.

The impact of experience gains or losses and assumption changes on the total pension liability are recognized in the pension expense over the average expected remaining service life of all active and inactive members, determined as of the beginning of the measurement period. As of December 31, 2015, this average was 5 years. During the measurement year, there were no assumption changes or experience gains or losses. The benefit change of \$0.2 million is due to the implementation of the QEBA. Benefit changes are reflected immediately in the total pension liability of the QEBA.

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OTHER POST-EMPLOYMENT BENEFITS (OPEB)

Description of Trust

The Knoxville Utilities Board Other Post Employment Benefits Trust (the Trust) is a single-employer Other Post Employment Benefits Plan (the OPEB Plan) established by the Knoxville Utilities Board of Commissioners through Resolution No. 1168, as amended, dated October 18, 2007. The applicable documentation was submitted to the State Funding Board and, in December 2007, the State Funding Board approved the Trust. The Trust was also approved by the Internal Revenue Service in June 2008. KUB administers the Trust through a Board of Trustees consisting of seven KUB employees that are appointed by KUB's President and CEO. Any amendments to the Trust involving costs not approved in the operating budget must be approved by KUB's Board of Commissioners, upon recommendation by KUB's President and CEO. All other amendments to the Trust may be approved by KUB's President and CEO upon 60 days notification to the Board's Audit and Finance Committee. The investment of all deposits to the Trust is governed by an Investment Policy, which was adopted by the KUB Board and approved by the State Funding Board. The Trust issues a financial report, which includes financial statements and required supplementary information. The report may be obtained by writing the Knoxville Utilities Board Retirement System, P.O. Box 59017, Knoxville, TN 37950-9017. For purposes of this disclosure, presentation is on a consolidated basis unless division's share is specified.

Effective July 1, 1999, KUB closed the OPEB Plan such that persons employed or re-employed by KUB on or after July 1, 1999, are not eligible to participate, but that eligible employees hired prior to July 1, 1999, who are retired and who (prior to retirement) qualified for retiree medical insurance by meeting the "Rule of 80", the sum of age and at least 20 years of qualified service equal or exceed 80, accrue benefits under the Plan.

Participants in the OPEB Plan consisted of the following as of June 30:

	<u>2018</u>	<u>2017</u>
Retirees	562	567
Dependents of retirees	561	580
Eligible active employees	309	334
Total	<u>1,432</u>	<u>1,481</u>

Benefits

Other post-employment benefits may include, but shall not be limited to, medical, prescription drugs, dental, vision, hearing, Medicare Part B or Part D premiums, life insurance, long-term care, and long-term disability. Only medical and pharmacy are currently provided to eligible retirees.

Contributions and Plan Funding

The primary goal of the Funding Policy for the Trust is to document the method KUB has adopted to provide assurance that future KUB and retiree contributions and current Trust assets will be sufficient to fund all benefits expected to be paid to Trust beneficiaries. Per the Funding

Policy, KUB's current practice is to fully fund its annual Actuarially Determined Contribution, which is determined by actuarial valuation.

Contributions are authorized by the terms of the Trust as established by KUB Resolution No. 1168, as amended, as approved by the Tennessee State Funding Board. KUB shall have the right at any time to amend, in whole or in part, the provisions of this Trust; however, no such amendment shall authorize or permit the assets of the Trust to be used for or diverted to purposes other than those expressed in the Declaration of Trust.

It shall be the sole and exclusive responsibility of KUB to determine the level of contributions KUB will make to the Trust for the purpose of financing other post-employment benefits accrued by its respective participants. Neither the Trust, nor the Trust's Board shall be responsible for collecting or otherwise determining the level of contributions needed by KUB to finance any other post-employment benefits offered by KUB. The assets of the Trust shall be expended solely to make payments for other post-employment benefits pursuant to and in accordance with the terms of the Trust and to pay the cost of administration.

Based on the date of retirement, certain retired plan members are required to contribute specified amounts monthly to maintain health insurance. Those who retired prior to July 1983 have no required monthly premiums for themselves or dependents. The retirees, or their surviving dependents, who retired between August 1983 and January 1998 are required to pay \$250 per month for pre-Medicare family health insurance. For individuals who retired after January 1998 the required monthly premium for pre-Medicare health insurance is \$250 for single coverage and \$500 for family coverage. There is currently no premium for Medicare eligible retirees or dependents. KUB is responsible for determining the level of retired plan member contributions on an annual basis, as part of its review of healthcare cost sharing.

Investments

The Trust holds investments in a balanced fund, which invests in passively managed common trust index funds, managed and sponsored by State Street Global Advisors (SSgA), with an asset allocation mirroring the asset allocation of the Trust and rebalanced monthly. The Trust's Investment Policy was established and may only be amended by the KUB Board of Commissioners. The Trust's Investment Policy is to invest in a manner that will provide sufficient investment return to meet current and future retiree health benefits, while conforming to all governing State and Federal statutes. It allows investment of Trust assets in any type of security instrument allowed for in T.C.A 8-50-1203. The following was the Trust's adopted investment target allocations as set forth in the Trust's Investment Policy as of June 30, 2018:

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Asset Class	Target Allocation
Domestic Equity:	
Large Cap	30%
Small Cap	8%
International Equity:	
Developed	16%
Emerging	8%
Real Estate Equity	8%
Debt Securities	30%
Total	100%

Contributions of zero and \$620,015 were made to the OPEB Trust for the fiscal years ending June 30, 2018 and 2017, respectively, based on the OPEB Plan's actuarial valuations as of January 1, 2016, and 2015. Of these amounts, zero and \$80,602 were attributable to the Water Division.

The OPEB Plan actuarial valuation as of January 1, 2017 resulted in an actuarially determined contribution of zero for the fiscal year ending June 30, 2019, based on the Plan's current funding policy. Subsequent to June 30, 2018, the actuarial valuation as of January 1, 2018 was completed. The actuarial valuation resulted in an actuarially determined contribution of \$311,324 for the fiscal year ending June 30, 2020, based on the Plan's current funding policy. The Water Division's portion of this contribution is \$40,472. The Plan's actuarial funded ratio was 102.78 percent.

See Appendix D-2 for additional OPEB information.

FISCAL YEAR 2019 FINANCIAL UPDATE

In October 2018, Gabriel Bolas II, Senior Vice President and Chief Engineer, was sworn in as KUB's seventh President and CEO. He was selected by the KUB Board of Commissioners to replace Mintha Roach, who served in the position since 2004.

KUB sold \$20 million in water system revenue bonds in August 2018 for the purpose of funding water system capital improvements. As of April 30, 2019, the Water Division had \$192.8 million in outstanding debt, representing a debt to capitalization ratio of 50.8 percent. The Water Division's current maximum debt service coverage ratio is projected to be 2.26, for the twelve months ending June 30, 2019.

For the ten months ending April 30, 2019, KUB's Water Division had earnings of \$9.1 million, representing an increase of \$1.7 million from the previous fiscal year. This increase is the net result of the July 2018 rate increase offset by lower sales volumes. Water sales volumes decreased 2.1 percent compared to last fiscal year, with summer watering use impaired by a 42 percent increase in precipitation compared to the prior fiscal year. The increase in precipitation includes a record-breaking amount of rainfall for the month of February 2019 in the Knoxville area.

Capital investment in water system infrastructure is projected to be approximately \$37.6 million for fiscal year 2019, reflecting KUB's continued commitment to the timely replacement of aging water pipe.

In May 2019, the KUB Board of Commissioners adopted the resolution to approve the fiscal year 2020 budget appropriations of \$91.3 million for the Water Division. The funding of the fiscal year 2020 budget anticipates the debt issuance of \$20 million in water revenue bonds.

WATER RATES

The current rate schedules of the Water Division are as follows:

WATER GENERAL SERVICE - RESIDENTIAL

Availability

Service under this rate schedule shall be available only to residential customers served individually through a separate meter.

An existing customer or applicant for service under this schedule may be required to execute a contract specifying, among other things, a minimum bill and minimum term for service under this schedule.

Rate

The Water Service Charge shall be calculated using the applicable rate tables provided below, based on the customer's meter size and monthly water usage.

In the event more than one meter is utilized to determine billed consumption, multiple customer charges may apply. Charges will apply without regard to ownership of the meter(s).

I. Inside City Rate

For water furnished to premises entirely within the corporate limits of the City of Knoxville:

	<u>Customer Charge</u>
5/8" meter	\$17.00
1" meter	\$31.10
1 ½" meter	\$43.00
2" meter	\$59.00

For meters greater than 2" the Customer Charges listed in the Water Nonresidential schedule shall be utilized.

	<u>Commodity Charge</u>
First	2 Ccf at \$0.75 per Ccf
Over	2 Ccf at \$2.65 per Ccf

II. Outside City Rate

For water furnished to premises upon which any water faucet or other outlet is outside the corporate limits of the City of Knoxville:

	<u>Customer Charge</u>
5/8" meter	\$18.40
1" meter	\$35.40
1 ½" meter	\$49.40
2" meter	\$68.40

For meters greater than 2" the Customer Charges listed in the Water Nonresidential schedule shall be utilized.

	<u>Commodity Charge</u>
First	2 Ccf at \$0.80 per Ccf
Over	2 Ccf at \$3.20 per Ccf

Rules and Regulations

Service is subject to Rules and Regulations of KUB.

WATER GENERAL SERVICE – NONRESIDENTIAL

Availability

Service under this rate schedule shall be available to any commercial or industrial customer.

An existing customer or applicant for service under this schedule may be required to execute a contract specifying, among other things, a minimum bill and minimum term for service under this schedule.

Rate

The Water Service Charge shall be calculated using the applicable rate tables provided below, based on the customer's meter size and monthly water usage.

In the event more than one meter is utilized to determine billed consumption, multiple customer charges may apply. Charges will apply without regard to ownership of the meter(s).

I. Inside City / Industrial Park Rate

For water furnished to premises entirely within the corporate limits of the City of Knoxville or within the boundaries of an area recognized as an industrial park by the Tennessee Department of Economic and Community Development:

<u>Customer Charge</u>	
5/8" meter	\$17.00
1" meter	\$31.10
1 ½" meter	\$43.00
2" meter	\$59.00
3" meter	\$151.00
4" meter	\$250.00
6" meter	\$547.00
8" meter	\$963.00
10" meter	\$1,468.00
12" meter	\$2,170.00

<u>Commodity Charge</u>	
First	2 Ccf at \$ 1.95 per Ccf
Next	8 Ccf at \$ 4.20 per Ccf
Next	90 Ccf at \$ 5.25 per Ccf
Next	300 Ccf at \$ 3.85 per Ccf
Next	4,600 Ccf at \$ 2.40 per Ccf
Over	5,000 Ccf at \$ 1.10 per Ccf

II. Outside – City Rate

For water furnished to premises upon which any water faucet or other outlet is outside the corporate limits of the City of Knoxville, excluding premises within the boundaries of an area recognized as an industrial park by the Tennessee Department of Economic and Community Development:

<u>Customer Charge</u>	
5/8" meter	\$18.40
1" meter	\$35.40
1 ½" meter	\$49.40
2" meter	\$68.40
3" meter	\$180.00
4" meter	\$301.00
6" meter	\$658.00
8" meter	\$1,156.00
10" meter	\$1,759.00
12" meter	\$2,606.00

	<u>Commodity Charge</u>
First	2 Ccf at \$2.30 per Ccf
Next	8 Ccf at \$4.90 per Ccf
Next	90 Ccf at \$6.30 per Ccf
Next	300 Ccf at \$4.50 per Ccf
Next	4,600 Ccf at \$2.90 per Ccf
Over	5,000 Ccf at \$1.35 per Ccf

Rules and Regulations

Service is subject to Rules and Regulations of KUB.

Schedule B – PRIVATE FIRE SERVICE

Availability

Under this schedule, KUB provides water supply to privately owned automatic sprinklers or hose outlets. Such service is available to any residential, commercial, or industrial customer.

Rate

The private Fire Service Charge shall be calculated using the table below based on the customer's fire line connections.

	<u>Monthly Service Charge per Connection</u>
Connection less than 4"	\$ 24.20
4" Connection	\$ 78.93
6" Connection	\$175.77
8" Connection	\$308.10
10" Connection	\$471.57
12" Connection and greater	\$693.57

These service charges shall be in addition to the charge for any water use through fire line connections. The amount of unmetered water so used, as determined by KUB, shall be paid for at KUB's applicable rate schedules.

No charge under this Schedule B shall be made where the water supply to private fire protection facilities is through one or more metered connection(s) for which payment is made under the Water General Service – Nonresidential Rate Schedule.

No credit for charges under this rate schedule shall be allowed against the Water General Service – Nonresidential Rate Schedule charge for water supplied through a fire line to one or more metered connection(s) where the fire line serves as a connecting line between the metered connection(s) and KUB's mains.

Rules and Regulations

Service is subject to Rules and Regulations of KUB.

SCHEDULE C – UNMETERED GOVERNMENT SERVICE

For water used from KUB's mains with KUB's permission by any department of a governmental entity through unmetered fire hydrants for purposes other than for public fire service:

I. Inside – City Rate

The total amount of water used monthly by each department of a governmental entity for such purposes through a fire hydrant within the corporate limits of the City of Knoxville shall be billed to each such department at the Inside City rates set forth in the Water General Service – Nonresidential Rate Schedule.

II. Outside – City Rate

The total amount of water used monthly by each department of a governmental entity for such purposes through a fire hydrant outside the corporate limits of the City of Knoxville shall be billed to each such department at the Outside City rates set forth in the Water General Service – Nonresidential Rate Schedule.

Rules and Regulations

Service is subject to Rules and Regulations of KUB.

SCHEDULE D – PUBLIC FIRE PROTECTION SERVICE

Availability

Service under this schedule shall be available only to a governmental entity that undertakes to provide public fire protection service for an area that contains at least four square miles. KUB reserves the right to require any applicant for service under this schedule to execute a contract specifying, among other things, a minimum bill and minimum term for service.

Rate

For public fire protection service rendered, the governmental entity shall pay KUB a fire protection service charge at the rate of \$492.22 per year for each KUB owned public fire hydrant located within the jurisdictional boundaries of the governmental entity and within areas provided public fire protection service by such governmental entity. In addition to the fire protection service

charge, the governmental entity shall pay for all water used for fire fighting at rates set forth in the Water General Service – Nonresidential Rate Schedule.

KUB may contract with other utility providers to supply public fire protection service to an eligible governmental entity in any service area (or portion thereof), where KUB determines it desirable to do so. Charges to a governmental entity for fire protection service provided under such a contract shall be at the same rate specified above, and the hydrants of the utility provider utilized under such a contract shall be deemed to be facilities owned by KUB for the sole purpose of calculating charges under this schedule.

Rules and Regulations

Service is subject to Rules and Regulations of KUB.

SCHEDULE E – SALES FOR RESALE

Availability

For water purchased on an interruptible basis for resale by a customer that does not use KUB as its sole supplier of water. This service shall be available only on an interruptible basis and only to the extent, in KUB's sole opinion, that such service can be supplied through existing facilities without adversely affecting water service to any other customer of KUB. Nothing contained herein shall prevent KUB from providing water for resale under the Water General Service – Nonresidential Rate Schedule.

Commodity Charge

\$1.60 per 100 Cubic Feet

Any unauthorized usage under this tariff shall be billed at the Outside City rates set forth in the Water General Service – Nonresidential Rate Schedule.

Rules and Regulations

Service is subject to Rules and Regulations of KUB.

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**KNOXVILLE UTILITIES BOARD
WATER DIVISION
CAPITALIZATION HISTORY**

Historical	Fiscal Year	Accumulated Earnings	Contributed Capital	Revenue Bonds	Revenue Notes	Total Capitalization	Debt as % of Capitalization
	2014	\$ 152,112,627	\$ -	\$ 123,385,000	\$ -	\$ 275,497,627	44.79%
	2015	\$ 156,999,177	\$ -	\$ 148,400,000	\$ -	\$ 305,399,177	48.59%
	2016	\$ 162,993,675	\$ -	\$ 143,990,000	\$ -	\$ 306,983,675	46.90%
	2017	\$ 169,034,244	\$ -	\$ 164,635,000	\$ -	\$ 333,669,244	49.34%
	2018	\$ 177,840,321	\$ -	\$ 179,165,000	\$ -	\$ 357,005,321	50.19%

KNOXVILLE UTILITIES BOARD
WATER DIVISION
OPERATING STATISTICS
for the Fiscal Years ending on June 30

	2014	2015	2016	2017	2018
Revenues:					
General Customers	\$ 33,627,204	\$ 38,163,045	\$ 40,492,731	\$ 43,184,877	\$ 45,251,923
Private Fire Protection	1,474,850	1,675,084	1,794,941	1,935,549	2,636,427
Public Fire Protection	2,883,976	2,892,212	3,128,501	3,295,537	3,547,621
Sales to Public Authorities	345,849	466,711	557,291	1,094,941	1,113,407
Total Sales Revenues	\$ 38,331,879	\$ 43,197,052	\$ 45,973,464	\$ 49,510,904	\$ 52,549,378
Other Revenues	\$ 1,041,835	\$ 976,138	\$ 1,479,937	\$ 1,258,735	\$ 1,815,837
Total Revenues	\$ 39,373,714	\$ 44,173,190	\$ 47,453,401	\$ 50,769,639	\$ 54,365,215
Water Usage - (000s Gallons*):					
General Customers	7,577,083	7,665,155	7,650,968	7,786,268	7,636,582
Other	230,894	279,391	314,592	590,289	561,798
Total	7,807,977	7,944,545	7,965,560	8,376,557	8,198,380
Number of Customers:					
General Customers	76,914	77,118	77,515	77,927	78,381
Private Fire Protection	1,419	1,432	1,460	1,511	1,537
Public Fire Protection	2	2	2	2	2
Other	1	1	3	2	3
Total	78,336	78,553	78,980	79,442	79,923
Input to System (000s Gallons)	12,120,460	11,669,000	12,007,400	12,618,000	12,443,100
Source of Supply and Treatment Expense	\$ 3,355,348	\$ 3,789,101	\$ 4,186,197	\$ 4,375,320	\$ 4,352,170

KNOXVILLE UTILITIES BOARD
WATER DIVISION

CONDENSED STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION
For The Fiscal Years Ending on June 30

	2014	2015	2016	2017	2018
Operating Revenues:	\$ 39,373,714	\$ 44,173,190	\$ 47,453,401	\$ 50,769,639	\$ 54,365,215
Operation Expenses:					
Treatment	\$ 3,355,348	\$ 3,789,101	\$ 4,186,197	\$ 4,375,320	\$ 4,352,170
Distribution	13,635,443	13,045,508	12,644,428	13,986,235	14,940,310
Customer Service	1,517,093	1,653,476	1,666,099	1,718,639	1,611,813
Administrative and General	4,363,596	4,206,064	4,838,122	4,956,420	4,775,460
Provision for Deprec. & Amortization	6,933,752	7,794,763	9,055,221	9,792,630	10,379,928
Taxes and Tax Equivalents	3,041,944	3,621,768	3,717,163	4,086,575	4,151,052
Total Operating Expenses	\$ 32,847,176	\$ 34,110,680	\$ 36,107,230	\$ 38,915,819	\$ 40,210,733
Operating Income	\$ 6,526,538	\$ 10,062,510	\$ 11,346,171	\$ 11,853,820	\$ 14,154,482
Non-Operating Revenues / Expenses:					
Contributions in aid of construction	\$ 464,748	\$ 475,386	\$ 895,530	\$ 701,334	\$ 926,471
Interest and dividend income	125,448	134,691	194,146	307,829	588,153
Interest expense	(5,257,923)	(5,421,300)	(5,611,878)	(6,021,974)	(6,340,380)
Write-down of plant for costs recovered through contributions	(464,748)	(475,386)	(895,530)	(701,334)	(926,471)
Other	(72,599)	(22,730)	(235,137)	(222,946)	(233,257)
Total Non-Operating	\$ (5,205,074)	\$ (5,309,339)	\$ (5,652,869)	\$ (5,937,091)	\$ (5,985,484)
Change in Net Position before Capital contribution	\$ 1,321,464	\$ 4,753,171	\$ 5,693,302	\$ 5,916,729	\$ 8,168,998
Capital contribution	157,859	232,696	301,196	123,840	49,129
Change in Net Position	\$ 1,479,323	\$ 4,985,867	\$ 5,994,498	\$ 6,040,569	\$ 8,218,127
Net Position, beginning of year Adjustment	\$ 150,633,304	\$ 152,112,627	\$ 156,999,177	\$ 162,993,675	\$ 169,034,244
	-	(99,317)	-	-	587,950
Net Position, end of year	\$ 152,112,627	\$ 156,999,177	\$ 162,993,675	\$ 169,034,244	\$ 177,840,321

Source: The above amounts have been derived from the Annual Audited Financial Statements for the Knoxville Utilities Board, Water Division and the Board's internal financial records and should be read in conjunction therewith.

KNOXVILLE UTILITIES BOARD
WATER DIVISION
 OPERATING AND FINANCIAL HISTORY OF THE WATER DIVISION

OPERATING REVENUE FROM WATER SALES

<u>Fiscal Year</u> <u>Ended June 30</u>	<u>Revenue</u>
2009	\$ 32,891,651
2010	\$ 33,578,157
2011	\$ 36,415,692
2012	\$ 37,475,750
2013	\$ 38,063,528
2014	\$ 39,373,714
2015	\$ 44,173,190
2016	\$ 47,453,401
2017	\$ 50,769,639
2018	\$ 54,365,215

WATER SALES IN GALLONS

<u>Fiscal Year</u> <u>Ended June 30</u>	<u>Thousand</u> <u>Gallons</u>
2009	8,620,503
2010	8,038,778
2011	8,391,634
2012	8,322,082
2013	7,984,756
2014	7,807,977
2015	7,944,545
2016	7,965,560
2017	8,376,557
2018	8,198,380

TEN LARGEST WATER SYSTEM CUSTOMERS - 2018

The ten largest Water System customers, as of June 30, 2018, in order of total sales generated are listed below. Those ten water customers represent 19.89% of the total water sales based on revenue and 22.69% of the total water based on sales volume.

	Customer	Consumption CCF	Sales Revenue	Percent of Sales Revenue
1.	City of Knoxville	106,936	\$ 3,883,670	7.39%
2.	University of Tennessee	752,464	2,661,550	5.06%
3.	Shady Grove Utility District	448,771	665,287	1.27%
4.	KCDC	158,268	637,965	1.21%
5.	Knox County Schools	74,064	497,912	0.95%
6.	Public Building Authority	124,645	489,600	0.93%
7.	Dandridge Water Management Facility	302,292	448,115	0.85%
8.	KUB	151,012	402,516	0.77%
9.	Rohm & Haas Tennessee Inc	216,780	386,888	0.74%
10.	CMC Steel	152,181	379,007	0.72%
	TOTAL	2,487,413	\$ 10,452,510	19.89%

Total Water Sales Revenue		\$ 52,549,378
Top 10 as Percent of Total Water Sales Revenue		19.89%
Total Water Sales Volume(CCF)	10,960,401	
Top 10 as Percent of Total Water Sales Volume	22.69%	

KNOXVILLE UTILITIES BOARD
WATER DIVISION
BONDS OUTSTANDING

The following table shows the outstanding bond indebtedness of the Water Division.

Amount Issued	Series	Due Date	Interest Rates	Outstanding as of June 30, 2019 (1)
\$ 25,000,000	Water System Revenue Bonds, Series W-2011	03-01-40	Fixed	\$ 21,150,000
10,050,000	Water System Revenue Refunding Bonds, Series X-2012	03-01-29	Fixed	7,050,000
9,285,000	Water System Revenue Refunding Bonds, Series Y-2013	03-01-30	Fixed	8,070,000
25,000,000	Water System Revenue Bonds, Series Z-2013	03-01-44	Fixed	22,150,000
8,000,000	Water System Revenue Bonds, Series AA-2014	03-01-44	Fixed	7,275,000
23,005,000	Water System Revenue Refunding Bonds, Series BB-2015	03-01-33	Fixed	20,985,000
20,000,000	Water System Revenue Bonds, Series CC-2015	03-01-45	Fixed	18,450,000
25,000,000	Water System Revenue Bonds, Series DD-2016	03-01-46	Fixed	23,750,000
20,875,000	Water System Revenue Refunding Bonds, Series EE-2016	03-01-33	Fixed	20,675,000
5,310,000	Water System Revenue Refunding Bonds, Series FF-2017	03-01-27	Fixed	4,375,000
20,000,000	Water System Revenue Bonds, Series GG-2017	03-01-47	Fixed	19,420,000
19,995,000	Water System Revenue Bonds, Series HH-2018 (Issued 09-14-2018)	03-01-48	Fixed	19,470,000
\$ 211,520,000	TOTAL DEBT (As of June 30, 2019, unaudited)			\$ 192,820,000
\$ 19,995,000	Water System Revenue Bonds, Series II-2019	03-01-49	Fixed	\$ 19,995,000
\$ 231,515,000	TOTAL INDEBTEDNESS			\$ 212,815,000

NOTES:

(1) Amounts represent audited June 30, 2018 outstanding debt adjusted for current year payments and debt issuances. Totals are unaudited. For more information, see the notes to the Financial Statements in the FINANCIAL STATEMENTS included herein. The above figures do not include short-term notes outstanding, if any.

**KNOXVILLE UTILITIES BOARD
WATER DIVISION
DEBT SERVICE REQUIREMENTS**

Fiscal Year	Outstanding Fiscal Year Debt Service on Bonds as of June 30, 2019			Water System Revenue Bonds, Series II-2019			% Principal Repaid on II-2019 Bonds	TOTAL DEBT SERVICE (1)			% Principal Repaid on All Debt
	Principal	Interest	Total	Principal	Interest (2)	Total		Principal	Interest	Total	
2020	\$ 6,445,000	\$ 6,802,544	\$ 13,247,544	\$ 400,000	\$ 374,068	\$ 774,068	2.00%	\$ 6,845,000	\$ 7,176,612	\$ 14,021,612	3.22%
2021	6,695,000	6,553,194	13,248,194	365,000	685,050	1,050,050		7,060,000	7,238,244	14,298,244	
2022	7,010,000	6,299,044	13,309,044	380,000	666,800	1,046,800		7,390,000	6,965,844	14,355,844	
2023	7,280,000	6,003,744	13,283,744	400,000	647,800	1,047,800		7,680,000	6,651,544	14,331,544	
2024	7,545,000	5,709,044	13,254,044	420,000	627,800	1,047,800	9.83%	7,965,000	6,336,844	14,301,844	17.36%
2025	7,845,000	5,433,544	13,278,544	440,000	606,800	1,046,800		8,285,000	6,040,344	14,325,344	
2026	8,125,000	5,179,431	13,304,431	465,000	584,800	1,049,800		8,590,000	5,764,231	14,354,231	
2027	8,395,000	4,917,875	13,312,875	485,000	561,550	1,046,550		8,880,000	5,479,425	14,359,425	
2028	8,770,000	4,633,200	13,403,200	510,000	537,300	1,047,300		9,280,000	5,170,500	14,450,500	
2029	9,045,000	4,366,531	13,411,531	535,000	511,800	1,046,800	22.01%	9,580,000	4,878,331	14,458,331	38.32%
2030	9,390,000	4,087,363	13,477,363	565,000	485,050	1,050,050		9,955,000	4,572,413	14,527,413	
2031	8,740,000	3,799,125	12,539,125	590,000	456,800	1,046,800		9,330,000	4,255,925	13,585,925	
2032	8,930,000	3,525,994	12,455,994	615,000	433,200	1,048,200		9,545,000	3,959,194	13,504,194	
2033	9,260,000	3,244,638	12,504,638	635,000	414,750	1,049,750		9,895,000	3,659,388	13,554,388	
2034	6,190,000	2,946,713	9,136,713	655,000	395,700	1,050,700	37.31%	6,845,000	3,342,413	10,187,413	59.73%
2035	6,335,000	2,717,150	9,052,150	675,000	376,050	1,051,050		7,010,000	3,093,200	10,103,200	
2036	6,480,000	2,482,050	8,962,050	695,000	355,800	1,050,800		7,175,000	2,837,850	10,012,850	
2037	6,620,000	2,243,206	8,863,206	715,000	334,950	1,049,950		7,335,000	2,578,156	9,913,156	
2038	6,770,000	1,999,425	8,769,425	735,000	313,500	1,048,500		7,505,000	2,312,925	9,817,925	
2039	6,940,000	1,749,194	8,689,194	760,000	291,450	1,051,450	55.21%	7,700,000	2,040,644	9,740,644	76.99%
2040	7,090,000	1,485,519	8,575,519	780,000	268,650	1,048,650		7,870,000	1,754,169	9,624,169	
2041	5,295,000	1,210,056	6,505,056	805,000	245,250	1,050,250		6,100,000	1,455,306	7,555,306	
2042	5,485,000	1,006,238	6,491,238	830,000	221,100	1,051,100		6,315,000	1,227,338	7,542,338	
2043	5,670,000	795,175	6,465,175	855,000	196,200	1,051,200		6,525,000	991,375	7,516,375	
2044	5,885,000	576,775	6,461,775	880,000	170,550	1,050,550	75.97%	6,765,000	747,325	7,512,325	92.77%
2045	4,220,000	354,638	4,574,638	905,000	144,150	1,049,150		5,125,000	498,788	5,623,788	
2046	3,260,000	211,325	3,471,325	930,000	117,000	1,047,000		4,190,000	328,325	4,518,325	
2047	2,050,000	106,100	2,156,100	960,000	89,100	1,049,100		3,010,000	195,200	3,205,200	
2048	1,055,000	36,925	1,091,925	990,000	60,300	1,050,300	100.00%	2,045,000	97,225	2,142,225	100.00%
2049	-	-	-	1,020,000	30,600	1,050,600		1,020,000	30,600	1,050,600	
	\$ 192,820,000	\$ 90,475,757	\$ 283,295,757	\$ 19,995,000	\$ 11,203,918	\$ 31,198,918		\$ 212,815,000	\$ 101,679,675	\$ 314,494,675	

NOTES:

(1) Amounts represent audited June 30, 2018 outstanding debt adjusted for current year payments and debt issuances. Totals are unaudited. For more information, see the notes to the Financial Statements in the FINANCIAL STATEMENTS included herein. The above figures do not include short-term notes outstanding, if any.

(2) True Interest Cost of 2.792%.

KNOXVILLE UTILITIES BOARD
WATER DIVISION
HISTORICAL DEBT COVERAGE ON OUTSTANDING WATER BONDS
For the Years Ended June 30

The historical coverage for the actual debt service requirements and the projected maximum annual debt service requirements (FY 2030) of the Outstanding Bonds and the Series HH-2018 Bonds and the Series II-2019 Bonds for fiscal years ended June 30, 2014 through June 30, 2018 is set forth below.

	2014	2015	2016	2017	2018
Operating Revenues	\$ 39,373,714	\$ 44,173,190	\$ 47,453,401	\$ 50,769,639	\$ 54,365,215
Operating Expenses*	(22,871,480)	(22,694,149)	(23,334,846)	(25,036,614)	(25,679,753)
Net Income Before Depreciation & Taxes	\$ 16,502,234	\$ 21,479,041	\$ 24,118,555	\$ 25,733,025	\$ 28,685,462
Other Revenue	125,448	134,691	194,146	307,829	588,153
FICA & Medicare Tax Expense	(664,594)	(678,049)	(740,757)	(791,923)	(846,313)
Income available for debt service	<u>15,963,088</u>	<u>20,935,683</u>	<u>23,571,944</u>	<u>25,248,931</u>	<u>28,427,302</u>
Actual annual debt service requirements on outstanding bonds	\$ 7,983,219	\$ 8,894,814	\$ 10,162,232	\$ 10,759,521	\$ 11,630,115
Coverage	2.00 x	2.35 x	2.32 x	2.35 x	2.44 x
Maximum annual debt ** service requirements (FY 2030) on Outstanding Bonds, the Series HH-2018 Bonds and the Series II-2019 Bonds***	\$ 14,527,413	\$ 14,527,413	\$ 14,527,413	\$ 14,527,413	\$ 14,527,413
Coverage	1.10 x	1.44 x	1.62 x	1.74 x	1.96 x

* Excluding Provision for Depreciation and Taxes

** From Debt Service Requirements Chart. Maximum debt excludes estimated BABS rebate.

*** Series HH-2018 Bonds were issued on September 14, 2018. Series II-2019 Bonds were issued on August 20, 2019

**WATER DIVISION
REPORT OF INDEPENDENT AUDITORS AND FINANCIAL STATEMENTS**



Water Division

Financial Statements and Supplemental Information June 30, 2018 and 2017

KUB Board of Commissioners

Celeste Herbert - Chair
Dr. Jerry W. Askew - Vice Chair
John Worden
Kathy Hamilton
Sara Hedstrom Pinnell
Tyvi Small
Adrienne Simpson-Brown

Management

Mintha Roach
President and
Chief Executive Officer

Mark Walker
Senior Vice President and
Chief Financial Officer

Susan Edwards
Senior Vice President and
Chief Administrative Officer

Gabe Bolas
Senior Vice President and
Chief Engineer

Eddie Black
Senior Vice President

Derwin Hagood
Senior Vice President of Operations

Mike Bolin
Vice President

Julie Childers
Vice President

John Gresham
Vice President

Dawn Mosteit
Vice President

Paul Randolph
Vice President

Knoxville Utilities Board Water Division

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June 30, 2018 and 2017

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Independent Auditors' Report

Board of Commissioners
Water Division of the Knoxville Utilities Board
Knoxville, Tennessee

We have audited the accompanying financial statements of the Water Division (the Division) of the Knoxville Utilities Board, a component unit of the City of Knoxville, Tennessee, as of and for the years ended June 30, 2018 and 2017, and the related notes to the financial statements, which collectively comprise the Division's basic financial statements as listed in the index.

Management's Responsibility for the Financial Statements

The Division's 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 Division'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 Division'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 Water Division of the Knoxville Utilities Board as of June 30, 2018 and 2017, and the changes in financial position and cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Change in Accounting Principle

As discussed in Note 13 to the financial statements, effective July 1, 2017, the Division adopted new accounting guidance, Governmental Accounting Standards Board Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. Our opinion is not modified with respect to that matter.

Board of Commissioners
Water Division of the Knoxville Utilities Board
Knoxville, Tennessee

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 25 and the required supplementary information on pages 60 through 64 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the Division's basic financial statements. The supplemental information is presented for purposes of additional analysis and is not a required part of the basic financial statements. The supplemental information has not been subjected to the auditing procedures applied in the audit of the basic financial statements and, accordingly, we do not express an opinion or provide any assurance on it.

Emphasis of Matter

As discussed in Note 1, the financial statements present only the Water Division and do not purport to, and do not, present fairly the financial position of the Knoxville Utilities Board, as of June 30, 2018 and 2017, and the changes in its financial position and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America. Our opinion is not modified with respect to this matter.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated October 25, 2018, on our consideration of the Division'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 solely 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 effectiveness of 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 Division's internal control over financial reporting and compliance.

Coulter & Justus, P.C.

Knoxville, Tennessee
October 25, 2018

Knoxville Utilities Board Water Division

Management's Discussion and Analysis

June 30, 2018 and 2017

Knoxville Utilities Board (KUB), comprised of the Electric Division, Gas Division, Water Division, and Wastewater Division (Divisions), is reported as a component unit enterprise fund in the financial statements of the City of Knoxville. KUB's responsibility is to oversee the purchase, production, distribution, and processing of electricity, natural gas, water, and wastewater services. A seven-member Board of Commissioners (Board) governs KUB. The Board has all powers to construct, acquire, expand, and operate the Divisions. It has full control and complete jurisdiction over the management and operation of the Divisions. The Water Division (Division) provides services to certain customers in Knox County and in two surrounding counties in East Tennessee. The Division's accounts are maintained in conformity with the Uniform System of Accounts of the National Association of Regulatory Utility Commissioners (NARUC) and the Governmental Accounting Standards Board (GASB), as applicable. The financial statements present only the Water Division and do not purport to, and do not, present fairly the consolidated financial position of Knoxville Utilities Board at June 30, 2018 and 2017, and the changes in its financial position for the years then ended in conformity with accounting principles generally accepted in the United States of America.

The Division's discussion and analysis is designed to (a) assist the reader in focusing on significant financial issues, (b) provide an overview of the Division's financial activity, (c) identify major changes in the Division's financial position, and (d) identify any financial concerns.

The Division's Management Discussion and Analysis (MD&A) focuses on the fiscal year ending June 30, 2018 activities, resulting changes and current known facts, and should be read in conjunction with the Division's financial statements.

Water Division Highlights

System Highlights

KUB serves 79,923 water system customers over a 188-square mile service area. KUB maintains 1,407 miles of service mains, 28 storage facilities, 24 booster pump stations, and one treatment plant, which provided 12.4 billion gallons of water to KUB's water customers in fiscal year 2018. The average daily flow for fiscal year 2018 was 34.1 million gallons.

The water system has added approximately 1,370 customers over the past three years representing annual growth of less than one percent. In fiscal year 2018, 481 customers were added.

The Division generated \$3.1 million of additional revenue during the fiscal year as a result of the July 2017 water rate increase, which was adopted by the KUB Board to help fund the Division's Century II infrastructure program.

The typical residential water customer's average monthly bill was \$24.95 as of June 30, 2018 (based on monthly use of 500 cubic feet or 3,740 gallons). The monthly bill increased \$1.50 compared to the prior fiscal year, the result of the July 2017 water rate increase.

Water sales volumes have been impacted by more efficient appliances and the conservation efforts of customers. Based on historical trends, water sales volumes are anticipated to have an annual decline of one percent per year for both residential and non-residential customers.

Century II Infrastructure Program

Century II is KUB's proactive long-range program to improve and maintain the electric, natural gas, water and wastewater systems for its customers. It includes the maintenance and asset replacement strategies for each system and establishes sustainable replacement cycles. Century II moves KUB into its second

Knoxville Utilities Board Water Division Management's Discussion and Analysis June 30, 2018 and 2017

century of service by improving each system through sound planning, resource allocation, and continued, but accelerated, investment.

KUB's Century II programs were resumed in 2011, after a break due to the economic recession. At that time, the KUB Board formally endorsed a ten-year funding plan for the water system, including a combination of rate increases and debt issues. The Board also approved three years of annual water rate increases for fiscal years 2012 through 2014.

In April 2014, KUB management provided the Board an updated assessment of the overall condition of each utility system and the progress made during the resumption of the Century II program. A revised ten-year funding plan for the water system, including recommendations for annual rate increases and debt issues to fully fund the programs for each division, was included in the assessment.

In June 2014, the Board approved the proposed three annual rate increases for the Water Division. The three rate increases were effective July 2014, July 2015 and July 2016. The July 2014, July 2015, and July 2016 rate increases provided an additional \$3.6 million, \$2 million, and \$2 million of additional annual Water Division revenue, respectively.

In fiscal year 2015, KUB concluded the smart grid pilot project, of which a portion of the project was funded by a United States Department of Energy Smart Grid Investment Grant (SGIG). This grant was received by KUB in 2009 as part of the American Reinvestment and Recovery Act (ARRA). Based upon the success of that pilot, KUB formed a plan to move forward with a Century II Grid Modernization initiative, which includes advanced metering for all KUB customers, a telecommunication system linking critical KUB infrastructure, and an increased investment in automation technology to help operate KUB's energy and water distribution systems. Over the course of ten years, KUB plans to spend \$124.4 million in this effort, of which the Water Division's share is \$25.1 million. The deployment is funded in large part by debt issues and system revenues. As of June 30, 2018, KUB completed the second year of the advanced meter deployment. KUB has replaced approximately 46 percent of its water meters, spending \$10.8 million on the advanced meter deployment.

In May 2017, a new Century II funding resolution was adopted by the KUB Board to express the continued commitment to funding Century II programs for the next ten years. The funding will be achieved through a combination of rate increases and debt issues supplemented by cost savings and new revenue from net customer additions.

In June 2017, the Board approved the next phase of water rate increases to support the Century II program. The first rate increase went into effect July 2017 generating \$3.1 million of additional annual Water Division revenue, while the July 2018 and July 2019 rate increases are expected to provide an additional \$3.1 million and \$3.3 million in annual revenue, respectively, to help fund the Water Division.

In fiscal year 2017, KUB completed the transition to a new disinfection system at the Mark B. Whitaker (MBW) Water Treatment plant.

KUB remains on track with its Century II water system infrastructure program. In fiscal year 2018, KUB replaced 6.4 miles of galvanized water main and 6.6 miles of cast iron main.

KUB is currently in the process of implementing a Water Plant Redundancy initiative to ensure that high quality, reliable water service will be provided to customers over the long term. KUB maintains a single water treatment plant for its system. In lieu of building a second treatment facility to ensure capacity will be available to meet the needs of current and future water customers, KUB will invest approximately \$126 million in various redundant facilities at the site of its existing Mark B. Whitaker Water Treatment Plant over the next 11 years.

Knoxville Utilities Board Water Division

Management's Discussion and Analysis

June 30, 2018 and 2017

Financial Highlights

Fiscal Year 2018 Compared to Fiscal Year 2017

The Division's net position increased \$8.2 million in fiscal year 2018, which was \$2.2 million higher than the prior fiscal year. A restatement to the fiscal year 2018 beginning net position, based on a change in method of accounting for Other Post-Employment Benefits (OPEB), increased the total net position by \$0.6 million during fiscal year 2018. The change resulted in a total increase of \$8.8 million in the Division's net position.

Operating revenue increased \$3.6 million or 7.1 percent, the result of additional revenue from the water rate increase effective July 2017.

Operating expenses increased \$1.3 million or 3.3 percent. Operating and maintenance expenses (O&M) increased \$0.7 million compared to the prior year. Depreciation expense increased \$0.6 million or 6 percent. Taxes and tax equivalents were consistent with the prior year.

Interest income was up \$0.3 million from the prior fiscal year. Interest expense was \$0.3 million higher than the prior year, due to interest expense on new revenue bonds sold during the fiscal year.

Capital contributions were \$0.1 million lower than the prior fiscal year, the result of fewer assets contributed by developers.

Total plant assets (net) increased \$19.6 million or 6.6 percent due to water main replacement, treatment plant improvements, and the replacement and relocation of water system assets to accommodate Tennessee Department of Transportation (TDOT) highway improvement projects.

During fiscal year 2018, KUB sold \$20 million in water system revenue bonds for the purpose of funding water system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.05 percent.

Long-term debt represented 50.2 percent of the Division's capital structure as of June 30, 2018, as compared to 49.3 percent last year. Capital structure equals long-term debt (which includes the current and long-term portion of revenue bonds and notes) plus net position.

The Division's bond covenants require a debt service coverage ratio of at least 1.2 times the maximum principal and interest payments over the life of the Division's outstanding bonds. Current year debt coverage for the fiscal year was 2.44. Maximum debt service coverage was 2.30.

Fiscal Year 2017 Compared to Fiscal Year 2016

The Division's net position increased \$6 million in fiscal year 2017, which was consistent with the last fiscal year.

Operating revenue increased \$3.3 million or 7 percent, the result of additional revenue from the water rate increase effective July 2016 and a 5.2 percent increase in billed water sales volumes.

Operating expenses increased \$2.8 million or 7.8 percent. Operating and maintenance expenses (O&M) increased \$1.7 million compared to the prior year. Depreciation expense increased \$0.7 million or 8.1 percent. Taxes and tax equivalents increased \$0.4 million from the prior year.

Interest income was up \$0.1 million from the prior fiscal year. Interest expense was \$0.4 million higher than the prior year due to the interest expense on new bonds sold during the fiscal year.

Knoxville Utilities Board Water Division

Management's Discussion and Analysis

June 30, 2018 and 2017

Capital contributions were \$0.2 million lower than the prior fiscal year, the result of fewer assets contributed by developers.

Total plant assets (net) increased \$17.2 million or 6.1 percent due to water main replacement, treatment plant improvements, and the replacement and relocation of water system assets to accommodate Tennessee Department of Transportation (TDOT) highway improvement projects.

During fiscal year 2017, KUB sold \$25 million in water system revenue bonds for the purpose of funding water system capital improvements and also sold a total of \$26.2 million in water system revenue refunding bonds to refinance existing water system bonds at lower interest rates. The refunding produced total debt service savings of \$3.2 million over the life of the bonds (\$2.8 million on a net present value basis).

As part of the rating process for the \$25 million in revenue bonds and \$20.9 million in revenue refunding bonds, Moody's upgraded its rating on KUB's water system bonds to Aa1 from Aa2. Aa1 is the second highest bond credit rating assigned by Moody's Investors Service. In its formal rating report, Moody's stated "the upgrade to Aa1 reflects the well-managed financial operations of the water system that continues to provide for solid debt service coverage and liquidity, a mature service area, and a manageable debt profile." The AAA bond rating from Standard and Poor's was reaffirmed. In its formal rating report on the water bonds, Standard and Poor's noted "based on our financial management assessment we view KUB to be '1' on a scale of 1-6, with '1' being the strongest."

Long-term debt represented 49.3 percent of the Division's capital structure as of June 30, 2017, as compared to 46.9 percent last year. Capital structure equals long-term debt (which includes the current and long-term portion of revenue bonds and notes) plus net position.

The Division's bond covenants require a debt service coverage ratio of at least 1.2 times the maximum principal and interest payments over the life of the Division's outstanding bonds. Current year debt coverage for the fiscal year was 2.35. Maximum debt service coverage was 2.23.

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Knoxville Utilities Board Water Division

Management's Discussion and Analysis

June 30, 2018 and 2017

Knoxville Utilities Board Water Division - Financial Statements

The Division's financial performance is reported under three basic financial statements: the Statement of Net Position; the Statement of Revenues, Expenses and Changes in Net Position; and the Statement of Cash Flows.

Statement of Net Position

The Division reports its assets, deferred outflows of resources, liabilities, deferred inflows of resources, and net position in the Statement of Net Position. Assets are classified as current, restricted, water plant in service, or other assets.

Liabilities are classified as current, other, or long-term debt. Net position is classified as net investment in capital assets, restricted, or unrestricted. Net position tells the user what the Division has done with its accumulated earnings, not just the balance.

Net investment in capital assets reflects the book value of all capital assets less the outstanding balances of debt used to acquire, construct, or improve those assets.

Restricted net position are assets that have been limited to specific uses by the Division's bond covenants or through resolutions passed by the KUB Board.

Unrestricted net position is a residual classification; the amount remaining after reporting net position as either invested in capital or restricted is reported there.

Statement of Revenues, Expenses and Changes in Net Position

The Division reports its revenues and expenses (both operating and non-operating) on the Statement of Revenues, Expenses and Changes in Net Position. In addition, any capital contributions or assets donated by developers are reported on this statement.

Total revenue less total expense equals the change in net position for the reporting period. Net position at the beginning of the period is increased or decreased, as applicable, by the change in net position for the reporting period.

The change in net position for the reporting period is added to the net position segment of the Statement of Net Position.

Statement of Cash Flows

The Division reports cash flows from operating activities, capital and related financing activities, and investing activities on the Statement of Cash Flows. This statement tells the user the Division's sources and uses of cash during the reporting period.

The statement indicates the Division's beginning cash balance and ending cash balance and how it was either increased or decreased during the reporting period.

The statement also reconciles cash flow to operating income as it appears on the Statement of Revenues, Expenses and Changes in Net Position.

Knoxville Utilities Board Water Division
Management's Discussion and Analysis
June 30, 2018 and 2017

Condensed Financial Statements

Statement of Net Position

The following table reflects the condensed Statement of Net Position for the Water Division compared to the prior two fiscal years.

Statements of Net Position
As of June 30

<i>(in thousands of dollars)</i>	2018	2017	2016
Current, restricted and other assets	\$ 50,268	\$ 43,229	\$ 33,888
Capital assets, net	318,177	298,533	281,258
Deferred outflows of resources	3,538	4,607	3,273
Total assets and deferred outflows of resources	<u>371,983</u>	<u>346,369</u>	<u>318,419</u>
Current and other liabilities	13,195	11,928	13,097
Long-term debt outstanding	179,094	164,722	142,132
Deferred inflows of resources	1,854	685	197
Total liabilities and deferred inflows of resources	<u>194,143</u>	<u>177,335</u>	<u>155,426</u>
Net position			
Net investment in capital assets	138,682	134,011	138,069
Restricted	1,941	1,732	1,523
Unrestricted	37,217	33,291	23,401
Total net position	<u>\$ 177,840</u>	<u>\$ 169,034</u>	<u>\$ 162,993</u>

Normal Impacts on Statement of Net Position

The following is a description of activities which will normally impact the comparability of the Statement of Net Position presentation.

- Change in net position (from Statement of Revenues, Expenses and Change in Net Position): impacts (increase/decrease) current and other assets and/or capital assets and unrestricted net position.
- Issuing debt for capital: increases deferred outflows of resources and long-term debt.
- Spending debt proceeds on new capital: reduces current assets and increases capital assets.
- Spending of non-debt related current assets on new capital: (a) reduces current assets and increases capital assets and (b) reduces unrestricted net position and increases net investment in capital assets.
- Principal payment on debt: (a) reduces current and other assets and reduces long-term debt and (b) reduces unrestricted net position and increases net investment in capital assets.
- Reduction of capital assets through depreciation: reduces capital assets and net investment in capital assets.

Knoxville Utilities Board Water Division

Management's Discussion and Analysis

June 30, 2018 and 2017

Impacts and Analysis

Current, Restricted and Other Assets

Fiscal Year 2018 Compared to Fiscal Year 2017

Current, restricted and other assets increased \$7 million or 16.3 percent. This reflects an increase in the actuarially determined net pension asset of \$2.6 million, a \$2.3 million increase in the Division's general fund cash (consisting of cash and cash equivalents, short-term investments, and long-term investments) and a \$1.9 million increase in operating contingency reserves.

Fiscal Year 2017 Compared to Fiscal Year 2016

Current, restricted and other assets increased \$9.3 million or 27.5 percent. The increase reflects a \$2.6 million increase in inventories primarily due to advanced metering materials, a \$2.5 million increase in the Division's general fund cash (consisting of cash and cash equivalents, short-term investments, and long-term investments), a \$2.1 million increase in operating contingency reserves, and a \$1.3 million increase in other current assets.

Capital Assets

Fiscal Year 2018 Compared to Fiscal Year 2017

Capital assets, net of depreciation, increased \$19.6 million or 6.6 percent. Capital expenditures included \$12.4 million for treatment plant and system improvements, \$4.1 million for the replacement and relocation of water system assets to accommodate TDOT highway improvement projects and \$3.9 million for water main replacement. During the fiscal year, \$2.6 million of water system assets were retired.

Fiscal Year 2017 Compared to Fiscal Year 2016

Capital assets, net of depreciation, increased \$17.2 million or 6.1 percent. Capital expenditures included \$9.2 million for treatment plant and system improvements, \$7.7 million for water main replacement, \$3.9 million for the replacement and relocation of water system assets to accommodate TDOT highway improvement projects, and \$1.5 million for trucks and equipment. \$6.2 million of water system assets were retired during the fiscal year.

Deferred Outflows of Resources

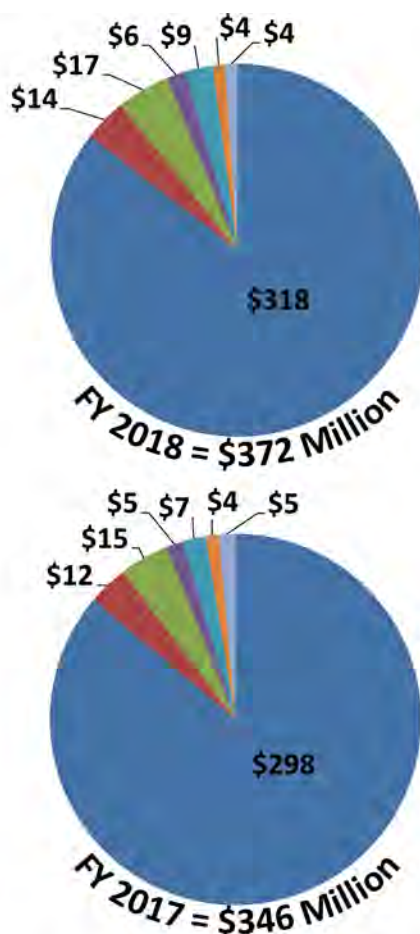
Fiscal Year 2018 Compared to Fiscal Year 2017

Deferred outflows of resources decreased \$1.1 million compared to the prior fiscal year. This decrease was due to a decrease in pension outflow of \$0.9 million and a decrease of unamortized bond refunding costs of \$0.2 million.

Fiscal Year 2017 Compared to Fiscal Year 2016

Deferred outflows of resources increased \$1.3 million compared to the prior fiscal year. This increase was the net effect of an increase of unamortized bond refunding costs of \$1.5 million offset by a decrease in pension outflow of \$0.2 million.

Knoxville Utilities Board Water Division
Management's Discussion and Analysis
June 30, 2018 and 2017



Water Division Total Assets and Deferred Outflows of Resources (in Millions)

	FY18	FY17
Plant	86%	86%
General Fund	4%	4%
Contingency Fund	4%	4%
Accounts Receivable	2%	2%
Other Assets	2%	2%
Restricted Assets	1%	1%
Deferred Outflows of Resources	1%	1%

Current and Other Liabilities

Fiscal Year 2018 Compared to Fiscal Year 2017

Current and other liabilities increased \$1.3 million compared to the prior fiscal year. This increase reflects a \$0.5 million increase in accounts payable and a \$0.5 million increase in the current portion of revenue bonds.

Fiscal Year 2017 Compared to Fiscal Year 2016

Current and other liabilities decreased \$1.2 million compared to the prior fiscal year. This decrease reflects a \$1.5 million decline in accounts payable and a decrease of \$0.6 million in the actuarially determined net pension obligation, offset by a \$0.7 million increase in the current portion of revenue bonds.

Knoxville Utilities Board Water Division

Management's Discussion and Analysis

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Long-Term Debt

Fiscal Year 2018 Compared to Fiscal Year 2017

Long-term debt increased \$14.4 million or 8.7 percent. Water system revenue bonds of \$20 million, sold in August 2017, were offset by the scheduled repayment of debt.

Fiscal Year 2017 Compared to Fiscal Year 2016

Long-term debt increased \$22.6 million or 15.9 percent. \$25 million in new revenue bonds were issued in July 2016. In July 2016 and March 2017, revenue refunding bonds of \$20.9 million and \$5.3 million were issued to refinance bonds sold in 2009 and 2005, respectively. The additional issuances offset by the defeased bonds and scheduled debt repayments accounted for the change in long-term debt.

Deferred Inflows of Resources

Fiscal Year 2018 Compared to Fiscal Year 2017

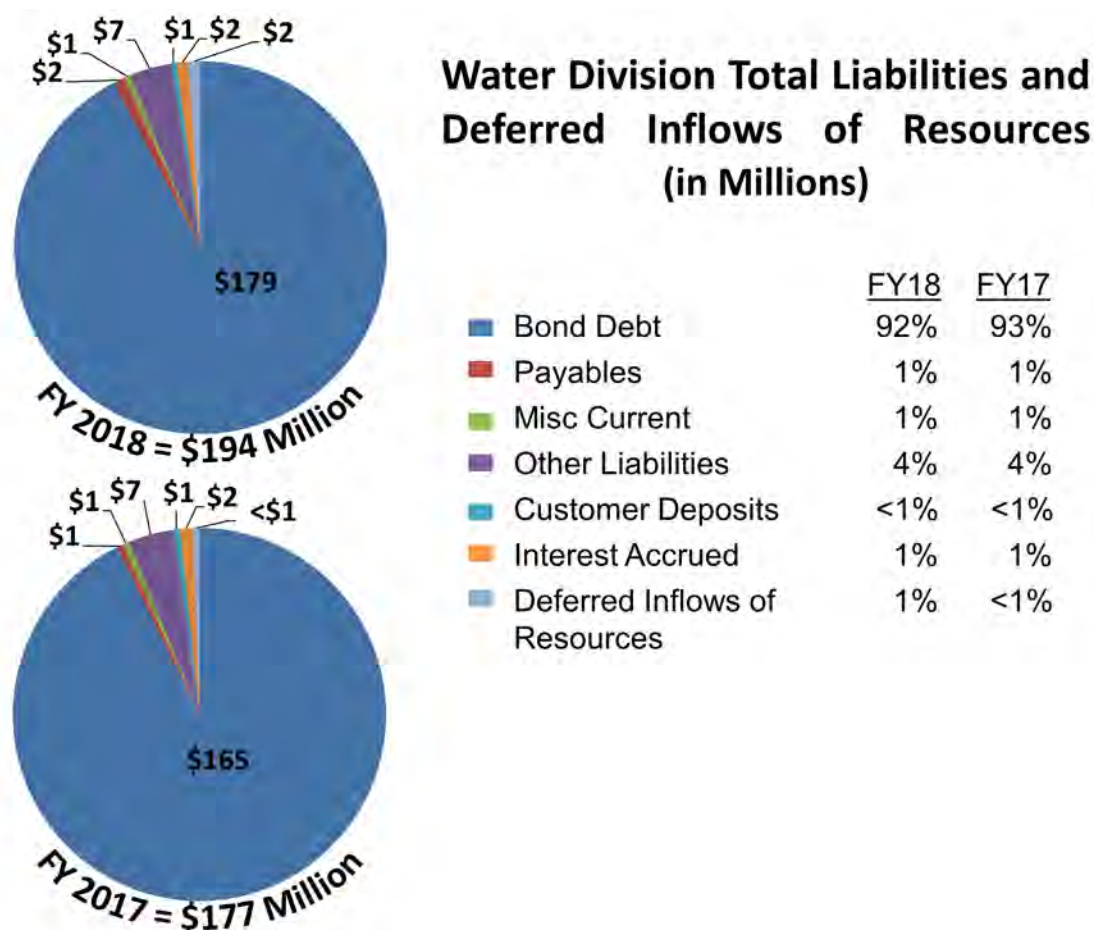
Deferred inflows increased \$1.2 million compared to the prior fiscal year due to differences in pension inflows.

Fiscal Year 2017 Compared to Fiscal Year 2016

Deferred inflows increased \$0.5 million compared to the prior fiscal year due to differences in pension inflows.

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Knoxville Utilities Board Water Division
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Net Position

Fiscal Year 2018 Compared to Fiscal Year 2017

Net position increased \$8.8 million this fiscal year. Unrestricted net position increased \$3.9 million, primarily due to a \$6.7 million increase in current and other assets compared to the prior fiscal year. Net investment in capital assets increased \$4.7 million due to an increase in current portion of revenue bonds and total long-term debt of \$14.9 million offset by an increase to net plant in service of \$19.6 million. Restricted assets increased \$0.2 million due to additional funds restricted for debt service.

Fiscal Year 2017 Compared to Fiscal Year 2016

Net position increased \$6 million this fiscal year. Unrestricted net position increased \$9.9 million, primarily due to a \$9 million increase in current and other assets compared to the prior fiscal year. Net investment in capital assets decreased \$4.1 million due to an increase in current portion of revenue bonds and total long-term debt of \$23.3 million offset by an increase to net plant in service of \$17.2 million. Restricted assets increased \$0.2 million due to additional funds restricted for debt service.

Knoxville Utilities Board Water Division
Management's Discussion and Analysis
June 30, 2018 and 2017

Statement of Revenues, Expenses and Changes in Net Position

The following table reflects the condensed Statement of Revenues, Expenses and Changes in Net Position for the Water Division compared to the prior two fiscal years.

Statements of Revenues, Expenses and Changes in Net Position
For the Years Ended June 30

<i>(in thousands of dollars)</i>	2018	2017	2016
Operating revenues	\$ 54,365	\$ 50,770	\$ 47,453
Operating expenses			
Treatment	4,352	4,375	4,186
Distribution	14,940	13,986	12,645
Customer service	1,612	1,719	1,666
Administrative and general	4,776	4,956	4,838
Depreciation	10,380	9,793	9,055
Taxes and tax equivalents	4,151	4,087	3,717
Total operating expenses	<u>40,211</u>	<u>38,916</u>	<u>36,107</u>
Operating income	<u>14,154</u>	<u>11,854</u>	<u>11,346</u>
Interest income	588	308	194
Interest expense	(6,340)	(6,022)	(5,612)
Other income/(expense)	<u>(233)</u>	<u>(223)</u>	<u>(235)</u>
Change in net position before capital contributions	<u>8,169</u>	<u>5,917</u>	<u>5,693</u>
Capital Contributions	<u>49</u>	<u>124</u>	<u>301</u>
Change in net position	<u>\$ 8,218</u>	<u>\$ 6,041</u>	<u>\$ 5,994</u>

Normal Impacts on Statement of Revenues, Expenses and Changes in Net Position

The following is a description of activities which will normally impact the comparability of the Statement of Revenues, Expenses and Change in Net Position presentation.

- Operating revenues are largely determined by the volumes of water sold during the fiscal year. Any change (increase/decrease) in retail water rates would also be a cause of change in operating revenue.
- Operating expenses (treatment, distribution, customer service, administrative and general) are normally impacted by changes in areas including, but not limited to, labor cost (staffing, wage rates), active employee and retiree medical costs, chemicals, and water system maintenance.
- Depreciation expense is impacted by plant additions and retirements during the fiscal year.
- Taxes and tax equivalents are impacted by plant additions/retirements and changes in property tax rates.
- Interest expense is impacted by the level of interest rates and investments.

Knoxville Utilities Board Water Division Management's Discussion and Analysis June 30, 2018 and 2017

- Interest expense on debt is impacted by the level of outstanding debt and the interest rates on the outstanding debt.
- Other income/(expenses) is impacted by miscellaneous non-operating revenues and expenses.
- Capital contributions are impacted by a donation of facilities/infrastructure to KUB by developers and governmental agencies. The contributions are recognized as revenue and recorded as plant in service based on the fair market value of the asset(s).

Impacts and Analysis

Change in Net Position

Fiscal Year 2018 Compared to Fiscal Year 2017

The Division's Change in Net Position increased \$8.2 million in fiscal year 2018. A restatement to the fiscal year 2018 beginning net position, based on a change in method of accounting for OPEB, increased the total net position by an additional \$0.6 million. The change resulted in a total increase of \$8.8 million in the Division's net position. Comparatively, net position increased by \$6 million in fiscal year 2017.

Fiscal Year 2017 Compared to Fiscal Year 2016

The Division's net position during the year increased \$6 million, which is consistent with the prior fiscal year

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Knoxville Utilities Board Water Division

Management's Discussion and Analysis

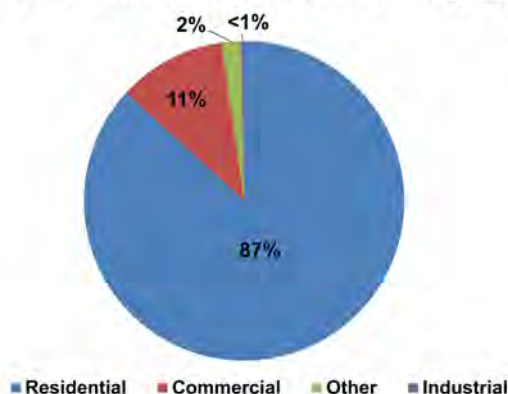
June 30, 2018 and 2017

Margin from Sales

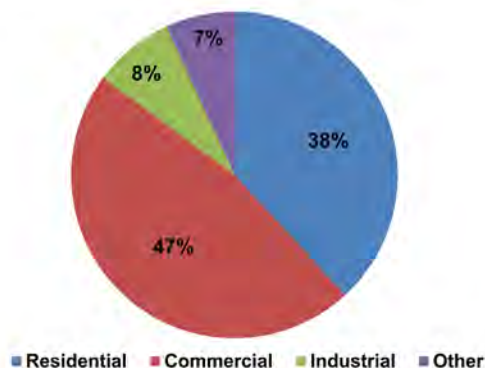
Fiscal Year 2018 Compared to Fiscal Year 2017

Operating revenues increased \$3.6 million or 7.1 percent. This reflects additional revenue from the July 2017 water rate increase offset by a 2.1 percent decline in billed water sales volumes, as residential and industrial sales volumes were lower. Operating expenses rose \$1.3 million and interest expense increased \$0.3 million.

FY 2018 Total Water Customers = 79,923



FY 2018 Water Sales = 8.2 Billion Gallons



Residential customers represented 87 percent of water customers and accounted for 38 percent of water sales volumes for the year. Commercial and industrial customers accounted for the largest portion (55 percent) of total sales volumes during the year.

KUB's ten largest water customers accounted for 21.5 percent of KUB's billed water volumes. Those ten customers represent two industrial and eight commercial customers, including eight governmental customers.

KUB has added 1,370 water customers over the past three years, representing annual growth of less than one percent. Water system growth is up slightly due to increased new housing construction.

Residential water sales volumes decreased 4 percent compared to the prior fiscal year.

Commercial water sales volumes increased 0.2 percent compared to the prior year. Industrial sales volumes decreased 3.6 percent compared to the prior year.

Other water sales volumes were 4.8 percent lower than the prior year.

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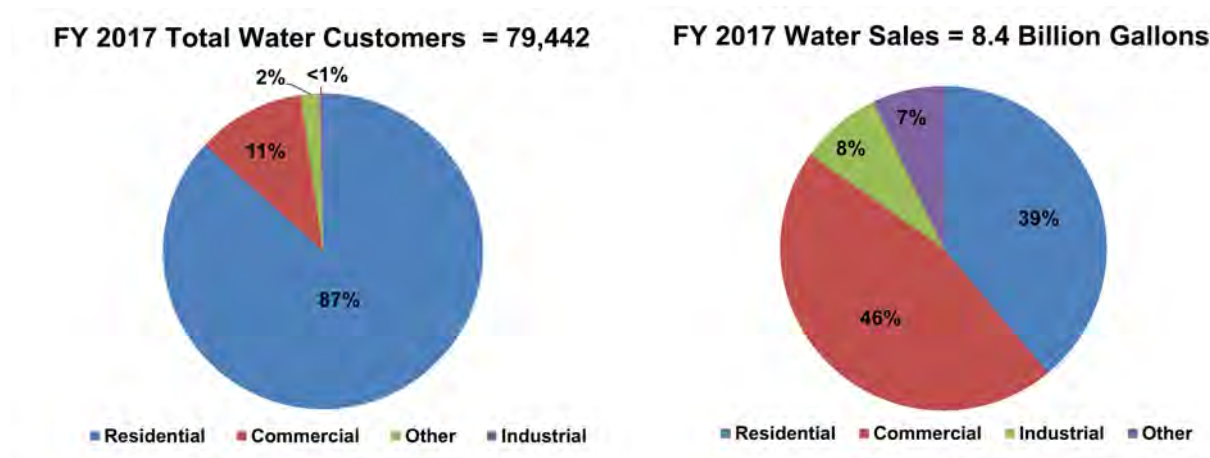
Knoxville Utilities Board Water Division

Management's Discussion and Analysis

June 30, 2018 and 2017

Fiscal Year 2017 Compared to Fiscal Year 2016

Operating revenues increased \$3.3 million or 7 percent, reflecting additional revenue from the July 2016 water rate increase and a 5.2 percent increase in billed water sales volumes. Operating expenses rose \$2.8 million and interest expense increased \$0.4 million.



Residential customers represented 87 percent of water customers and accounted for 39 percent of water sales volumes for the year. Commercial and industrial customers accounted for the largest portion (54 percent) of total sales volumes during the year.

KUB's ten largest water customers accounted for 24 percent of KUB's billed water volumes. Those ten customers represent two industrial and eight commercial customers, including seven governmental customers.

KUB has added 1,106 water customers over the past three years, representing annual growth of less than one percent. Water system growth is up slightly due to increased new housing construction.

Fiscal year 2017 water sales volumes were higher than the prior fiscal year, reflecting higher water sales for residential customers and the addition of a wholesale customer.

Residential water sales volumes increased 4.4 percent compared to the prior fiscal year. Residential sales were higher due to drought conditions experienced in the Knoxville area during the fiscal year's summer months.

Commercial water sales volumes increased 0.3 percent compared to the prior year. Industrial sales volumes decreased 1.6 percent compared to the prior year.

Other water sales volumes were 87.6 percent higher than the prior year. This increase is associated with the water system gaining a new wholesale customer.

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Knoxville Utilities Board Water Division

Management's Discussion and Analysis

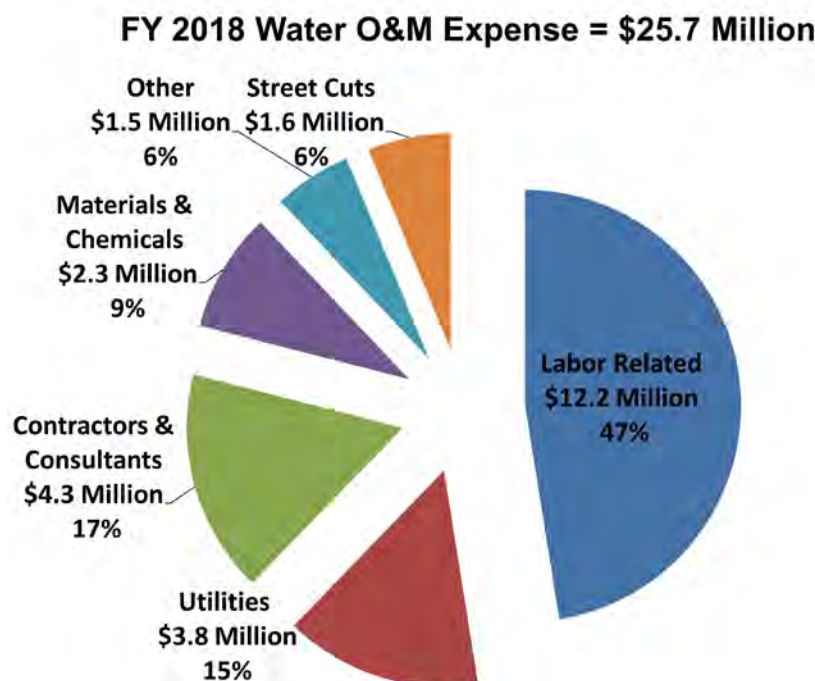
June 30, 2018 and 2017

Operating Expenses

Fiscal Year 2018 Compared to Fiscal Year 2017

Operating expenses increased \$1.3 million or 3.3 percent. Operating expenses include operations and maintenance (O&M) expense, depreciation, and taxes/tax equivalents. O&M expenses can be further classified as treatment, distribution, customer service, and administrative and general.

- Treatment expenses were consistent with the prior fiscal year.
- Distribution expenses were \$1 million or 6.8 percent higher than the prior fiscal year due to an increase in outside contractor costs and labor related expenses.
- Customer service expenses were \$0.1 million lower than the prior fiscal year.
- Administrative and general expenses were \$0.2 million lower than the prior fiscal year, primarily due to labor related expenses.



- Depreciation expense was up \$0.6 million, primarily due to Century II initiatives to replace mains, and the accelerated depreciation of existing meters that are to be replaced as part of KUB's system wide deployment of advanced metering equipment. In addition, \$2.6 million of assets were retired during fiscal year 2018.
- Taxes and tax equivalents were consistent with the prior fiscal year.

Knoxville Utilities Board Water Division

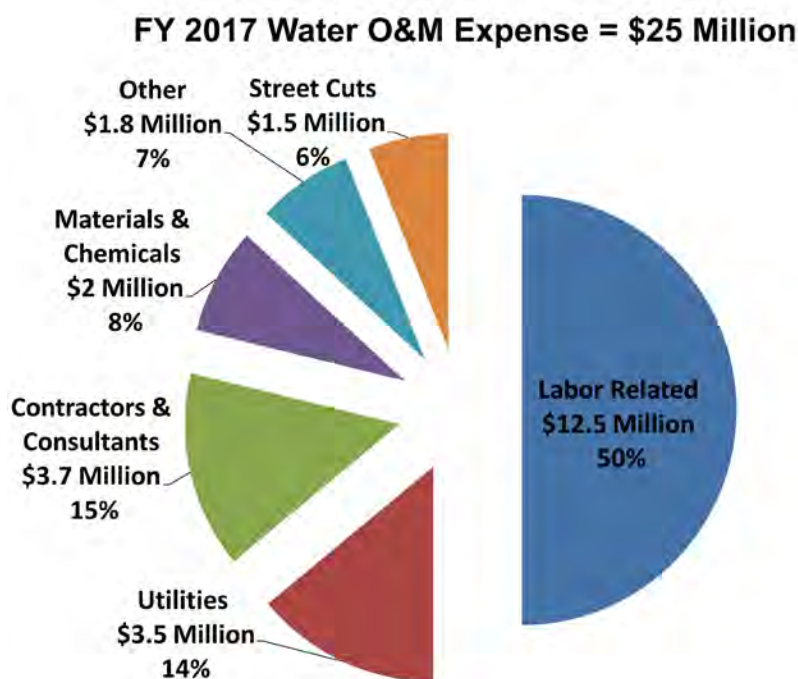
Management's Discussion and Analysis

June 30, 2018 and 2017

Fiscal Year 2017 Compared to Fiscal Year 2016

Operating expenses increased \$2.8 million or 7.8 percent. Operating expenses include operations and maintenance (O&M) expense, depreciation, and taxes/tax equivalents. O&M expenses can be further classified as treatment, distribution, customer service, and administrative and general.

- Treatment expenses increased \$0.2 million or 4.5 percent compared to the prior fiscal year.
- Distribution expenses were \$1.3 million or 10.6 percent higher than the prior fiscal year due to an increase in outside contractor costs and labor related expenses.
- Customer service expenses were \$0.1 million higher than the prior fiscal year.
- Administrative and general expenses increased \$0.1 million, primarily due to labor related expenses.



- Depreciation expense was up \$0.7 million, primarily due to Century II initiatives to replace mains, upgrades to various information systems, and the accelerated depreciation of existing meters that are to be replaced as part of KUB's system wide deployment of advanced metering equipment. In addition, \$6.2 million of assets were retired during fiscal year 2017.
- Taxes and tax equivalents increased \$0.4 million from prior fiscal year due to increased plant in service levels.

**Knoxville Utilities Board Water Division
Management's Discussion and Analysis
June 30, 2018 and 2017**



Other Income and Expense

Fiscal Year 2018 Compared to Fiscal Year 2017

Interest income increased \$0.3 million from the prior fiscal year primarily due to higher short-term interest rates.

Interest expense increased \$0.3 million, reflecting the net impact of interest expense from new revenue bonds sold during the fiscal year and savings on refunding of outstanding bonds.

Other income (net) was consistent with the prior fiscal year.

Capital contributions by developers were \$0.1 million lower than the prior fiscal year.

Fiscal Year 2017 Compared to Fiscal Year 2016

Interest income increased \$0.1 million from the prior fiscal year.

Interest expense increased \$0.4 million, reflecting interest expense from new revenue bonds sold during the fiscal year.

Other income (net) was consistent with the prior fiscal year.

Capital contributions by developers were \$0.2 million lower than the prior fiscal year.

Knoxville Utilities Board Water Division
Management's Discussion and Analysis
June 30, 2018 and 2017

Capital Assets

	Capital Assets As of June 30 (Net of Depreciation)		
<i>(in thousands of dollars)</i>	2018	2017	2016
Production Plant	\$ 57	\$ 58	\$ 58
Pumping & Treatment Plant	52,730	47,968	50,067
Distribution Plant			
Distribution Mains	\$ 161,290	151,095	141,200
Transmission Mains	24,400	25,013	22,295
Services & Meters	31,151	24,588	19,349
Other Accounts	13,313	13,084	11,620
Total Distribution Plant	<u>230,154</u>	<u>\$ 213,780</u>	<u>\$ 194,464</u>
Total General Plant	<u>\$ 9,722</u>	<u>9,720</u>	<u>9,172</u>
Total Water Plant	<u>292,663</u>	<u>\$ 271,526</u>	<u>\$ 253,761</u>
Work In Progress	<u>25,514</u>	<u>27,007</u>	<u>27,497</u>
Total Net Plant	<u>\$ 318,177</u>	<u>\$ 298,533</u>	<u>\$ 281,258</u>

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Knoxville Utilities Board Water Division

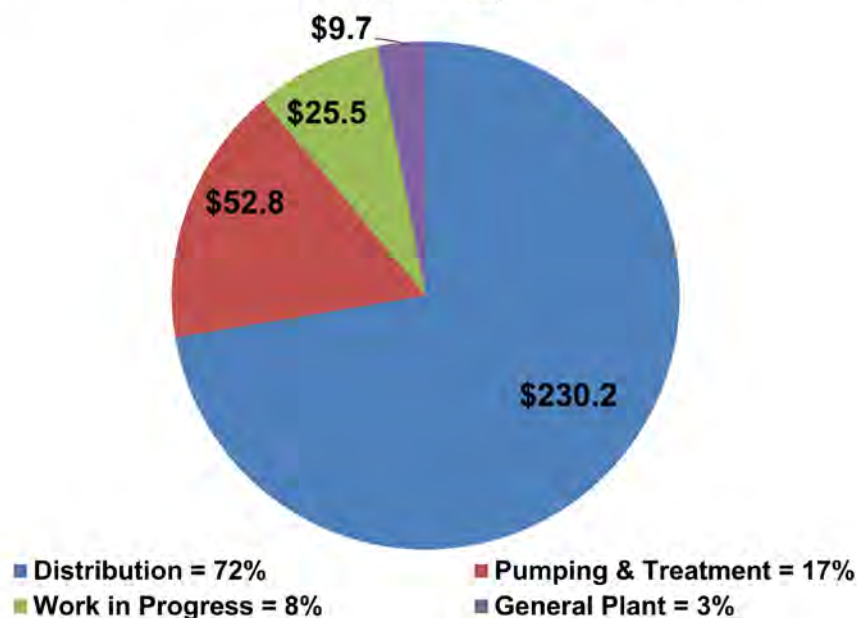
Management's Discussion and Analysis

June 30, 2018 and 2017

Fiscal Year 2018 Compared to Fiscal Year 2017

As of June 30, 2018, the Division had \$318.2 million invested in a variety of capital assets, as reflected in the schedule of capital assets, which represented a net increase (including additions, retirements, and depreciation) of \$19.6 million or 6.6 percent over the end of the last fiscal year.

FY 2018 Water Division Capital Assets = \$318.2 Million (in Millions)



Major capital asset expenditures during the year were as follows:

- \$12.4 million for major plant and system improvements
- \$4.1 million for replacement and relocation of water system assets to accommodate TDOT highway improvement projects
- \$3.9 million for galvanized and cast iron water main replacement
- \$1.9 million for deployment of advanced metering equipment

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Knoxville Utilities Board Water Division

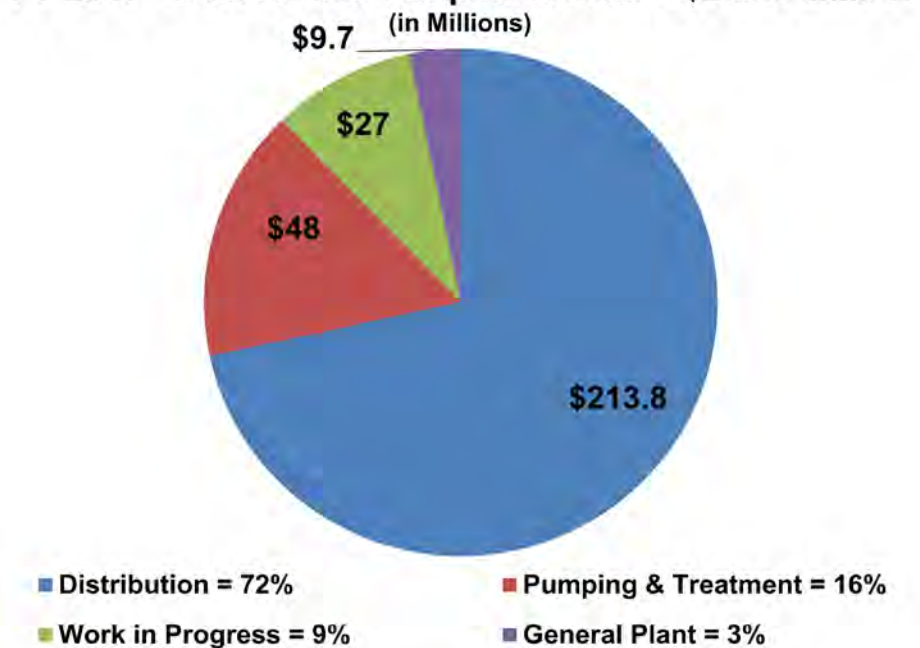
Management's Discussion and Analysis

June 30, 2018 and 2017

Fiscal Year 2017 Compared to Fiscal Year 2016

As of June 30, 2017, the Division had \$298.5 million invested in a variety of capital assets, as reflected in the schedule of capital assets, which represented a net increase (including additions, retirements, and depreciation) of \$17.2 million or 6.1 percent over the end of the last fiscal year.

FY 2017 Water Division Capital Assets = \$298.5 Million



Major capital asset expenditures during the year were as follows:

- \$9.2 million for major plant and system improvements
- \$7.7 million for galvanized and cast iron water main replacement
- \$3.9 million for replacement and relocation of water system assets to accommodate TDOT highway improvement projects
- \$1.5 million for trucks and equipment

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Knoxville Utilities Board Water Division

Management's Discussion and Analysis

June 30, 2018 and 2017

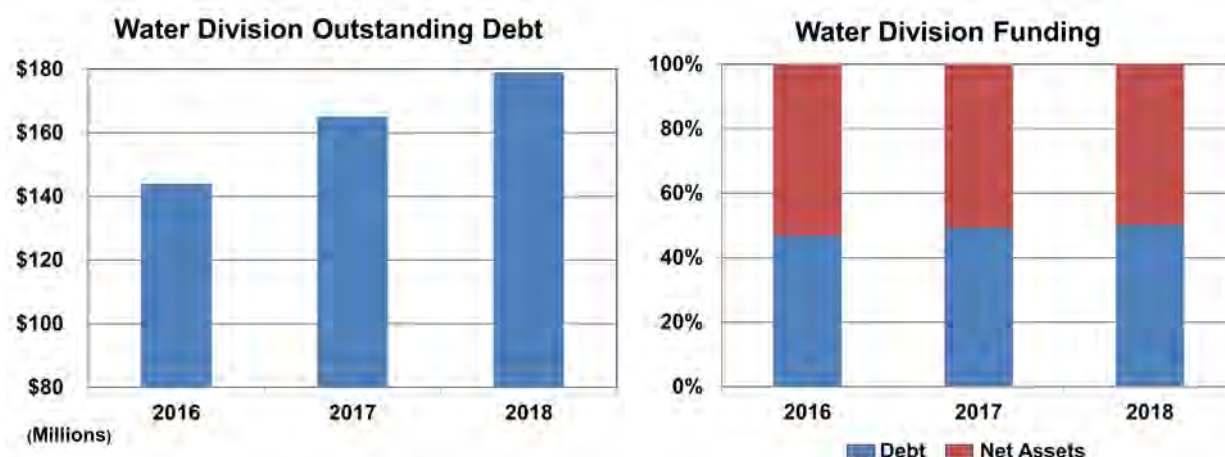
Debt Administration

As of June 30, 2018, the Water Division had \$179.2 million in outstanding water system bonds. The bonds are secured solely by revenues of the Water Division. Debt as a percentage of the Division's capital structure was 50.2 percent in 2018, 49.3 percent in 2017, and 46.9 percent at the end of fiscal year 2016. KUB's Debt Management Policy limits the Division's debt ratio to 60 percent or less.

Outstanding Debt As of June 30

(in thousands of dollars)

	2018	2017	2016
Revenue bonds	\$ 179,165	\$ 164,635	\$ 143,990
Total outstanding debt	\$ 179,165	\$ 164,635	\$ 143,990



The Division will pay \$69.9 million in principal payments over the next ten years, representing 39 percent of the outstanding bonds. KUB's Debt Management Policy requires a minimum of 30 percent of water debt principal be repaid over the next ten years.

Fiscal Year 2018 Compared to Fiscal Year 2017

As of June 30, 2018, the Division had \$179.2 million in outstanding debt (including the current portion of revenue bonds), compared to \$164.6 million last year, an increase of \$14.6 million or 8.8 percent. The increase is attributable to new revenue bonds issued during the fiscal year offset by the scheduled repayment of debt. The Division's weighted average cost of debt as of June 30, 2018 was 3.54 percent.

KUB sold \$20 million in water system revenue bonds in August 2017 for the purpose of funding water system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.05 percent.

The Division's outstanding debt is rated by Standard & Poor's and Moody's Investors Service. As of June 30, 2018, the Division's revenue bonds were rated AAA by Standard & Poor's and Aa1 by Moody's Investors Service. The Standard and Poor's water rating represents the highest credit rating available from Standard and Poor's.

Knoxville Utilities Board Water Division

Management's Discussion and Analysis

June 30, 2018 and 2017

Fiscal Year 2017 Compared to Fiscal Year 2016

As of June 30, 2017, the Division had \$164.6 million in outstanding debt (including the current portion of revenue bonds), compared to \$144 million last year, an increase of \$20.6 million or 14.3 percent. The increase is attributable to the net effect of new revenue and refunding bond issuances. The Division's weighted average cost of debt as of June 30, 2017 was 3.56 percent.

KUB sold \$25 million in water system revenue bonds in July 2016 for the purpose of funding water system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 2.72 percent.

KUB sold \$20.9 million in water system revenue refunding bonds in July 2016 for the purpose of refinancing existing debt at lower interest rates. KUB will realize a total debt service savings of \$2.5 million over the life of the bonds (\$2.2 million on a net present value basis). The true interest cost of the bonds, which were sold through a competitive bidding process, was 2.07 percent.

KUB sold \$5.3 million in water system revenue refunding bonds in March 2017 for the purpose of refinancing existing debt at lower interest rates. KUB will realize a total debt service savings of \$0.7 million over the life of the bonds (\$0.6 million on a net present value basis). The true interest cost of the bonds, which were sold through a competitive bidding process, was 2.14 percent.

The Division's outstanding debt is rated by Standard & Poor's and Moody's Investors Service. As of June 30, 2017, the Division's revenue bonds were rated AAA by Standard & Poor's and Aa1 by Moody's Investors Service. The Standard and Poor's water rating represents the highest credit rating available from Standard and Poor's.

As part of the rating process for the \$25 million in revenue bonds and \$20.9 million in revenue refunding bonds, Moody's upgraded its rating on KUB's water system bonds to Aa1 from Aa2. Aa1 is the second highest bond credit rating assigned by Moody's Investors Service. In its formal rating report, Moody's stated "the upgrade to Aa1 reflects the well-managed financial operations of the water system that continues to provide for solid debt service coverage and liquidity, a mature service area, and a manageable debt profile." The AAA bond rating from Standard and Poor's was reaffirmed. In its formal rating report on the water bonds, Standard and Poor's noted "based on our financial management assessment we view KUB to be '1' on a scale of 1-6, with '1' being the strongest."

Impacts on Future Financial Position

KUB anticipates adding 300 additional water system customers during fiscal year 2019.

In June 2017, the KUB Board adopted three years of rate increases for all four utility Divisions to help fund the ongoing Century II infrastructure programs for each system. The two remaining approved water rate increases are effective July 2018 and July 2019 and are expected to provide an additional \$3.1 million and \$3.3 million in annual revenue, respectively, to assist with the funding of the Water Division.

KUB sold \$20 million in water system revenue bonds in August 2018 for the purpose of funding water system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.46 percent.

The Pension Plan actuarial valuation for the Plan year ending December 31, 2017 resulted in an actuarially determined contribution of \$3,156,661 for the fiscal year ending June 30, 2019, based on the Plan's current funding policy. The Water Division's portion of this contribution is \$410,366. Subsequent to June 30, 2018, the actuarial valuation for the Plan year ending December 31, 2018 was completed. The actuarial valuation resulted in an actuarially determined contribution of \$2,585,824 for the fiscal year

Knoxville Utilities Board Water Division

Management's Discussion and Analysis

June 30, 2018 and 2017

ending June 30, 2020, based on the Plan's current funding policy. The Water Division's portion of this contribution is \$336,157. For the Plan year ending December 31, 2018, the Plan's actuarial funded ratio was 107.84 percent.

The OPEB Plan actuarial valuation as of January 1, 2017 resulted in an actuarially determined contribution of zero for the fiscal year ending June 30, 2019, based on the Plan's current funding policy. Subsequent to June 30, 2018, the actuarial valuation as of January 1, 2018 was completed. The actuarial valuation resulted in an actuarially determined contribution of \$311,324 for the fiscal year ending June 30, 2020, based on the Plan's current funding policy. The Water Division's portion of this contribution is \$40,472. The Plan's actuarial funded ratio was 102.78 percent.

GASB Statement No. 83, *Certain Asset Retirement Obligations*, is effective for fiscal years beginning after June 15, 2018. GASB Statement No. 84, *Fiduciary Activities*, is effective for fiscal years beginning after December 15, 2018. GASB Statement No. 87, *Leases*, is effective for fiscal years beginning after December 15, 2019. GASB Statement No. 88, *Certain Disclosure Related to Debt, Including Direct Borrowings and Direct Placements*, is effective for fiscal years beginning after June 15, 2018. GASB Statement No. 89, *Accounting for Interest Cost Incurred Before the End of a Construction Period*, is effective for fiscal years beginning after December 15, 2019. KUB has not elected early implementation of these standards and has not completed the process of evaluating the impact of these statements on its financial statements.

No other facts, decisions, or conditions are currently known which would have a significant impact on the Division's financial position or results of operations during fiscal year 2018.

Financial Contact

The Division's financial statements are designed to present users (citizens, customers, investors, and creditors) with a general overview of the Division's financial position and results of operations for the fiscal years ending June 30, 2018 and 2017. If you have questions about the statements or need additional financial information, contact KUB's Chief Financial Officer at 445 South Gay Street, Knoxville, Tennessee 37902.

Knoxville Utilities Board Water Division
Statements of Net Position
June 30, 2018 and 2017

	2018	2017
Assets and Deferred Outflows of Resources		
Current assets:		
Cash and cash equivalents	\$ 14,150,014	\$ 9,395,231
Short-term investments	-	2,494,820
Short-term contingency fund investments	3,114,455	5,627,026
Other current assets	774,541	1,485,669
Accrued interest receivable	16,540	13,117
Accounts receivable, less allowance of uncollectible accounts of \$54,237 in 2018 and \$51,105 in 2017	6,009,621	5,438,545
Inventories	3,238,388	3,785,220
Prepaid expenses	42,823	46,506
Total current assets	<u>27,346,382</u>	<u>28,286,134</u>
Restricted assets:		
Water bond fund	4,050,177	3,659,760
Other funds	2,788	4,087
Total restricted assets	<u>4,052,965</u>	<u>3,663,847</u>
Water plant in service	412,200,259	382,878,460
Less accumulated depreciation	<u>(119,537,309)</u>	<u>(111,352,647)</u>
	292,662,950	271,525,813
Retirement in progress	68,102	164,704
Construction in progress	25,446,188	26,842,085
Net plant in service	<u>318,177,240</u>	<u>298,532,602</u>
Other assets:		
Net pension asset	2,571,188	16,112
Net OPEB asset	487,639	-
Long-term contingency fund investments	13,532,161	9,166,236
Other	2,277,538	2,096,704
Total other assets	<u>18,868,526</u>	<u>11,279,052</u>
Total assets	<u>368,445,113</u>	<u>341,761,635</u>
Deferred outflows of resources:		
Pension outflow	253,222	1,181,805
OPEB outflow	86,110	-
Unamortized bond refunding costs	3,198,305	3,425,713
Total deferred outflows of resources	<u>3,537,637</u>	<u>4,607,518</u>
Total assets and deferred outflows of resources	<u>\$ 371,982,750</u>	<u>\$ 346,369,153</u>

The accompanying notes are an integral part of these financial statements.

Knoxville Utilities Board Water Division
Statements of Net Position
June 30, 2018 and 2017

	2018	2017
Liabilities, Deferred Inflows, and Net Position		
Current liabilities:		
Current portion of revenue bonds	\$ 5,815,000	\$ 5,270,000
Sales tax collections payable	312,321	288,887
Accounts payable	1,794,385	1,285,146
Accrued expenses	688,042	661,618
Customer deposits plus accrued interest	904,591	867,791
Accrued interest on revenue bonds	2,111,744	1,931,479
Total current liabilities	<u>11,626,083</u>	<u>10,304,921</u>
Other liabilities:		
Accrued compensated absences	1,515,405	1,578,105
Net pension liability - QEBA	36,444	24,060
Other	16,852	20,742
Total other liabilities	<u>1,568,701</u>	<u>1,622,907</u>
Long-term debt:		
Water revenue bonds	173,350,000	159,365,000
Unamortized premiums/discounts	5,743,978	5,357,304
Total long-term debt	<u>179,093,978</u>	<u>164,722,304</u>
Total liabilities	<u>192,288,762</u>	<u>176,650,132</u>
Deferred inflows of resources:		
Pension inflow	1,811,854	684,777
OPEB inflow	41,813	-
Total deferred inflows of resources	<u>1,853,667</u>	<u>684,777</u>
Total liabilities and deferred inflows of resources	<u>194,142,429</u>	<u>177,334,909</u>
Net position		
Net investment in capital assets	138,681,584	134,010,490
Restricted for:		
Debt service	1,938,433	1,728,281
Other	2,788	4,087
Unrestricted	37,217,516	33,291,386
Total net position	<u>177,840,321</u>	<u>169,034,244</u>
Total liabilities, deferred inflows, and net position	<u>\$ 371,982,750</u>	<u>\$ 346,369,153</u>

The accompanying notes are an integral part of these financial statements.

Knoxville Utilities Board Water Division
Statements of Revenues, Expenses and Changes in Net Position
Years Ended June 30, 2018 and 2017

	2018	2017
Operating revenues	\$ 54,365,215	\$ 50,769,639
Operating expenses		
Treatment	4,352,170	4,375,320
Distribution	14,940,310	13,986,235
Customer service	1,611,813	1,718,639
Administrative and general	4,775,460	4,956,420
Provision for depreciation	10,379,928	9,792,630
Taxes and tax equivalents	4,151,052	4,086,575
Total operating expenses	<u>40,210,733</u>	<u>38,915,819</u>
Operating income	<u>14,154,482</u>	<u>11,853,820</u>
Non-operating revenues (expenses)		
Contributions in aid of construction	926,471	701,334
Interest and dividend income	588,153	307,829
Interest expense	(6,340,380)	(6,021,974)
Amortization of debt costs	3,866	(42,372)
Write-down of plant for costs recovered through contributions	(926,471)	(701,334)
Other	<u>(237,123)</u>	<u>(180,574)</u>
Total non-operating revenues (expenses)	<u>(5,985,484)</u>	<u>(5,937,091)</u>
Change in net position before capital contributions	8,168,998	5,916,729
Capital contributions	<u>49,129</u>	<u>123,840</u>
Change in net position	8,218,127	6,040,569
Net position, beginning of year, as previously reported	169,034,244	162,993,675
Change in method of accounting for OPEB	<u>587,950</u>	<u>-</u>
Net position, beginning of year, as restated	<u>169,622,194</u>	<u>162,993,675</u>
Net position, end of year	<u>\$ 177,840,321</u>	<u>\$ 169,034,244</u>

The accompanying notes are an integral part of these financial statements.

Knoxville Utilities Board Water Division

Statements of Cash Flows

Years Ended June 30, 2018 and 2017

	2018	2017
Cash flows from operating activities:		
Cash receipts from customers	\$ 52,942,978	\$ 50,102,809
Cash receipts from other operations	2,333,576	24,129
Cash payments to suppliers of goods or services	(15,133,988)	(19,103,944)
Cash payments to employees for services	(11,089,536)	(11,024,085)
Payment in lieu of taxes	<u>(3,304,740)</u>	<u>(3,294,652)</u>
Net cash provided by operating activities	<u>25,748,290</u>	<u>16,704,257</u>
Cash flows from capital and related financing activities:		
Net proceeds from bond issuance	20,447,411	51,831,480
Principal paid on revenue bonds and notes payable	(5,470,000)	(30,540,000)
Interest paid on revenue bonds and notes payable	(6,160,115)	(5,924,521)
Acquisition and construction of water plant	(31,388,107)	(27,989,054)
Changes in water bond fund, restricted	(390,417)	(305,634)
Proceeds received on disposal of plant	52,177	13,469
Cash received from developers and individuals for capital purposes	<u>926,471</u>	<u>701,334</u>
Net cash used in capital and related financing activities	<u>(21,982,580)</u>	<u>(12,212,926)</u>
Cash flows from investing activities:		
Purchase of investment securities	(7,624,674)	(8,970,097)
Maturities of investment securities	8,131,396	4,278,641
Interest received	555,026	292,845
Other property and investments	<u>(72,675)</u>	<u>(90,306)</u>
Net cash provided by (used in) investing activities	<u>989,073</u>	<u>(4,488,917)</u>
Net increase (decrease) in cash and cash equivalents	4,754,783	2,414
Cash and cash equivalents, beginning of year	<u>9,395,231</u>	<u>9,392,817</u>
Cash and cash equivalents, end of year	\$ <u>14,150,014</u>	\$ <u>9,395,231</u>
Reconciliation of operating income to net cash provided by operating activities		
Operating income	\$ 14,154,482	\$ 11,853,820
Adjustments to reconcile operating income to net cash provided by operating activities:		
Depreciation expense	10,813,949	10,123,113
Changes in operating assets and liabilities:		
Accounts receivable	(571,076)	(78,456)
Inventories	546,832	(2,564,095)
Prepaid expenses	3,683	3,974
Other assets	702,131	(1,294,216)
Sales tax collections payable	23,434	4,667
Accounts payable and accrued expenses	41,945	(1,389,253)
Customer deposits plus accrued interest	36,800	62,997
Other liabilities	<u>(3,890)</u>	<u>(18,294)</u>
Net cash provided by operating activities	\$ <u>25,748,290</u>	\$ <u>16,704,257</u>
Noncash capital activities:		
Acquisition of plant assets through developer contributions	\$ 49,129	\$ 123,840

The accompanying notes are an integral part of these financial statements.

Knoxville Utilities Board Water Division

Notes to Financial Statements

June 30, 2018 and 2017

1. Description of Business

Knoxville Utilities Board (KUB), comprised of the Electric Division, Gas Division, Water Division, and Wastewater Division (Divisions), is reported as a component unit enterprise fund in the financial statements of the City of Knoxville. KUB's responsibility is to oversee the purchase, production, distribution, and processing of electricity, natural gas, water, and wastewater services. A seven-member Board of Commissioners (Board) governs KUB. The Board has all powers to construct, acquire, expand, and operate the Divisions. It has full control and complete jurisdiction over the management and operation of the Divisions including setting rates. The Water Division (Division) provides services to certain customers in Knox County and in two surrounding counties in East Tennessee. The Division's accounts are maintained in conformity with the Uniform System of Accounts of the National Association of Regulatory Utility Commissioners (NARUC) and the Governmental Accounting Standards Board (GASB), as applicable. The financial statements present only the Water Division and do not purport to, and do not, present fairly the consolidated financial position of Knoxville Utilities Board at June 30, 2018 and 2017, and the changes in its financial position for the years then ended in conformity with accounting principles generally accepted in the United States of America.

2. Significant Accounting Policies

Basis of Accounting

In conformity with Generally Accepted Accounting Principles (GAAP), KUB follows the provisions of GASB Statement No. 34 (Statement No. 34), *Financial Statements – and Management's Discussion and Analysis – for State and Local Governments* as amended by GASB Statement No. 63 (Statement No. 63), *Financial Reporting of Deferred Outflows of Resources, Deferred Inflows of Resources and Net Position*. Statement No. 34 established standards for external financial reporting for all state and local governmental entities. Under Statement No. 63, financial statements include deferred outflows of resources and deferred inflows of resources, in addition to assets and liabilities, and report *net position* instead of net assets. In addition, KUB follows GASB Statement No. 62 (Statement No. 62), *Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements* as it relates to certain items for regulatory accounting. Regulatory accounting allows a regulated utility to defer a cost (a regulatory asset) or recognize an obligation (a regulatory liability) if it is probable that through the rate making process, there will be a corresponding increase or decrease in future revenues. Accordingly, KUB has recognized certain regulatory assets and regulatory liabilities in the accompanying Statements of Net Position.

The financial statements are prepared on the accrual basis of accounting, whereby revenues are recognized when earned and expenses are recognized when incurred. The accounting and financial reporting treatment applied to the Division is determined by measurement focus. The transactions of the Division are accounted for on a flow of economic resources measurement focus. With this measurement focus, all assets and all liabilities associated with the operations are included on the Statement of Net Position. Net position (i.e., total assets and deferred outflows of resources net of total liabilities and deferred inflows of resources) is segregated into net investment in capital assets, restricted for capital activity and debt service, and unrestricted components.

Recently Adopted New Accounting Pronouncements

In June 2015, the GASB issued GASB Statement No. 75 (Statement No. 75), *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. The Statement addresses reporting by governments that provide OPEB to their employees. Statement No. 75 is effective for fiscal years beginning after June 15, 2017.

Knoxville Utilities Board Water Division

Notes to Financial Statements

June 30, 2018 and 2017

In March 2017, the GASB issued GASB Statement No. 85 (Statement No. 85), *Omnibus 2017*. The objective of this Statement is to address practice issues that have been identified during implementation and application of certain GASB Statements. Statement No. 85 is effective for fiscal years beginning after June 15, 2017.

In May 2017, the GASB issued GASB Statement No. 86 (Statement No. 86), *Certain Debt Extinguishment Issues*. The objective of this Statement is to improve consistency in accounting and financial reporting for in-substance defeasance of debt. The Statement provides guidance for transactions in which cash and other monetary assets acquired with existing resources or resources other than the proceeds of refunding debt, are placed in an irrevocable trust for the sole purpose of extinguishing debt. This Statement also improves accounting and financial reporting for prepaid insurance on debt that is extinguished and notes to financial statements for debt that is defeased in substance. Statement No. 86 is effective for fiscal years beginning after June 15, 2017.

Water Plant

Water plant and other property are stated on the basis of original cost. The cost of current repairs and minor replacements is charged to operating expense. The cost of renewals and improvements is capitalized. The original cost of utility plant assets retired or otherwise disposed of and the cost of removal less salvage value is charged to accumulated depreciation. When other property is retired, the related asset and accumulated depreciation are removed from the accounts, and the gain or loss is included in the results of operations.

The provision for depreciation of water plant in service is based on the estimated useful lives of the assets, which range from three to sixty-seven years, and is computed using the straight-line method. Pursuant to NARUC, the caption "Provision for depreciation" in the Statements of Revenues, Expenses and Changes in Net Position does not include depreciation for transportation equipment of \$434,021 in fiscal year 2018 and \$330,483 in fiscal year 2017. Under regulatory accounting, interest costs are expensed as incurred with construction of plant assets.

Operating Revenue

Operating revenue consists primarily of charges for services provided by the principal operations of the KUB Water Division. Operating revenue is recorded when the service is rendered, on a cycle basis, and includes an estimate of unbilled revenue. Revenues are reported net of bad debt expense of \$170,192 in fiscal year 2018 and \$117,252 in fiscal year 2017.

Non-operating Revenue

Non-operating revenue consists of revenues that are related to financing and investing types of activities and result from non-exchange transactions or ancillary activities.

Expense

When an expense is incurred for purposes for which there are both restricted and unrestricted net assets available, it is KUB's policy to apply those expenses to restricted net assets to the extent such are available and then to unrestricted net assets.

Net Position

GASB Statement No. 63 requires the classification of net position into three components – net investment in capital assets; net position-restricted; and net position-unrestricted.

These classifications are defined as follows:

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

Knoxville Utilities Board Water Division

Notes to Financial Statements

June 30, 2018 and 2017

outflows of resources and deferred inflows of resources that are attributable to the acquisition, construction, or improvement of those assets or related debt also should be included in this component of net position. If there are significant unspent related debt proceeds at year end, the portion of the debt attributable to the unspent proceeds are not included in the calculation of net investment in capital assets. Rather, that portion of the debt is included in the same net position component as the unspent proceeds.

- Net position-restricted – This component of net position consists of restricted assets reduced by liabilities and deferred inflows of resources related to those assets. Generally, a liability relates to restricted assets if the asset results from a resource flow that also results in the recognition of a liability or if the liability will be liquidated with the restricted assets reported.
- Net position-unrestricted – This component of net position consists of assets, deferred outflows of resources, liabilities, and deferred inflows of resources that are not included in the determination of net investment in capital assets or the restricted component of net position.

Contributions in Aid of Construction and Capital Contributions

Contributions in aid of construction are cash collections from customers or others for a particular purpose, generally the construction of new facilities to serve new customers in excess of the investment KUB is willing to make for a particular incremental revenue source. KUB reduces the plant account balances to which contributions relate by the actual amount of the contribution and recognizes the contributions as non-operating revenue in accordance with Statement No. 62.

Capital contributions represent contributions of utility plant infrastructure constructed by developers and others in industrial parks and other developments, and transferred to KUB upon completion of construction and the initiation of utility service. In accordance with GASB Statement No. 33, *Accounting and Financial Reporting for Nonexchange Transactions*, such contributions are recognized as revenues and capital assets upon receipt.

Inventories

Inventories, consisting of plant materials and operating supplies, are valued at the lower of average cost or replacement value.

Change in method of accounting for OPEB

In June 2015, the Governmental Accounting Standards Board (GASB) issued Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*, which addresses reporting by governments that provide OPEB to their employees. This standard was adopted by KUB in 2018 and resulted in a restatement of beginning net position of \$4,522,695 (Division's share \$587,950) to increase the net OPEB asset by \$4,522,695 (Division's share \$587,950) based on revised actuarial assumptions to conform with GASB 75.

OPEB Plan

KUB's employees hired prior to July 1, 1999, who are retired and who (prior to retirement) qualified for retiree medical insurance by meeting the Rule of 80 (age plus years of service) with a minimum of 20 years of service, and were enrolled in medical coverage on their last day are eligible for post-employment health care established by KUB's Board of Commissioners through Resolution No. 1168, as amended, dated October 18, 2007. KUB's policy is to fully fund the annual actuarially determined contributions, which are determined by actuarial valuation. As required by GASB Statement No. 75, KUB measures net OPEB liability as total OPEB liability less the amount of the Plan's fiduciary net position. The amounts reported as of June 30, 2018 must be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 are based on a June 30, 2018 measurement date.

Knoxville Utilities Board Water Division

Notes to Financial Statements

June 30, 2018 and 2017

Pension Plan and Qualified Excess Benefit Arrangement

KUB's employees are participants in the Knoxville Utilities Board Pension Plan as authorized by the Charter of the City of Knoxville §1107(J) (Note 10). KUB's policy is to fully fund the annual actuarially determined contributions. As required by GASB Statement No. 68, KUB measures net pension liability as total pension liability less the amount of the Plan's fiduciary net position. The amounts reported as of June 30, 2018 and 2017 must be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 and 2017 are based on a December 31, 2017 and 2016 measurement date, respectively. The net pension asset is \$19,778,372 (Division's share \$2,571,188) as of June 30, 2018 and \$123,941 (Division's share \$16,112) as of June 30, 2017.

KUB implemented a qualified governmental excess benefit arrangement (QEBA) under IRC section 415(m), which was created by Congress to allow the payment of pension benefits that exceed the IRC section 415(b) limits (and therefore cannot be paid from a qualified retirement plan). The QEBA is a single-employer defined benefit pension plan, administered by KUB (Note 11). As required by GASB Statement No. 73, KUB measures the total pension liability of the QEBA. The amounts reported as of June 30, 2018 and 2017 must be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 and 2017 will be based on the December 31, 2017 and 2016 measurement dates. The total pension liability of the QEBA is \$280,341 (Division's share \$36,444) as of June 30, 2018 and \$185,077 (Division's share \$24,060) as of June 30, 2017.

Investments

Investments are carried at fair value as determined by quoted market prices at the reporting date.

Self-Insurance

KUB has established self-insurance programs covering portions of workers' compensation, employee health, environmental liability, general liability, property and casualty liability, and automobile liability claims. A liability is accrued for claims as they are incurred. When applicable, claims in excess of the self-insured risk are covered by KUB's insurance carrier. Additionally, KUB provides certain lifetime health benefits to eligible retired employees under a self-insurance plan administered by a third party.

Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. These estimates are based on historical experience and various other assumptions that KUB believes are reasonable under the circumstances. However, future events are subject to change and the best estimates and judgments routinely require adjustment. Estimates are used for, but not limited to, inventory valuation, allowance for uncollectible accounts, depreciable lives of plant assets, unbilled revenue volumes, pension trust valuations, OPEB trust valuations, insurance liability reserves, and potential losses from contingencies and litigation. Actual results could differ from those estimates.

Restricted and Designated Assets

Certain assets are restricted by bond resolutions for the construction of utility plant and debt repayment. Certain additional assets are designated by management for contingency purposes and economic development.

Knoxville Utilities Board Water Division

Notes to Financial Statements

June 30, 2018 and 2017

Cash Equivalents

For purposes of the Statements of Cash Flows, KUB considers all unrestricted and undesignated highly liquid investments with an original maturity of three months or less when purchased to be cash equivalents.

Deferred Outflows and Inflows of Resources

Deferred outflows of resources are items related to the acquisition of assets or related debt which are amortized over the life of the asset or debt. Deferred inflows of resources are items related to the acquisition of assets or related debt which are amortized over the life of the asset or debt. KUB records costs associated with the gain or loss on refunding of debt as either a deferred outflow or inflow based on the parameters of Statement No. 65. Deferred outflows of resources also include employer pension contributions made subsequent to the measurement date of the net pension liability and before the end of the employer's reporting period in accordance with Statement No. 71. Deferred inflows and deferred outflows also include the net difference between projected and actual earnings on pension plan investments and OPEB plan investments, differences between expected and actual experience, and changes in assumptions in accordance with Statement No. 68 and Statement No. 75.

Debt Premium/Discount

KUB records unamortized premium and discount on debt as a separate line item in the Long Term Debt section of the Financial Statements. Amortization of these amounts is recorded over the life of the applicable debt as amortization expense.

Debt Issuance Costs

In accordance with regulatory accounting, KUB records debt issuance costs as an Other Asset. Amortization of these amounts is recorded over the life of the applicable debt as amortization expense.

Deferred Gain/Loss on Refunding of Debt

KUB records costs associated with the gain or loss on refunding of debt as either a deferred outflow or inflow based on the parameters of Statement No. 65. Amortization of these amounts is recorded over the life of the applicable debt as amortization expense.

Compensated Absences

KUB accrues a liability for earned but unpaid paid-time off (PTO) days.

Subsequent Events

KUB has evaluated events and transactions through October 25, 2018, the date these financial statements were issued, for items that should potentially be recognized or disclosed. KUB sold \$20 million in water system revenue bonds in August 2018 for the purpose of funding water system capital improvements in fiscal year 2019. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.46 percent. Annual debt service payments including principal and interest range from \$868,539 to \$1,094,550 with final maturity in fiscal year 2048.

Reclassifications

Certain reclassifications have been made to the fiscal year 2017 balances to conform to fiscal year 2018 presentation.

Recently Issued Accounting Pronouncements

In November 2016, the GASB issued GASB Statement No. 83 (Statement No. 83), *Certain Asset Retirement Obligations*. The objective of this Statement is to define asset retirement obligations as a legally enforceable liability associated with the retirement of a tangible capital asset. A government that has legal obligations is required to perform future asset retirement activities

Knoxville Utilities Board Water Division

Notes to Financial Statements

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related to its tangible capital assets to recognize a liability based on the guidance in this Statement. Statement No. 83 is effective for fiscal years beginning after June 15, 2018.

In January 2017, the GASB issued GASB Statement No. 84 (Statement No. 84), *Fiduciary Activities*. The objective of this Statement is to improve guidance regarding the identification of fiduciary activities for accounting and financial reporting purposes and how those activities should be reported. Statement No. 84 is effective for fiscal years beginning after December 15, 2018.

In June 2017, the GASB issued GASB Statement No. 87 (Statement No. 87), *Leases*. This Statement requires recognition of certain lease assets and liabilities for leases that previously were classified as operating leases and recognized as inflows of resources or outflows of resources based on the payment provisions of the contract. Under this Statement, a lessee is required to recognize a lease liability and an intangible right-to-use lease asset. Statement No. 87 is effective for fiscal years beginning after December 15, 2019.

In April 2018, the GASB issued GASB Statement No. 88 (Statement No. 88), *Certain Disclosure Related to Debt, Including Direct Borrowings and Direct Placements*. The primary objective of this Statement is to improve the information that is disclosed in notes to government financial statements related to debt, including direct borrowing and direct placements. It also clarifies which liabilities governments should include when disclosing information related to debt. Statement No. 88 is effective for fiscal years beginning after June 15, 2018.

In June 2018, the GASB issued GASB Statement No. 89 (Statement No. 89), *Accounting for Interest Cost Incurred Before the End of a Construction Period*. The objectives of this Statement are to enhance the relevance and comparability of information about capital assets and the cost of borrowing for a reporting period, and to simplify accounting for interest cost incurred before the end of a construction period. Statement No. 89 is effective for fiscal years beginning after December 15, 2019.

KUB has not elected early implementation of these standards and has not completed the process of evaluating the impact of these statements on its financial statements.

3. Deposits and Investments

KUB follows the provisions of Statement No. 40 of the Governmental Accounting Standards Board, *Deposit and Investment Risk Disclosures—an amendment of GASB Statement No. 3*. This Statement establishes and modifies disclosure requirements for state and local governments related to deposit and investment risks. KUB classifies its fair value measurements within the fair value hierarchy established by Statement No. 72 of the Governmental Accounting Standards Board, *Fair Value Measurement and Application*.

KUB's investment policy provides the framework for the administration and investment of cash deposits. The investment policy follows Tennessee State law and defines the parameters under which KUB funds should be invested. State law authorizes KUB to invest in obligations of the United States Treasury, its agencies and instrumentalities; certificates of deposit; repurchase agreements; money market funds; and the State Treasurer's Investment Pool.

Interest Rate Risk. KUB's primary investment objectives are to place investments in a manner to ensure the preservation of capital, remain sufficiently liquid to meet all operating requirements, and maximize yield of return. KUB minimizes its exposure to interest rate risk by adhering to Tennessee State law requirements for the investment of public funds. This includes limiting investments to those types described above and limiting maturity horizons. The maximum maturity is four years from the date of investment. KUB also limits its exposure by holding investments to maturity unless cash flow requirements dictate otherwise.

Knoxville Utilities Board Water Division

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Credit Risk. KUB's investment policy, as required by state law, is to apply the prudent-person rule: Investments are made with judgment and care, under circumstances then prevailing, which persons of prudence, discretion, and intelligence exercise in the management of their own affairs, not for speculation, but for investment, considering the probable income to be derived, as well as the probable safety of their capital.

Custodial Credit Risk. KUB's investment policy limits exposure to custodial credit risk by restricting investments to a standard set forth by state law. All deposits in excess of federal depository insurance limits are collateralized with government securities held in KUB's name by a third-party custodian bank(s) acting as KUB's agent(s), or through the State of Tennessee's collateral pool. Financial institutions that participate in the collateral pool are subject to special assessment; therefore, the deposits are considered insured. A portion of KUB's investments are generally held in the State of Tennessee Local Government Investment Pool (LGIP). The LGIP is a part of the State Pooled Investment Fund and is sponsored by the State of Tennessee Treasury Department. Tennessee Code Annotated ¶9-4-701 *et seq.* authorizes local governments to invest in the LGIP. None of KUB's investments are exposed to custodial credit risk.

Classification of deposits and investments per Statement of Net Position:

	2018	2017
Current assets		
Cash and cash equivalents	\$ 14,150,014	\$ 9,395,231
Short-term investments	-	2,494,820
Short-term contingency fund investments	3,114,455	5,627,026
Other assets		
Long-term contingency fund investments	13,459,479	9,123,258
Restricted assets		
Water bond fund	4,050,177	3,659,760
Other funds	2,788	4,087
	<u>\$ 34,776,913</u>	<u>\$ 30,304,182</u>

The above amounts do not include accrued interest of \$72,682 in fiscal year 2018 and \$42,978 in fiscal year 2017. Interest income is recorded on an accrual basis.

Investments and maturities of KUB's deposits and investments as held by financial institutions as of June 30, 2018:

	Deposit and Investment Maturities (in Years)		
	Fair Value	Less Than 1	1-5
Supersweep NOW and Other Deposits	\$ 12,226,769	\$ 12,226,769	\$ -
State Treasurer's Investment Pool	2,596,327	2,596,327	-
Agency Bonds	19,046,084	3,114,455	15,931,629
Certificates of Deposits	1,453,750	1,453,750	
	<u>\$ 35,322,930</u>	<u>\$ 19,391,301</u>	<u>\$ 15,931,629</u>

KUB categorizes its fair value measurements within the fair value hierarchy established by Statement No. 72 of the Governmental Accounting Standards Board, *Fair Value Measurement and Application*. The hierarchy is based on the valuation inputs used to measure the fair value of an asset with a maturity at purchase greater than one year. Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are significant unobservable inputs.

Knoxville Utilities Board Water Division

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KUB has the following recurring fair value measurements as of June 30, 2018:

- U.S. Agency bonds of \$15,931,629, which have a maturity at purchase of greater than one year, are valued using quoted market prices (Level 1 inputs)

KUB measures investments with a maturity at purchase of one year or less at amortized cost, which is considered a fair value equivalent due to their nature. Investments in the State Treasurer's Investment Pool are measured at net asset value (NAV) per share.

4. Accounts Receivable

Accounts receivable consists of the following:

	2018	2017
Wholesale and retail customers		
Billed services	\$ 3,811,495	\$ 3,519,224
Unbilled services	2,025,426	1,766,433
Other	226,937	203,993
Allowance for uncollectible accounts	(54,237)	(51,105)
	<u>\$ 6,009,621</u>	<u>\$ 5,438,545</u>

5. Accounts Payable and Accruals

Accounts payable and accruals were composed of the following:

	2018	2017
Trade accounts	\$ 1,794,385	\$ 1,285,146
Salaries and wages	451,093	415,685
Self-insurance liabilities	236,949	245,933
	<u>\$ 2,482,427</u>	<u>\$ 1,946,764</u>

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Knoxville Utilities Board Water Division

Notes to Financial Statements

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6. Long-Term Obligations

Long-term debt consists of the following:

	Balance June 30, 2017	Additions	Payments	Defeased	Balance June 30, 2018	Amounts Due Within One Year
U-2009 - 3.0 - 4.5%	\$ 1,875,000	\$ -	\$ 925,000	\$ -	\$ 950,000	\$ 950,000
W-2011 - 2.0 - 4.0%	22,250,000	-	550,000	-	21,700,000	550,000
X-2012 - 3.0 - 5.0%	8,150,000	-	535,000	-	7,615,000	565,000
Y-2013 - 3.0 - 4.0%	8,690,000	-	300,000	-	8,390,000	320,000
Z-2013 - 2.0 - 5.0%	23,175,000	-	500,000	-	22,675,000	525,000
AA-2014 - 2.0 - 4.0%	7,575,000	-	150,000	-	7,425,000	150,000
BB-2015 - 2.0 - 5.0%	22,735,000	-	865,000	-	21,870,000	885,000
CC-2015 - 2.0 - 4.0%	19,275,000	-	400,000	-	18,875,000	425,000
DD-2016 - 3.0 - 5.0%	24,725,000	-	475,000	-	24,250,000	500,000
EE-2016 - 2.0 - 5.0%	20,875,000	-	100,000	-	20,775,000	100,000
FF-2017 - 3.0 - 5.0%	5,310,000	-	470,000	-	4,840,000	465,000
GG-2017 - 2.125 - 5.0%	-	20,000,000	200,000	-	19,800,000	380,000
Total bonds	\$ 164,635,000	\$ 20,000,000	\$ 5,470,000	\$ -	\$ 179,165,000	\$ 5,815,000
Unamortized Premium	5,357,304	735,453	348,779	-	5,743,978	-
Total long term debt	\$ 169,992,304	\$ 20,735,453	\$ 5,818,779	\$ -	\$ 184,908,978	\$ 5,815,000

	Balance June 30, 2016	Additions	Payments	Defeased	Balance June 30, 2017	Amounts Due Within One Year
S-2005 - 3.5 - 5.0%	\$ 6,295,000	\$ -	\$ 465,000	\$ 5,830,000	\$ -	\$ -
T-2007 - 4.0 - 5.5%	750,000	-	750,000	-	-	-
U-2009 - 3.0 - 4.5%	22,625,000	-	875,000	19,875,000	1,875,000	925,000
W-2011 - 2.0 - 4.0%	22,800,000	-	550,000	-	22,250,000	550,000
X-2012 - 3.0 - 5.0%	8,665,000	-	515,000	-	8,150,000	535,000
Y-2013 - 3.0 - 4.0%	8,970,000	-	280,000	-	8,690,000	300,000
Z-2013 - 2.0 - 5.0%	23,675,000	-	500,000	-	23,175,000	500,000
AA-2014 - 2.0 - 4.0%	7,725,000	-	150,000	-	7,575,000	150,000
BB-2015 - 2.0 - 5.0%	22,835,000	-	100,000	-	22,735,000	865,000
CC-2015 - 2.0 - 4.0%	19,650,000	-	375,000	-	19,275,000	400,000
DD-2016 - 3.0-5.0%	-	25,000,000	275,000	-	24,725,000	475,000
EE-2016 - 2.0-5.0%	-	20,875,000	-	-	20,875,000	100,000
FF-2017 - 3.0-5.0%	-	5,310,000	-	-	5,310,000	470,000
Total bonds	\$ 143,990,000	\$ 51,185,000	\$ 4,835,000	\$ 25,705,000	\$ 164,635,000	\$ 5,270,000
Unamortized Premium	2,702,182	3,085,193	270,448	159,623	5,357,304	-
Total long term debt	\$ 146,692,182	\$ 54,270,193	\$ 5,105,448	\$ 25,864,623	\$ 169,992,304	\$ 5,270,000

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Debt service over remaining term of the debt is as follows:

Fiscal Year	Principal	Total Interest	Grand Total
2019	\$ 5,815,000	\$ 6,335,230	\$ 12,150,230
2020	6,065,000	6,088,230	12,153,230
2021	6,300,000	5,857,881	12,157,881
2022	6,600,000	5,615,581	12,215,581
2023	6,850,000	5,340,781	12,190,781
2024 - 2028	38,245,000	22,854,533	61,099,533
2029 - 2033	42,420,000	16,507,394	58,927,394
2034 - 2038	28,945,000	10,382,426	39,327,426
2039 - 2043	26,385,000	4,884,180	31,269,180
2044 - 2047	11,540,000	756,215	12,296,215
Total	\$ 179,165,000	\$ 84,622,451	\$ 263,787,451

The Division has pledged sufficient revenue, after deduction of all current operating expenses (exclusive of tax equivalents), to meet bond principal and interest payments when due. The requirements for the bonds are being met through monthly deposits to the Water Bond Fund, as required by the bond covenants. As of June 30, 2018, these bond covenants had been satisfied.

During fiscal year 2010, KUB's Water Division issued Series U 2009 bonds to fund water system capital improvements.

During fiscal year 2012, KUB's Water Division issued Series W 2011 bonds to fund water system capital improvements. KUB's Water Division also issued Series X 2012 bonds to retire Series Q 2004 bonds.

During fiscal year 2013, KUB's Water Division issued Series Y 2013 bonds to retire a portion of outstanding Series R 2005 bonds.

During fiscal year 2014, KUB's Water Division issued Series Z 2013 bonds to fund water system capital improvements.

During fiscal year 2015, KUB's Water Division issued Series BB 2015 bonds to retire a portion of outstanding Series T 2007 bonds. KUB's Water Division also issued Series AA 2014 and Series CC 2015 bonds to fund water system capital improvements.

During fiscal year 2017, KUB's Water Division issued Series DD 2016 bonds to fund water system capital improvements. KUB's Water Division also issued Series EE 2016 bonds to retire a portion of outstanding Series U 2009 bonds. KUB's Water Division also issued Series FF 2017 bonds to retire outstanding Series S 2005 bonds.

During fiscal year 2018, KUB's Water Division issued GG 2017 bonds to fund water system capital improvements.

In prior years, certain revenue bonds were defeased by placing the proceeds of new bonds in an irrevocable trust to provide for all future debt service payments on the old bonds. Accordingly, the liability for the defeased bonds, \$19.9 million at June 30, 2018, and the trust account assets are not included in the financial statements.

Knoxville Utilities Board Water Division
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Other liabilities consist of the following:

	Balance June 30, 2017	Increase	Decrease	Balance June 30, 2018
Accrued compensated absences	\$ 1,578,105	\$ 2,514,430	\$ (2,577,130)	\$ 1,515,405
Other	<u>20,742</u>	<u>99,828</u>	<u>(103,718)</u>	<u>16,852</u>
	<u>\$ 1,598,847</u>	<u>\$ 2,614,258</u>	<u>\$ (2,680,848)</u>	<u>\$ 1,532,257</u>

	Balance June 30, 2016	Increase	Decrease	Balance June 30, 2017
Accrued compensated absences	\$ 1,601,156	\$ 2,230,616	\$ (2,253,667)	\$ 1,578,105
Other	<u>39,036</u>	<u>33,280</u>	<u>(51,574)</u>	<u>20,742</u>
	<u>\$ 1,640,192</u>	<u>\$ 2,263,896</u>	<u>\$ (2,305,241)</u>	<u>\$ 1,598,847</u>

7. Lease Commitments

KUB has non-cancelable operating lease commitments for office equipment, property, and vehicles, summarized for the following fiscal years:

2019	\$ 62,849
2020	<u>45,134</u>
Total operating minimum lease payments	<u>\$ 107,983</u>

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Knoxville Utilities Board Water Division
Notes to Financial Statements
June 30, 2018 and 2017

8. Capital Assets

Capital asset activity was as follows:

	Balance June 30, 2017	Increase	Decrease	Balance June 30, 2018
Production Plant	\$ 727,863	\$ -	\$ -	\$ 727,863
Pumping & Treatment Plant	78,172,996	7,210,142	(678,860)	84,704,278
Distribution Plant				
Distribution Mains	184,305,419	13,030,323	(748,368)	196,587,374
Transmission Mains	33,391,821	19,277	(109,130)	33,301,968
Services & Meters	33,798,659	9,140,708	(259,254)	42,680,113
Other Accounts	25,163,649	894,061	(76,486)	25,981,224
Total Distribution Plant	\$ 276,659,548	\$ 23,084,369	\$ (1,193,238)	\$ 298,550,679
Total General Plant	<u>27,318,053</u>	<u>1,660,232</u>	<u>(760,846)</u>	<u>28,217,439</u>
Total Water Plant	\$ <u>382,878,460</u>	\$ <u>31,954,743</u>	\$ <u>(2,632,944)</u>	\$ <u>412,200,259</u>
Less Accumulated Depreciation	<u>(111,352,647)</u>	<u>(10,821,995)</u>	<u>2,637,333</u>	<u>(119,537,309)</u>
Net Plant Assets	\$ 271,525,813	\$ 21,132,748	\$ 4,389	\$ 292,662,950
Work In Progress	<u>27,006,789</u>	<u>31,105,542</u>	<u>(32,598,041)</u>	<u>25,514,290</u>
Total Net Plant	\$ <u>298,532,602</u>	\$ <u>52,238,290</u>	\$ <u>(32,593,652)</u>	\$ <u>318,177,240</u>

	Balance June 30, 2016	Increase	Decrease	Balance June 30, 2017
Production Plant	\$ 727,863	\$ -	\$ -	\$ 727,863
Pumping & Treatment Plant	78,207,281	284,448	(318,733)	78,172,996
Distribution Plant				
Distribution Mains	172,759,533	12,476,547	(930,661)	184,305,419
Transmission Mains	30,447,826	3,238,070	(294,075)	33,391,821
Services & Meters	29,944,881	7,414,299	(3,560,521)	33,798,659
Other Accounts	23,171,392	2,130,215	(137,958)	25,163,649
Total Distribution Plant	\$ 256,323,632	\$ 25,259,131	\$ (4,923,215)	\$ 276,659,548
Total General Plant	<u>26,084,584</u>	<u>2,225,014</u>	<u>(991,545)</u>	<u>27,318,053</u>
Total Water Plant	\$ <u>361,343,360</u>	\$ <u>27,768,593</u>	\$ <u>(6,233,493)</u>	\$ <u>382,878,460</u>
Less Accumulated Depreciation	<u>(107,582,378)</u>	<u>(10,131,159)</u>	<u>6,360,890</u>	<u>(111,352,647)</u>
Net Plant Assets	\$ 253,760,982	\$ 17,637,434	\$ 127,397	\$ 271,525,813
Work In Progress	<u>27,496,642</u>	<u>27,559,634</u>	<u>(28,049,487)</u>	<u>27,006,789</u>
Total Net Plant	\$ <u>281,257,624</u>	\$ <u>45,197,068</u>	\$ <u>(27,922,090)</u>	\$ <u>298,532,602</u>

Knoxville Utilities Board Water Division

Notes to Financial Statements

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9. Risk Management

KUB is exposed to various risks of loss related to active and retiree medical claims; injuries to workers; theft of, damage to, and destruction of assets; environmental damages; and natural disasters. Claims expenditures and liabilities are reported when it is probable that a loss has occurred and the amount of that loss can be reasonably estimated. These losses include an estimate of claims that have been incurred but not reported.

These liabilities are included in accrued expenses in the Statement of Net Position. The liability is KUB's best estimate based on available information. At June 30, 2018 and June 30, 2017, the amount of these liabilities was \$236,949 and \$245,933, respectively, resulting from the following changes:

	2018	2017
Balance, beginning of year	\$ 245,933	\$ 228,605
Current year claims and changes in estimates	2,025,925	2,081,003
Claims payments	(2,034,909)	(2,063,675)
Balance, end of year	<u>\$ 236,949</u>	<u>\$ 245,933</u>

10. Pension Plan

Description of Plan

The Knoxville Utilities Board Pension Plan (the Plan) is a governmental plan as defined by the Employee Retirement Income Security Act of 1974 (ERISA or the Act), is not subject to any of the provisions of the Act, and was revised January 1, 2017 to include all prior approved amendments. The Plan is a single-employer contributory, defined benefit pension plan established by Knoxville Utilities Board Resolution No. 980 dated February 18, 1999, effective July 1, 1999, as authorized by the Charter of the City of Knoxville §1107(J). The Plan is designed to provide retirement, disability and death benefits to KUB employees. KUB administers the Plan through an Administrative Committee consisting of seven KUB employees that are appointed by KUB's President and CEO. Any amendments to the Plan involving costs not approved in the operating budget must be adopted by KUB's Board of Commissioners, upon recommendation by KUB's President and CEO. All other amendments to the Plan may be approved by KUB's President and CEO upon 60 days notification to the Board's Audit and Finance Committee. The Plan issues a financial report, which includes financial statements and required supplementary information. The report may be obtained by writing the Knoxville Utilities Board Retirement System, P.O. Box 59017, Knoxville, TN 37950-9017. For purposes of this disclosure, presentation is on a consolidated basis unless division's share is specified.

Effective January 1, 2011, KUB closed the Plan such that persons employed or re-employed by KUB on or after January 1, 2011, are not eligible to participate, but that eligible employees hired prior to January 1, 2011, who have not separated from service, shall continue as Participants and to accrue benefits under the Plan.

Knoxville Utilities Board Water Division

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Participants in the Plan consisted of the following as of December 31:

	2017	2016
Inactive plan members:		
Terminated vested participants	34	43
Retirees and beneficiaries	602	605
Active plan members	<u>629</u>	<u>662</u>
Total	<u>1,265</u>	<u>1,310</u>

Retirement Benefits

The Plan provides three benefit arrangements for KUB participants, retirees, and beneficiaries.

The Plan provides pension benefits through the Career Equity Program ("CEP") for eligible employees hired on or after January 1, 1999, and for eligible former "City System Plan A" participants who elected CEP coverage as of July 1, 1999. The guaranteed pension benefit payable to a participant who has completed five or more years of service (or reached the normal retirement date, if earlier) upon termination of KUB employment shall be a lump sum equal to the participant's average compensation times their benefit percentage, as defined in the Plan document, or an annuity may be chosen by the participant.

In addition, the Plan provided retirement benefits through "Plan A" for former City System Plan A participants who elected not to participate in the CEP. Plan A is a closed plan and is not available to KUB employees hired after July 1, 1999. Plan A provides for early retirement benefits with 25 years of service and normal retirement benefits at age 62 or later. Benefits provided to Plan A participants include several different forms of monthly annuity payments.

The Plan also provides retirement benefits through "Plan B" for former "City System Plan B" participants. Plan B is a closed plan providing benefits to participants not covered by Social Security. Benefits provided to Plan B participants include several different forms of monthly annuity payments available to participants.

Effective January 1, 2012, KUB began to provide for additional monthly supplements, which are not subject to cost of living adjustments, to certain former employees and surviving dependents of former employees who are eligible for and have elected coverage under the KUB retiree medical plan and are eligible for Medicare. This was done to compensate for the elimination of drug coverage under the KUB retiree medical plan and to assist such individuals in obtaining prescription drug coverage under Medicare Part D.

Contributions

Participation in Plan A requires employee contributions of 3 percent of the first \$4,800 of annual earnings and 5 percent of annual earnings in excess of \$4,800. KUB contributions are determined by the enrolled actuary of the Plan and equal the amount necessary to provide the benefits under the Plan determined by the application of accepted actuarial methods and assumptions. The method of funding shall be consistent with Plan objectives.

Plan Funding

KUB maintains a Funding Policy for the Plan in accordance with Tennessee State Law. The primary goal of the Policy is to document the method KUB has adopted to provide assurance that future KUB and employee contributions and current Plan assets will be sufficient to fund all benefits expected to be paid to current active, inactive and retired Plan participants and their beneficiaries. Per the Funding Policy, KUB fully funds its annual Actuarially Determined Contribution.

Knoxville Utilities Board Water Division

Notes to Financial Statements

June 30, 2018 and 2017

Investments

The Plan's investments are held by State Street Bank and Trust Company (the "Trustee"). The Plan's policy in regard to the allocation of invested assets is established by the Retirement System Investment Committee and approved by the KUB Board of Commissioners and may only be amended by the KUB Board of Commissioners. It is the policy of the Retirement System Investment Committee to pursue an investment strategy that reduces risk through the prudent diversification of the portfolio across a broad selection of distinct asset classes. The following was the Plan's adopted asset allocation policy as of December 31, 2017:

Asset Class	Target Allocation
Domestic equity – large cap	20% - 50%
Domestic equity – mid cap	0% - 15%
Domestic equity – small cap	0% - 15%
Domestic equity – convertible securities	0% - 10%
Non-U.S. equity	0% - 20%
Real estate equity	0% - 10%
Fixed income – aggregate bonds	5% - 25%
Fixed income – long-term bonds	10% - 25%
Cash and deposits	0% - 5%

Contributions of \$3,756,283 and \$4,816,913 for 2016 and 2015, respectively, were made during the Plan sponsor's fiscal years ending June 30, 2018 and 2017, respectively. Of these amounts, \$488,317 and \$626,199 are attributable to the Water Division. The fiscal year 2018 contribution was determined as part of the January 1, 2016 valuation using the Individual Entry Age Normal funding method. The objective under this method is to fund each participant's benefits under the Plan as payments which are level as a percentage of salary, starting on the original participation date (employment date) and continuing until the assumed retirement, termination, disability or death.

Net Pension Liability

The below summarizes the disclosures of GASB Statement No. 68, *Accounting and Financial Reporting for Pensions – an amendment of GASB Statement No. 27* ("GASB 68"), which requires measurement of the net pension liability as total pension liability less the amount of the Plan's fiduciary net position. The amounts reported as of June 30 must be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 and 2017 will be based on the December 31, 2017 and 2016 measurement date, respectively. The Division's share of the net pension asset at June 30, 2018 is \$2,571,188 and at June 30, 2017 is \$16,112.

GASB 68 requires certain disclosures related to the net pension liability of the Plan as disclosed below:

	2017	2016
Total pension liability	\$ 207,598,733	\$ 204,390,738
Plan fiduciary net position	(227,377,105)	(204,514,679)
Plan's net pension (asset) liability	<u>\$ (19,778,372)</u>	<u>\$ (123,941)</u>

Plan fiduciary net position as a percentage of the total pension liability	109.50%	100.06%

Knoxville Utilities Board Water Division
Notes to Financial Statements
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Changes in Net Pension Liability are as follows:

	Total Pension Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net Pension Liability (Asset) (a) - (b)
Balances at December 31, 2016	\$ 204,390,738	\$ 204,514,679	\$ (123,941)
Changes for the year:			
Service cost	4,607,486	-	4,607,486
Interest	15,015,282	-	15,015,282
Differences between Expected and Actual Experience	(1,087,161)	-	(1,087,161)
Changes of Assumptions	(357,633)	-	(357,633)
Contributions - employer	-	4,286,597	(4,286,597)
Contributions - rollovers	-	1,482,701	(1,482,701)
Contributions - member	-	5,931	(5,931)
Net investment income	-	32,442,458	(32,442,458)
Benefit payments	(14,969,979)	(14,969,979)	-
Administrative expense	-	(385,282)	385,282
Net changes	3,207,995	22,862,426	(19,654,431)
Balances at December 31, 2017	\$ 207,598,733	\$ 227,377,105	\$ (19,778,372)

Actuarial Assumptions

The total pension liability was determined by an actuarial valuation as of December 31, 2017 and 2016, using the following actuarial assumptions, applied to all periods included in the measurement:

Actuarial cost method	Individual entry age
Asset valuation method	5-year smoothed market
Amortization method	Level dollar closed period with 25 years remaining as of January 1, 2016 and 26 years remaining as of January 1, 2015
Discount rate	7.5%
Salary increase	From 2.80% to 5.15% for January 1, 2016 and January 1, 2015, based on years of service
Mortality	Sex distinct RP-2000 Combined Mortality projected to 2024 using Scale AA
Inflation	2.8 %

The actuarial assumptions used in the December 31, 2017 and 2016 valuation were based on the results of an actuarial experience study for the period January 1, 2009 through December 31, 2013.

The long-term expected rate of return on Plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of Plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the Plan's target asset allocation as of December 31, 2017 and 2016 are summarized in the following table. The real rate of return reported for fixed income is for aggregate fixed income. The Plan has both aggregate and long duration fixed income.

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Asset Class	Long Term Expected Real Rate of Return	
	2017	2016
Domestic equity	5.0%	5.6%
Non-U.S. equity	6.6%	7.2%
Real estate equity	5.6%	6.3%
Debt securities	1.4%	1.6%
Cash and deposits	0.7%	0.6%

Discount rate

The discount rate used to measure the total pension liability was 7.5 percent as of January 1, 2017 and 2016. The projection of cash flows used to determine the discount rate assumed that participant contributions will be made at the current contribution rate and that KUB contributions will be made at rates equal to the actuarially determined contribution rates. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Sensitivity of the net pension liability to changes in the discount rate

The following presents the net pension liability of the Plan as of December 31, 2017, calculated using the discount rate of 7.5 percent, as well as what the Plan's net pension liability would be if it were calculated using a discount rate that is one percent lower (6.5 percent) or one percent higher (8.5 percent) than the current rate:

	1% Decrease (6.5%)	Current Discount Rate (7.5%)	1% Increase (8.5%)
Plan's net pension liability	\$ (2,624,670)	\$ (19,778,372)	\$ (34,742,817)

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Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

For the year ended June 30, 2018, KUB recognized pension expense of (\$15,659) (Division's share (\$2,036)).

The impact of experience gains or losses and assumptions changes on the Total Pension Liability are recognized in the pension expense over the average expected remaining service life of all active and inactive members, determined as of the beginning of the measurement period. As of December 31, 2016, this average was 5.00 years. During the measurement year, there was an experience gain of \$1,087,161 with \$217,432 of that recognized in the current year and in each of the next four years, resulting in a deferred inflow of \$869,729 (Division's share \$113,064). Unrecognized experience gains from prior periods were \$2,921,210 of which \$824,819 was recognized as a reduction in pension expense in the current year and resulted in a deferred inflow of \$2,096,391 (Division's share \$272,531).

During the measurement year, there were no benefit changes. There was a gain due to assumption changes of \$357,633 with \$71,526 of that recognized in the current year and in each of the next four years, resulting in a deferred inflow of \$286,107 (Division's share \$37,194). Unrecognized assumption change gains from prior periods were \$2,346,307 of which \$586,577 was recognized as a reduction in pension expense in the current year and resulted in a deferred inflow of \$1,759,730 (Division's share \$228,765).

The impact of investment gains or losses is recognized over a period of five years. During the measurement year, there was an investment gain of \$17,456,614. \$3,491,323 of that gain was recognized in the current year and an identical amount will be recognized in each of the next four years. Net unrecognized investment losses from prior periods were \$6,682,351 of which \$1,642,445 was recognized as an increase in pension expense in the current year. The combination of unrecognized investment gains this year along with the net unrecognized investment losses from prior periods results in a net difference between projected and actual earnings on pension plan investments as of December 31, 2017 of (\$8,925,384) (Division's share (\$1,160,300)). The following table summarizes the current balances of deferred outflows and deferred inflows of resources along with the net recognition over future years. In addition, KUB recorded a deferred outflow of resources of \$1,878,146 (Division's share \$244,159) at June 30, 2018 for employer contributions made between December 31, 2017 and June 30, 2018.

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	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ -	\$ 2,966,120
Changes in assumptions	-	2,045,837
Net difference between projected and actual earnings on pension plan investments	-	8,925,385
Contributions subsequent to measurement date	1,878,146	-
Total	<u>\$ 1,878,146</u>	<u>\$ 13,937,342</u>
Division's share	<u>\$ 244,159</u>	<u>\$ 1,811,854</u>

\$1,878,146 reported as deferred outflows of resources resulting from contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability in the year ended June 30, 2019. Other amounts reported as deferred outflows and deferred inflows of resources will be recognized in pension expense as follows:

Year ended June 30:		
2019	\$	(3,549,235)
2020		(1,954,655)
2021		(4,653,172)
2022		(3,780,280)
Thereafter		-

For the year ended June 30, 2017, KUB recognized pension expense of \$4,674,543 (Division's share \$607,691).

The impact of experience gains or losses and assumptions changes on the Total Pension Liability are recognized in the pension expense over the average expected remaining service life of all active and inactive members, determined as of the beginning of the measurement period. As of December 31, 2015, this average was 5.00 years. During the measurement year, there was an experience gain of \$2,233,762 with \$446,752 of that recognized in the current year and in each of the next four years, resulting in a deferred inflow of \$1,787,010 (Division's share \$232,311). Unrecognized experience gains from prior periods were \$1,512,267 of which \$378,067 was recognized as a reduction in pension expense in the current year and resulted in a deferred inflow of \$1,134,200 (Division's share \$147,446).

During the measurement year, there were no benefit changes. There was a gain due to assumption changes of \$2,932,884 with \$586,577 of that recognized in the current year and in each of the next four years, resulting in a deferred inflow of \$2,346,307 (Division's share \$305,020).

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The impact of investment gains or losses is recognized over a period of five years. During the measurement year, there was an investment loss of \$802,197. \$160,439 of that loss was recognized in the current year and an identical amount will be recognized in each of the next four years. Net unrecognized investment losses from prior periods were \$7,522,599 of which \$1,482,006 was recognized as an increase in pension expense in the current year. The combination of unrecognized investment losses this year along with the net unrecognized investment losses from prior periods results in a net difference between projected and actual earnings on pension plan investments as of December 31, 2016 of \$6,682,351 (Division's share \$868,705). The following table summarizes the current balances of deferred outflows and deferred inflows of resources along with the net recognition over future years. In addition, KUB recorded a deferred outflow of resources of \$2,408,459 (Division's share \$313,100) at June 30, 2017 for employer contributions made between December 31, 2016 and June 30, 2017.

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ -	\$ 2,921,210
Changes in assumptions	-	2,346,307
Net difference between projected and actual earnings on pension plan investments	6,682,351	-
Contributions subsequent to measurement date	2,408,459	-
Total	<u>\$ 9,090,810</u>	<u>\$ 5,267,517</u>
Division's share	<u>\$ 1,181,805</u>	<u>\$ 684,777</u>

11. Qualified Excess Benefit Arrangement

Description

In fiscal year 2017, KUB implemented a qualified governmental excess benefit arrangement (QEBA) under IRC section 415(m), which was created by Congress to allow the payment of pension benefits that exceed the IRC section 415(b) limits (and therefore cannot be paid from a qualified retirement plan). The QEBA is a single-employer defined benefit pension plan, administered by KUB. The number of participants in any given year for the QEBA is determined by the number of KUB Pension Plan participants who exceed the current year's section 415(b) limitations, as calculated by the KUB Pension Plan actuary. The amount of QEBA benefit will be the amount specified by the terms of the KUB Pension Plan without regard to Section 415(b) limitations minus the amount payable from the KUB Pension Plan as limited by Section 415(b). QEBA benefits are not subject to cost of living adjustments.

As of June 30, 2018 there are 602 active employees eligible for the KUB Pension Plan who are potentially eligible to receive QEBA benefits. There are no inactive employees or retirees currently in the QEBA. The KUB Pension Plan was closed effective January 1, 2011, such that persons employed or re-employed by KUB on or after January 1, 2011, are not eligible to participate, but that eligible employees hired prior to January 1, 2011, who have not separated from service, shall continue as Participants and accrue benefits under the KUB Pension Plan. The KUB Pension Plan was amended to include the provision of QEBA benefits, therefore, amendments to the QEBA require the same authority as amendments to the KUB Pension Plan. As required by federal tax law, the QEBA is unfunded within the meaning of the federal tax laws. KUB may not pre-fund the QEBA to cover future liabilities beyond the current year. KUB has established procedures to pay for these benefits on a pay-as-you-go basis, funded by KUB. There are no assets accumulated in a trust that meets the GASB's criteria.

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Implementation of GASB 73

In fiscal year 2016, KUB adopted GASB Statement No. 73, *Accounting and Financial Reporting for Pensions and Related Assets That Are Not within the Scope of GASB Statement 68, and Amendments to Certain Provisions of GASB Statements 67 and 68* ("GASB 73"). GASB 73 extends a similar approach of financial reporting to plans meeting specific criteria that are not administered through trusts that GASB 68 established for pension plans. GASB 73 requires measurement of the total pension liability of the QEBA. The amounts reported as of June 30 must be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 and 2017 will be based on the December 31, 2017 and 2016 measurement dates, respectively. The Division's share of the total pension liability at June 30, 2018 is \$36,444 and at June 30, 2017 is \$24,060.

GASB 73 requires certain disclosures related to the total pension liability of the QEBA, as disclosed below:

	2017	2016
Total pension liability	\$280,341	\$185,077
Deferred outflows	(69,716)	-
Deferred inflows	-	-
Net impact on Statement of Net Position	<u>\$210,625</u>	<u>\$185,077</u>
Covered payroll	\$43,309,374	\$44,437,747
Total pension liability as a % of covered payroll	0.65%	0.42%

Changes in total pension liability of the QEBA are as follows:

	<u>Increase (Decrease)</u>
	Total Pension Liability
Balances at December 31, 2016	\$ 185,077
Changes for the year:	
Service cost	584
Interest	7,535
Changes of Benefits	-
Differences between Expected and Actual Experience	13,684
Changes of Assumptions	73,461
Contributions – employer	-
Contributions – rollovers	-
Contributions – member	-
Net investment income	-
Benefit payments	-
Net changes	<u>95,264</u>
Balances at December 31, 2017	<u>\$ 280,341</u>

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Actuarial Assumptions

The total pension liability of the QEBA was determined by an actuarial valuation as of January 1, 2017 and projected to December 31, 2017, using the following actuarial assumptions, applied to all periods included in the measurement:

Actuarial cost method	Individual entry age
Asset valuation method	5-year smoothed market
Amortization method	Level dollar closed period with 24 years remaining as of January 1, 2017 and 25 years remaining as of January 1, 2016
Salary increase	From 2.80% to 5.15% for January 1, 2017 and January 1, 2016, based on years of service
Mortality	Sex distinct RP-2000 Combined Mortality projected to 2024 using Scale AA
Inflation	2.8 percent

The actuarial assumptions used in the January 1, 2017 valuation were based on the results of an actuarial experience study for the period January 1, 2009 through December 31, 2013.

Discount rate

The QEBA is not funded. In accordance with paragraph 31 of GASB 73, the discount rate is based on the Bond Buyer 20-Bond GO index. This rate was 3.44% at December 31, 2017.

Sensitivity of the total pension liability to changes in the discount rate

The following presents the total pension liability of the QEBA as of December 31, 2017, calculated using the discount rate of 3.44 percent, as well as what the QEBA's total pension liability would be if it were calculated using a discount rate that is one percent lower (2.44 percent) or one percent higher (4.44 percent) than the current rate:

	1% Decrease (2.44%)	Current Discount Rate (3.44%)	1% Increase (4.44%)
QEBA's total pension liability	\$ 307,013	\$ 280,341	\$ 257,483

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For the year ended June 30, 2018, KUB recognized pension expense of \$29,527 for the QEBA (Division's share \$3,838). This amount is not expected to be the same as KUB's contribution to the QEBA (\$3,979), but instead represents the change in the net impact on KUB's Statement of Net Position plus employer contributions [\$210,625 - \$185,077 + \$3,979].

The impact of experience gains or losses and assumption changes on the total pension liability are recognized in the pension expense over the average expected remaining service life of all active and inactive members, determined as of the beginning of the measurement period. As of December 31, 2016, this average was 5 years. During the measurement year, there was an experience loss of \$13,684 with approximately \$2,737 recognized in the current year and each of the next four years, resulting in a deferred outflow of \$10,947 (Division's share \$1,423).

During the measurement year, there were no benefit changes. There was an increase in the total pension liability due to assumption changes of \$73,461 with approximately \$14,692 recognized in the current year and each of the next four years, resulting in a deferred outflow of \$58,769 (Division's share \$7,640).

The table below summarizes the current balances of deferred outflows and deferred inflows of resources along with the net recognition over future years:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 10,947	\$ -
Changes in assumptions	58,769	-
Total	<u>\$ 69,716</u>	<u>\$ -</u>
Division's share	<u>\$ 9,063</u>	<u>\$ -</u>

Year ended June 30:

2019	\$ 17,429
2020	17,429
2021	17,429
2022	17,429
Thereafter	-

For the year ended June 30, 2017, KUB recognized pension expense of \$185,077 for the QEBA (Division's share \$24,060). This amount is not expected to be the same as KUB's contribution to the QEBA (\$0), but instead represents the change in the net impact on KUB's Statement of Net Position plus employer contributions.

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The impact of experience gains or losses and assumption changes on the total pension liability are recognized in the pension expense over the average expected remaining service life of all active and inactive members, determined as of the beginning of the measurement period. As of December 31, 2015, this average was 5 years. During the measurement year, there were no assumption changes or experience gains or losses. The benefit change of \$0.2 million is due to the implementation of the QEBA. Benefit changes are reflected immediately in the total pension liability of the QEBA.

12. Defined Contribution Plan

The KUB Asset Accumulation 401(k) Plan (the "401(k) Plan") is a defined contribution 401(k) employee retirement savings plan covering eligible KUB employees established by the KUB Board of Commissioners in accordance with the Charter of the City of Knoxville, Tennessee. The 401(k) plan's assets are held in trust under an agreement between KUB and Fidelity Management Trust Company. Employees hired prior to January 1, 2011 may participate and receive a matching contribution of 50 percent of their own contribution up to a maximum match of 3 percent. Employees hired on or after January 1, 2011 have an enhanced 401(k) due to the closure of the Defined Benefit Pension Plan. They may participate and receive a matching contribution of 50 percent of their own contribution up to a maximum match of 3 percent. They also receive a nonelective KUB contribution of from 3 percent to 6 percent, depending on years of service, whether they contribute or not.

Matching contributions were previously remitted to the KUB Pension Plan (a separate defined benefit plan) in the name of the participant for employees hired prior to January 1, 2011. As of December 9, 2015, these Pension match assets moved from the KUB Pension Plan to the 401(k) Plan. Effective December 9, 2015, all matching contributions are remitted to the 401(k) Plan. The match and nonelective contributions for employees hired on or after January 1, 2011 are paid directly by KUB. KUB funded 401(k) matching contributions and nonelective contributions of \$2,174,711 (Division's share \$282,713) and \$1,963,541 (Division's share \$255,260), respectively, for the years ended June 30, 2018 and 2017.

13. Other Post-Employment Benefits (OPEB)

Description of Trust

The Knoxville Utilities Board Other Post Employment Benefits Trust (the Trust) is a single-employer Other Post Employment Benefits Plan (the OPEB Plan) established by the Knoxville Utilities Board of Commissioners through Resolution No. 1168, as amended, dated October 18, 2007. The applicable documentation was submitted to the State Funding Board and, in December 2007, the State Funding Board approved the Trust. The Trust was also approved by the Internal Revenue Service in June 2008. KUB administers the Trust through a Board of Trustees consisting of seven KUB employees that are appointed by KUB's President and CEO. Any amendments to the Trust involving costs not approved in the operating budget must be approved by KUB's Board of Commissioners, upon recommendation by KUB's President and CEO. All other amendments to the Trust may be approved by KUB's President and CEO upon 60 days notification to the Board's Audit and Finance Committee. The investment of all deposits to the Trust is governed by an Investment Policy, which was adopted by the KUB Board and approved by the State Funding Board. The Trust issues a financial report, which includes financial statements and required supplementary information. The report may be obtained by writing the Knoxville Utilities Board Retirement System, P.O. Box 59017, Knoxville, TN 37950-9017. For purposes of this disclosure, presentation is on a consolidated basis unless division's share is specified.

Effective July 1, 1999, KUB closed the OPEB Plan such that persons employed or re-employed by KUB on or after July 1, 1999, are not eligible to participate, but that eligible employees hired prior to

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July 1, 1999, who are retired and who (prior to retirement) qualified for retiree medical insurance by meeting the "Rule of 80", the sum of age and at least 20 years of qualified service equal or exceed 80, accrue benefits under the Plan.

Participants in the OPEB Plan consisted of the following as of June 30:

	2018	2017
Retirees	562	567
Dependents of retirees	561	580
Eligible active employees	309	334
Total	1,432	1,481

Benefits

Other post-employment benefits may include, but shall not be limited to, medical, prescription drugs, dental, vision, hearing, Medicare Part B or Part D premiums, life insurance, long-term care, and long-term disability. Only medical and pharmacy are currently provided to eligible retirees.

Contributions and Plan Funding

The primary goal of the Funding Policy for the Trust is to document the method KUB has adopted to provide assurance that future KUB and retiree contributions and current Trust assets will be sufficient to fund all benefits expected to be paid to Trust beneficiaries. Per the Funding Policy, KUB's current practice is to fully fund its annual Actuarially Determined Contribution, which is determined by actuarial valuation.

Contributions are authorized by the terms of the Trust as established by KUB Resolution No. 1168, as amended, as approved by the Tennessee State Funding Board. KUB shall have the right at any time to amend, in whole or in part, the provisions of this Trust; however, no such amendment shall authorize or permit the assets of the Trust to be used for or diverted to purposes other than those expressed in the Declaration of Trust.

It shall be the sole and exclusive responsibility of KUB to determine the level of contributions KUB will make to the Trust for the purpose of financing other post-employment benefits accrued by its respective participants. Neither the Trust, nor the Trust's Board shall be responsible for collecting or otherwise determining the level of contributions needed by KUB to finance any other post-employment benefits offered by KUB. The assets of the Trust shall be expended solely to make payments for other post-employment benefits pursuant to and in accordance with the terms of the Trust and to pay the cost of administration.

Based on the date of retirement, certain retired plan members are required to contribute specified amounts monthly to maintain health insurance. Those who retired prior to July 1983 have no required monthly premiums for themselves or dependents. The retirees, or their surviving dependents, who retired between August 1983 and January 1998 are required to pay \$250 per month for pre-Medicare family health insurance. For individuals who retired after January 1998 the required monthly premium for pre-Medicare health insurance is \$250 for single coverage and \$500 for family coverage. There is currently no premium for Medicare eligible retirees or dependents. KUB is responsible for determining the level of retired plan member contributions on an annual basis, as part of its review of healthcare cost sharing.

Investments

The Trust holds investments in a balanced fund, which invests in passively managed common trust index funds, managed and sponsored by State Street Global Advisors (SSgA), with an asset allocation mirroring the asset allocation of the Trust and rebalanced monthly. The Trust's

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Investment Policy was established and may only be amended by the KUB Board of Commissioners. The Trust's Investment Policy is to invest in a manner that will provide sufficient investment return to meet current and future retiree health benefits, while conforming to all governing State and Federal statutes. It allows investment of Trust assets in any type of security instrument allowed for in T.C.A 8-50-1203. The following was the Trust's adopted investment target allocations as set forth in the Trust's Investment Policy as of June 30, 2018:

Asset Class	Target Allocation
Domestic Equity:	
Large Cap	30%
Small Cap	8%
International Equity:	
Developed	16%
Emerging	8%
Real Estate Equity	8%
Debt Securities	30%
Total	100%

Contributions of zero and \$620,015 were made to the OPEB Trust for the fiscal years ending June 30, 2018 and 2017, respectively, based on the OPEB Plan's actuarial valuations as of January 1, 2016, and 2015. Of these amounts, zero and \$80,602 were attributable to the Water Division.

Implementation of GASB 75

In fiscal year 2018, KUB adopted GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions* ("GASB 75"), which requires measurement of the net OPEB liability as total OPEB liability, less the amount of the Trust's fiduciary net position. The amounts reported as of June 30, 2018 are based on the reporting date for the KUB Other Post-Employment Benefits Plan which is June 30, 2018. Measurements as of the reporting date are based on the fair value of assets as of June 30, 2018 and the Total OPEB Liability as of the valuation date, January 1, 2017, updated to June 30, 2018. The Division's share of the total net OPEB asset at June 30, 2018 is \$487,639 and at June 30, 2017 is \$587,950.

The components of the net OPEB liability of the Trust are as follows as of June 30:

	2018	2017
Total OPEB liability	\$ 45,604,431	\$ 44,477,738
Plan fiduciary net position	(49,355,499)	(49,000,433)
Net OPEB (asset) liability	\$ (3,751,068)	\$ (4,522,695)
Plan fiduciary net position as a percentage of the total OPEB liability	108.23%	110.17%

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Changes in Net OPEB Liability are as follows:

	Total OPEB Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net OPEB Liability (Asset) (a) - (b)
Balances at June 30, 2017	\$ 44,477,738	\$ 49,000,433	\$ (4,522,695)
Changes for the year:			
Service cost	202,603	-	202,603
Interest	3,295,240	-	3,295,240
Differences between Expected and Actual Experience	1,324,769	-	1,324,769
Changes of Assumptions	(397,180)	-	(397,180)
Contributions - employer	-	-	-
Contributions - member	-	-	-
Net investment income	-	3,705,473	(3,705,473)
Benefit payments	(3,298,739)	(3,298,739)	-
Administrative expense	-	(51,668)	51,668
Net changes	1,126,693	355,066	771,627
Balances at June 30, 2018	\$ 45,604,431	\$ 49,355,499	\$ (3,751,068)

Actuarial assumptions

The total OPEB liability was determined by an actuarial valuation as of January 1, 2017, updated to June 30, 2018, using the following actuarial assumptions, applied to all periods included in the measurement:

Discount rate:	7.5%
Healthcare cost trend rates:	Pre-Medicare: 7.83% grading down to 4.5% over 20 years; Medicare: 6.88% grading down to 4.5% over 20 years; Administrative expenses: 3.0% per year
Salary increases:	From 2.80% to 5.15%, based on years of service
Mortality:	Sex distinct RP-2000 Combined Mortality projected to 2024 using Scale AA
Inflation	2.8%

The actuarial assumptions used in the January 1, 2017 valuation were based on the results of an actuarial experience study for the period January 1, 2009 through December 31, 2013, with subsequent revisions to retirement and termination assumptions based upon a special experience study, which reflected experience through December 31, 2016.

The long-term expected rate of return on Trust investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of Trust investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The long-term expected rate of return may be lower in periods of current strong performance due to future valuations that mean revert to the long-term average. Best estimates of arithmetic real rates of return for each major asset class included in the Trust's target asset allocation (see the discussion of the Trust's Investment Policy) are summarized in the chart below.

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Asset Class	Long Term Expected Real Rate of Return	
	2018	2017
Domestic equity	5.1%	5.5%
International equity	6.6%	6.8%
Real estate equity	5.8%	6.0%
Debt securities	1.6%	1.4%
Cash and deposits	0.8%	0.6%

Discount rate

The discount rate used to measure the total OPEB liability was 7.5 percent. The projection of cash flows used to determine the discount rate assumed that participant contributions will be made at the current contribution rate and that KUB contributions will be made at rates equal to the actuarially determined contribution rates. Based on those assumptions, the Trust's fiduciary net position was projected to be available to make all projected future benefit payments. Therefore, the long-term expected rate of return on Trust investments was applied to all periods of projected benefit payments to determine the total OPEB liability.

Sensitivity of the net OPEB liability to changes in the discount rate.

The following presents the net OPEB liability of the Trust as of June 30, 2018, calculated using the discount rate of 7.5 percent, as well as what the Trust's net OPEB liability would be if it were calculated using a discount rate that is 1 percent lower (6.5 percent) or 1 percent higher (8.5 percent) than the current rate:

	1% Decrease (6.5%)	Current Discount Rate (7.5%)	1% Increase (8.5%)
Net OPEB liability (asset)	\$1,172,935	\$(3,751,068)	\$(7,892,399)

Sensitivity of the net OPEB liability to changes in the healthcare cost trend rates.

The following presents the net OPEB liability of the Trust as of June 30, 2018, as well as what the Trust's net OPEB liability would be if it were calculated using a healthcare cost trend rate that is 1 percent lower or 1 percent higher than the current rate:

	1% Decrease	Baseline Trend	1% Increase
Net OPEB liability (asset)	\$(8,393,131)	\$(3,751,068)	\$1,703,576

OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB

For the year ended June 30, 2018, KUB recognized OPEB expense of \$430,880 (Division's share \$56,014).

The impact of liability experience gains or losses and assumption changes on the Total OPEB Liability are recognized in the OPEB expense over the average expected remaining service life of all active and inactive members of the OPEB Plan. As of the beginning of the measurement period, this average was 2.0 years. During the measurement year, there was an experience loss of \$1,324,769 with \$662,385 of that recognized in the current year and the remaining amount will be

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recognized in the next year, resulting in a deferred outflow of resources of \$662,384 (Division's share \$86,110).

During the measurement year, there were no benefit changes. There was a decrease in the Total OPEB Liability due to assumption changes of \$397,180 with \$198,590 of that recognized in the current year and in the next year, resulting in a deferred inflow of \$198,590 (Division's share \$25,817).

The impact of investment gains or losses is recognized over a period of five years. During the measurement year, there was an investment gain of \$153,809. \$30,762 of that was recognized in the current year and \$123,047 (Division's share \$15,996) will become a deferred inflow of resources recognized over the next four years. The table below summarizes the current balances of deferred outflows and deferred inflows of resources along with the net recognition over future years.

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 662,384	\$ -
Changes in assumptions	-	198,590
Net difference between projected and actual earnings on OPEB plan investments	-	123,047
Total	<u>\$ 662,384</u>	<u>\$ 321,637</u>
Division's share	<u>\$ 86,110</u>	<u>\$ 41,813</u>

Amounts reported as deferred outflows and deferred inflows of resources will be recognized in OPEB expense as follows:

Year ended June 30:	
2019	\$ 433,032
2020	(30,762)
2021	(30,762)
2022	(30,761)
Thereafter	-

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Knoxville Utilities Board Water Division
Notes to Financial Statements
June 30, 2018 and 2017

14. Related Party Transactions

The Division, in the normal course of operations, is involved in transactions with the City of Knoxville and with other divisions of KUB. Such transactions for the years ended June 30, 2018 and 2017 are summarized as follows:

	2018	2017
City of Knoxville		
Amounts billed by the Division for utilities and related services	\$ 4,454,036	\$ 4,192,452
Payments by the Division in lieu of property tax	3,304,740	3,294,652
Payments by the Division for services provided	235,324	621,164
Other divisions of KUB		
Amounts billed to other divisions for utilities and related services provided	386,195	392,769
Interdivisional rental expense	214,141	214,270
Interdivisional rental income	142,866	142,866
Amounts billed to the Division by other divisions for utilities services provided	3,337,521	3,294,969

With respect to these transactions, accounts receivable from the City of Knoxville included in the balance sheet at year end were:

	2018	2017
Accounts receivable	\$ 379,699	\$ 348,381

15. Other Commitments and Contingencies

In the normal course of business, there are various lawsuits pending against KUB. Management has reviewed these lawsuits with counsel, who is vigorously defending KUB's position and is of the opinion that the ultimate disposition of these matters will not have a material adverse effect on KUB's financial position, results of operations or cash flows.

Knoxville Utilities Board Water Division

Required Supplementary Information – Schedule of Changes in Net Pension Liability and Related Ratios

June 30, 2018

(Unaudited)

	*Year ended December 31			
	2017	2016	2015	2014
Total pension liability				
Service cost	\$ 4,607,486	\$ 4,226,985	\$ 4,157,062	\$ 4,092,808
Interest	15,015,282	14,966,559	14,812,784	14,698,657
Differences between expected and actual experience	(1,087,161)	(2,233,762)	(1,890,334)	-
Changes of assumptions	(357,633)	(2,932,883)	-	-
Benefit payments, including refunds of member contributions	(14,969,979)	(14,138,511)	(15,350,926)	(15,533,167)
Net change in total pension liability	3,207,995	(111,612)	1,728,586	3,258,298
Total pension liability - beginning	204,390,738	204,502,350	202,773,764	199,515,466
Total pension liability - ending (a)	<u>\$ 207,598,733</u>	<u>\$ 204,390,738</u>	<u>\$ 204,502,350</u>	<u>\$ 202,773,764</u>
Plan fiduciary net position				
Contributions - employer	\$ 4,286,597	\$ 5,243,146	\$ 5,991,887	\$ 5,908,541
Contributions - participants	1,488,632	555,075	487,546	475,854
Net investment income	32,360,219	13,788,263	(95,430)	22,292,369
Other additions	82,239	45,848	30,879	29,733
Benefit payments, including refunds of member contributions	(14,895,979)	(14,044,511)	(15,274,926)	(15,405,167)
Administrative expense	(385,282)	(441,332)	(397,160)	(378,085)
Death benefits	(74,000)	(94,000)	(76,000)	(128,000)
Net change in plan fiduciary net position**	22,862,426	5,052,489	(9,333,204)	12,795,245
Plan fiduciary net position - beginning**	204,514,679	199,462,190	208,795,394	196,000,149
Plan fiduciary net position - ending (b)**	<u>\$ 227,377,105</u>	<u>\$ 204,514,679</u>	<u>\$ 199,462,190</u>	<u>\$ 208,795,394</u>
Plan's net pension liability - ending (a) - (b)	<u>\$ (19,778,372)</u>	<u>\$ (123,941)</u>	<u>\$ 5,040,160</u>	<u>\$ (6,021,630)</u>
Plan fiduciary net position as a percentage of the total pension liability	109.53%	100.06%	97.54%	102.97%
Covered payroll	\$ 43,309,374	\$ 44,437,747	\$ 44,446,743	\$ 44,076,351
Plan's net pension liability as a percentage of covered payroll	(45.67%)	(0.28%)	11.34%	(13.66%)

Notes to Schedule:

* Information not reflected prior to 2014 due to changes in actuary methodologies required under GASB 67, which was implemented in 2014.

** Excludes amounts related to 401(k) matching contributions.

Knoxville Utilities Board Water Division
Required Supplementary Information – Schedule of Employer Pension Contributions
June 30, 2018
(Unaudited)

	*Year ended December 31			
	2017	2016	2015	2014
Actuarially determined contribution	\$ 4,286,597	\$ 5,243,146	\$ 5,991,887	\$ 5,908,541
Contribution in relation to the actuarially determined contribution	4,286,597	5,243,146	5,991,887	5,908,541
Contribution deficiency	\$ -	\$ -	\$ -	\$ -
Covered payroll	\$ 43,309,374	\$ 44,437,747	\$ 44,446,743	\$ 44,076,351
Contributions as a percentage of covered payroll	9.90%	11.80%	13.48%	13.41%

Notes to Schedule:

Valuation Dates:	January 1, 2012 - 2016
Timing:	Actuarially determined contributions for a plan year are based upon 50% of the amounts determined at the actuarial valuations for each of the two prior plan years.

Key methods and assumptions used to determine contribution rates:

Actuarial cost method:	Entry age normal at January 1, 2012; Individual entry age of January 1, 2013 - 2016
Asset valuation method:	5-year smoothed market
Amortization method:	Level dollar closed period with 25 years remaining as of January 1, 2016
Discount rate:	8% at January 1, 2012 - 2013, 7.5% at January 1, 2014 - 2016
Salary increases:	From 2.58% to 7.92% for January 1, 2012 - 2013 and from 2.80% to 5.15% for January 1, 2014 - 2016, based on years of service
Mortality:	Sex distinct RP-2000 Combined Mortality projected to 2018 using Scale AA for the January 1, 2012 - 2013 valuations. Sex distinct RP-2000 Combined Mortality projected to 2024 using Scale AA for the January 1, 2014 - 2016 valuations.
Inflation:	2.8 percent

* Schedule of Employer Contribution information is not reflected prior to 2014 due to changes in actuary methodologies required under GASB 67, which was implemented 2014.

Knoxville Utilities Board Water Division

Required Supplementary Information – Schedule of Changes in Net OPEB Liability and Related Ratios

June 30, 2018

(Unaudited)

	*Year ended June 30 2018
Total OPEB liability	
Service cost	\$ 202,603
Interest	3,295,240
Differences between expected and actual experience	1,324,769
Changes of assumptions	(397,180)
Benefit payments	(3,298,739)
Net change in total OPEB liability	<u>1,126,693</u>
Total OPEB liability - beginning	<u>44,477,738</u>
Total OPEB liability - ending (a)	<u><u>\$ 45,604,431</u></u>
Plan fiduciary net position	
Contributions - employer	\$ -
Net investment income	3,705,473
Benefit payments	(3,298,739)
Administrative expense	(51,668)
Net change in plan fiduciary net position	<u>355,066</u>
Plan fiduciary net position - beginning	<u>49,000,433</u>
Plan fiduciary net position - ending (b)	<u><u>\$ 49,355,499</u></u>
Net OPEB liability - ending (a) - (b)	<u><u>\$ (3,751,068)</u></u>
Plan fiduciary net position as a percentage of the total OPEB liability	108.23%
Covered employee payroll	\$ 23,677,080
Net OPEB liability as a percentage of covered employee payroll	(15.84%)

Notes to Schedule:

* Information not reflected prior to 2018 due to changes in actuary methodologies required under GASB 75, which was implemented in 2018.

Knoxville Utilities Board Water Division
Required Supplementary Information – Schedule of Employer OPEB Contributions
June 30, 2018
(Unaudited)

	*Year ended June 30
	2018
Actuarially determined contribution	\$ -
Contribution in relation to the annual required contribution	-
Contribution deficiency/(excess)	<u>\$ -</u>
Covered employee payroll	\$ 23,677,080
Contributions as a percentage of covered employee payroll	0.00%

Notes to Schedule:

Valuation Date:	January 1, 2016
Timing:	Actuarially determined contribution rates are calculated based on the actuarial valuation completed 18 months before the beginning of the fiscal year.

Key methods and assumptions used to determine contribution rates:

Actuarial cost method:	Entry age normal
Asset valuation method:	5-year smoothed market
Amortization method:	Level dollar, closed period with 20 years remaining as of January 1, 2016
Discount rate:	7.5%
Healthcare cost trend rate:	Pre-Medicare: 8.00% to 4.50 % grading down over 20 years Medicare: 7.00% to 4.50% grading down over 20 years Administrative expenses: 3.0% per year

* Schedule of Employer Contribution information is not reflected prior to 2018 due to changes in actuary methodologies required under GASB 75, which was implemented in 2018.

Knoxville Utilities Board Water Division
Required Supplementary Information – Qualified Governmental Excess Benefit Arrangement
Schedule of Changes in Total Pension Liability and Related Ratios
June 30, 2018
(Unaudited)

	*Year ended December 31	
	2017	2016
Total pension liability		
Service cost	\$ 584	\$ -
Interest (includes interest on service cost)	7,535	-
Changes of benefit terms	-	185,077
Differences between expected and actual experience	13,684	-
Changes of assumptions	73,461	-
Benefit payments, including refunds of member contributions	-	-
Net change in total pension liability	<u>95,264</u>	<u>185,077</u>
Total pension liability - beginning	<u>185,077</u>	<u>-</u>
Total pension liability - ending	<u><u>\$ 280,341</u></u>	<u><u>\$ 185,077</u></u>
Covered payroll	\$ 43,309,374	\$ 44,437,747
Total pension liability as a percentage of covered payroll	0.65%	0.42%

Notes to Schedule:

* There are no assets accumulated in a trust that meet the criteria in paragraph 4 of GASB 73 to pay related benefits.

Knoxville Utilities Board Water Division
Supplemental Information - Schedule of Insurance in Force
June 30, 2018
(Unaudited)

Schedule 1

Insurance coverage is for KUB as a consolidated entity.

Crime

Covers losses resulting from employee dishonesty, robbery, burglary, and computer fraud. Limits of coverage - \$5,000,000; \$250,000 retention.

Directors' and Officers' Liability Insurance

Covers KUB personnel appropriately authorized to make decisions on behalf of KUB (including but not limited to Commissioners, President and CEO, Senior Vice Presidents, Vice Presidents, and Directors) for wrongful acts. Limits of coverage - \$20,000,000; \$1,000,000 corporate deductible, \$0 individual deductible.

Employment Practices Liability

Coverage for costs related to actual or alleged employment practices violations for amounts exceeding specified amount (\$500,000). Limits of coverage - \$10,000,000.

Fiduciary

Covers losses resulting from wrongful acts related to KUB's Pension, 401(k), OPEB Trust funds, and Medical Plan. Limits of coverage - \$10,000,000; \$150,000 deductible.

Pollution Legal Liability

New conditions coverage for losses exceeding specified amount per occurrence (\$1,000,000). Limits of coverage - \$20,000,000.

Property Insurance

This coverage provides protection of KUB's property for fire, extended coverage, vandalism and malicious mischief, and coverage on boilers and machinery. Also included are flood and earthquake damage and mechanical failure. Limits of coverage - \$250,000,000 per occurrence (subject to certain sublimits); \$2,500,000 deductible per occurrence.

Travel Accident

Covers losses related to employees' business travel. Limits of coverage - \$1,500,000 aggregate.

Excess Insurance for General Liability

As a government entity, KUB's liability is limited under the Tennessee Governmental Tort Liability Act (TCA §29-20-403). KUB is self-insured for up to the first \$700,000 of any accident and has insurance of \$1,000,000 above this retention.

Excess Insurance for Workers' Compensation

Covers all losses exceeding specified amount per occurrence (\$1,000,000). Limits of coverage - Statutory; stop loss coverage applies for aggregate losses over \$5,000,000.

Employee Health Plan Stop Loss Coverage

KUB's employee health plan is self-funded. KUB has purchased stop loss insurance, which covers KUB's exposure to annual expenses in excess of \$500,000 per individual participant.

See accompanying Report of Independent Auditors on Supplemental Information.

Knoxville Utilities Board Water Division
Supplemental Information - Schedule of Debt Maturities by Fiscal Year
June 30, 2018
(Unaudited)

Schedule 2
Continued on Next Page

FY	U-2009		W-2011		X-2012		Y-2013		Z-2013		AA-2014		BB-2015	
	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest
18-19	950,000	38,000	550,000	827,750	565,000	293,250	320,000	261,800	525,000	979,625	150,000	252,750	885,000	743,450
19-20			550,000	805,750	590,000	265,000	340,000	249,000	550,000	963,875	175,000	246,750	950,000	699,200
20-21			550,000	789,250	625,000	235,500	350,000	235,400	575,000	947,375	175,000	243,250	960,000	680,200
21-22			550,000	772,750	655,000	204,250	375,000	221,400	600,000	930,125	175,000	238,000	1,000,000	661,000
22-23			500,000	756,250	670,000	184,600	400,000	210,150	625,000	912,125	200,000	231,000	1,050,000	611,000
23-24			500,000	741,250	690,000	164,500	415,000	198,150	625,000	893,375	200,000	223,000	1,110,000	558,500
24-25			500,000	726,250	710,000	143,800	435,000	185,700	650,000	874,625	200,000	215,000	1,170,000	503,000
25-26			500,000	710,625	735,000	120,725	450,000	172,650	675,000	852,688	225,000	209,000	1,210,000	467,900
26-27			500,000	693,125	765,000	95,000	470,000	159,150	700,000	828,219	225,000	202,250	1,245,000	428,575
27-28			500,000	673,125	790,000	64,400	1,250,000	145,050	750,000	800,219	225,000	195,500	1,260,000	385,000
28-29			500,000	655,625	820,000	32,800	1,300,000	107,550	775,000	770,219	250,000	188,750	1,275,000	340,900
29-30			500,000	635,625			2,285,000	68,550	800,000	738,250	250,000	181,250	1,315,000	296,275
30-31			500,000	617,500					825,000	704,250	275,000	173,438	2,740,000	256,825
31-32			500,000	598,750					850,000	669,188	275,000	164,844	2,800,000	174,625
32-33			500,000	580,000					900,000	632,000	300,000	155,906	2,900,000	90,625
33-34			2,000,000	560,000					925,000	591,500	300,000	146,156		
34-35			2,000,000	480,000					950,000	549,875	325,000	136,032		
35-36			2,000,000	400,000					1,000,000	507,125	325,000	124,656		
36-37			2,000,000	320,000					1,025,000	460,875	350,000	113,282		
37-38			2,000,000	240,000					1,075,000	413,469	350,000	101,031		
38-39			2,000,000	160,000					1,100,000	363,750	375,000	88,781		
39-40			2,000,000	80,000					1,150,000	308,750	375,000	75,656		
40-41									1,200,000	251,250	400,000	62,531		
41-42									1,225,000	191,250	425,000	48,031		
42-43									1,275,000	130,000	450,000	32,625		
43-44									1,325,000	66,250	450,000	16,313		
44-45														
45-46														
46-47														
	<u>\$ 950,000</u>	<u>\$ 38,000</u>	<u>\$ 21,700,000</u>	<u>\$ 12,823,625</u>	<u>\$ 7,615,000</u>	<u>\$ 1,803,825</u>	<u>\$ 8,390,000</u>	<u>\$ 2,214,550</u>	<u>\$ 22,675,000</u>	<u>\$ 16,330,252</u>	<u>\$ 7,425,000</u>	<u>\$ 4,065,782</u>	<u>\$ 21,870,000</u>	<u>\$ 6,897,075</u>

See accompanying Report of Independent Auditors on Supplemental Information.

Knoxville Utilities Board Water Division
Supplemental Information - Schedule of Debt Maturities by Fiscal Year
June 30, 2018
(Unaudited)

Schedule 2
Continued from Previous Page

FY	CC-2015		DD-2016		EE-2016		FF-2017		GG-2017		TOTAL		Grand
	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Total
18-19	425,000	684,406	500,000	796,000	100,000	580,143	465,000	190,500	380,000	687,556	5,815,000	6,335,230	12,150,230
19-20	425,000	667,406	525,000	771,000	1,090,000	575,143	475,000	176,550	395,000	668,556	6,065,000	6,088,230	12,153,230
20-21	450,000	650,406	550,000	744,750	1,155,000	520,644	495,000	162,300	415,000	648,806	6,300,000	5,857,881	12,157,881
21-22	475,000	632,406	575,000	717,250	1,245,000	462,894	510,000	147,450	440,000	628,056	6,600,000	5,615,581	12,215,581
22-23	475,000	613,406	625,000	688,500	1,315,000	400,644	530,000	127,050	460,000	606,056	6,850,000	5,340,781	12,190,781
23-24	500,000	599,156	650,000	657,250	1,380,000	334,894	550,000	105,850	485,000	583,056	7,105,000	5,058,981	12,163,981
24-25	525,000	587,906	675,000	624,750	1,435,000	307,294	575,000	78,350	505,000	558,806	7,380,000	4,805,481	12,185,481
25-26	550,000	574,782	700,000	604,500	1,460,000	278,594	605,000	49,600	530,000	533,556	7,640,000	4,574,620	12,214,620
26-27	550,000	560,344	725,000	583,500	1,515,000	249,394	635,000	25,400	555,000	512,356	7,885,000	4,337,313	12,222,313
27-28	575,000	543,844	750,000	561,750	1,560,000	219,094			575,000	490,156	8,235,000	4,078,138	12,313,138
28-29	600,000	526,594	775,000	539,250	1,605,000	187,894			590,000	477,938	8,490,000	3,827,520	12,317,520
29-30	625,000	508,594	800,000	516,000	1,645,000	155,794			600,000	464,662	8,820,000	3,565,000	12,385,000
30-31	650,000	489,060	825,000	492,000	1,710,000	120,838			625,000	440,663	8,150,000	3,294,574	11,444,574
31-32	675,000	467,938	825,000	467,250	1,750,000	82,362			650,000	415,662	8,325,000	3,040,619	11,365,619
32-33	700,000	446,000	850,000	442,500	1,810,000	42,988			675,000	389,662	8,635,000	2,779,681	11,414,681
33-34	725,000	418,000	900,000	417,000					695,000	369,413	5,545,000	2,502,069	8,047,069
34-35	750,000	389,000	925,000	390,000					715,000	348,563	5,665,000	2,293,470	7,958,470
35-36	775,000	359,000	950,000	362,250					740,000	327,112	5,790,000	2,080,143	7,870,143
36-37	800,000	330,906	975,000	333,750					760,000	304,913	5,910,000	1,863,726	7,773,726
37-38	825,000	301,906	1,000,000	304,500					785,000	282,112	6,035,000	1,643,018	7,678,018
38-39	875,000	272,000	1,025,000	274,500					805,000	258,562	6,180,000	1,417,593	7,597,593
39-40	900,000	237,000	1,050,000	243,750					830,000	234,413	6,305,000	1,179,569	7,484,569
40-41	925,000	201,000	1,100,000	212,250					855,000	208,475	4,480,000	935,506	5,415,506
41-42	975,000	164,000	1,125,000	179,250					885,000	181,756	4,635,000	764,287	5,399,287
42-43	1,000,000	125,000	1,150,000	145,500					910,000	154,100	4,785,000	587,225	5,372,225
43-44	1,050,000	85,000	1,200,000	111,000					940,000	125,662	4,965,000	404,225	5,369,225
44-45	1,075,000	43,000	1,225,000	75,000					970,000	96,288	3,270,000	214,288	3,484,288
45-46			1,275,000	38,250					1,000,000	65,976	2,275,000	104,226	2,379,226
46-47									1,030,000	33,476	1,030,000	33,476	1,063,476
	<u>\$ 18,875,000</u>	<u>\$ 11,478,060</u>	<u>\$ 24,250,000</u>	<u>\$ 12,293,250</u>	<u>\$ 20,775,000</u>	<u>\$ 4,518,614</u>	<u>\$ 4,840,000</u>	<u>\$ 1,063,050</u>	<u>\$ 19,800,000</u>	<u>\$ 11,096,368</u>	<u>\$ 179,165,000</u>	<u>\$ 84,622,451</u>	<u>\$ 263,787,451</u>

See accompanying Report of Independent Auditors on Supplemental Information.

Knoxville Utilities Board Water Division
Supplemental Information - Schedule of Current Rates in Force
June 30, 2018
(Unaudited)

Schedule 3

Rate Class	Base Charge	Number of Customers
Residential Inside City rate	For water furnished to premises entirely within the corporate limits of the City of Knoxville:	55,972
Commodity Charge		
	First 2 100 Cubic Feet Per Month at \$0.50 Per 100 Cubic Feet	
	Over 2 100 Cubic Feet Per Month at \$2.65 Per 100 Cubic Feet	
Additional Monthly Customer Charge		
	For 5/8" meter \$ 16.00	
	For 1" meter 30.10	
	For 1 1/2" meter 42.00	
	For 2" meter 58.00	
Residential Outside City rate	For water furnished to premises upon which any water faucet or other outlet is outside the corporate limits of the City of Knoxville:	13,413
Commodity Charge		
	First 2 100 Cubic Feet Per Month at \$0.55 Per 100 Cubic Feet	
	Over 2 100 Cubic Feet Per Month at \$3.20 Per 100 Cubic Feet	
Additional Monthly Customer Charge		
	For 5/8" meter \$ 17.40	
	For 1" meter 34.40	
	For 1 1/2" meter 48.40	
	For 2" meter 67.40	

See accompanying Report of Independent Auditors on Supplemental Information.

Knoxville Utilities Board Water Division
Supplemental Information - Schedule of Current Rates in Force
June 30, 2018
(Unaudited)

Schedule 3

Rate Class	Base Charge	Number of Customers
Non-Residential Inside City rate/ Industrial Park rate	For water furnished to premises entirely within the corporate limits of the City of Knoxville or within the boundaries of an area recognized as an industrial park by the Tennessee Department of Economic and Community Development:	9,868
Commodity Charge		
First	2 100 Cubic Feet Per Month at \$1.80 Per 100 Cubic Feet	
Next	8 100 Cubic Feet Per Month at \$3.90 Per 100 Cubic Feet	
Next	90 100 Cubic Feet Per Month at \$4.85 Per 100 Cubic Feet	
Next	300 100 Cubic Feet Per Month at \$3.55 Per 100 Cubic Feet	
Next	4,600 100 Cubic Feet Per Month at \$2.25 Per 100 Cubic Feet	
Next	5,000 100 Cubic Feet Per Month at \$1.00 Per 100 Cubic Feet	
Additional Monthly Customer Charge		
For	5/8" meter	\$ 16.00
For	1" meter	30.10
For	1 1/2" meter	42.00
For	2" meter	58.00
For	3" meter	142.00
For	4" meter	235.00
For	6" meter	514.00
For	8" meter	904.00
For	10" meter	1,378.00
For	12" meter	2,038.00
Non-Residential Outside City rate	For water furnished to premises upon which any water faucet or other outlet is outside the corporate limits of the City of Knoxville, excluding premises within the boundaries of an area recognized as an industrial park by the Tennessee Department of Economic and Community Development:	670
Commodity Charge		
First	2 100 Cubic Feet Per Month at \$2.15 Per 100 Cubic Feet	
Next	8 100 Cubic Feet Per Month at \$4.55 Per 100 Cubic Feet	
Next	90 100 Cubic Feet Per Month at \$5.85 Per 100 Cubic Feet	
Next	300 100 Cubic Feet Per Month at \$4.15 Per 100 Cubic Feet	
Next	4,600 100 Cubic Feet Per Month at \$2.70 Per 100 Cubic Feet	
Next	5,000 100 Cubic Feet Per Month at \$1.20 Per 100 Cubic Feet	
Additional Monthly Customer Charge		
For	5/8" meter	\$ 17.40
For	1" meter	34.40
For	1 1/2" meter	48.40
For	2" meter	67.40
For	3" meter	169.00
For	4" meter	283.00
For	6" meter	618.00
For	8" meter	1,085.00
For	10" meter	1,652.00
For	12" meter	2,447.00

See accompanying Report of Independent Auditors on Supplemental Information.

Knoxville Utilities Board Water Division
Supplemental Information - Schedule of Unaccounted for Water
June 30, 2018
(Unaudited)

Schedule 4

The following unaudited Schedule of Unaccounted for Water is attached as required by the Tennessee Code Annotated. For reports submitted January 1, 2013 and later, the American Water Works Association (AWWA) water loss reporting model must be used. For fiscal years 2018 and 2017, water utilities are required to have a Validity Score greater than 75 and maintain non-revenue water as a percent by cost of operating system of less than 20%. For fiscal year 2018, KUB reported a Validity Score of 82 and non-revenue water as a percent by cost of operating system of 9.9%. For fiscal year 2017, KUB reported a Validity Score of 94 and non-revenue water as a percent by cost of operating system of 5.5%. See Supplemental Information Schedule 4 for the AWWA Reporting Worksheet.

See accompanying Report of Independent Auditors on Supplemental Information.

Knoxville Utilities Board Water Division

Supplemental Information - Schedule of Unaccounted for Water

June 30, 2018
(Unaudited)

Schedule 4

AWWA Free Water Audit Software:

Reporting Worksheet

WAS v5.0

American Water Works Association
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Water Audit Report for: Knoxville Utilities Board

Reporting Year: 2018 7/2017 - 6/2018

Please enter data in the white cells below. Where available, metered values should be used; if metered values are unavailable please estimate a value. Indicate your confidence in the accuracy of the input data by grading each component (n/a or 1-10) using the drop-down list to the left of the input cell. Hover the mouse over the cell to obtain a description of the grades

All volumes to be entered as: MILLION GALLONS (US) PER YEAR

To select the correct data grading for each input, determine the highest grade where the utility meets or exceeds all criteria for that grade and all grades below it.

WATER SUPPLIED

Volume from own sources:	+ ? 8	12,442.653	MG/Yr	+ ? 8	162.874	MG/Yr
Water imported:	+ ? n/a	0.000	MG/Yr	+ ?	0.000	MG/Yr
Water exported:	+ ? n/a	0.000	MG/Yr	+ ?	0.000	MG/Yr

WATER SUPPLIED: 12,279.779 MG/Yr

Master Meter and Supply Error Adjustments

Enter negative % or value for under-registration
Enter positive % or value for over-registration

Enter grading in column 'E' and 'J' ----->

AUTHORIZED CONSUMPTION

Billed metered:	+ ? 9	8,198.380	MG/Yr	+ ? 9	1.25%	MG/Yr
Billed unmetered:	+ ? 10	45.230	MG/Yr	+ ? 10	0.25%	MG/Yr
Unbilled metered:	+ ? 10	348.601	MG/Yr	+ ? 10	1.99%	MG/Yr
Unbilled unmetered:	+ ?	153.497	MG/Yr	+ ?	0.25%	MG/Yr

Default option selected for Unbilled unmetered - a grading of 5 is applied but not displayed

AUTHORIZED CONSUMPTION: 8,745.708 MG/Yr

Click here: ? for help using option buttons below

Use buttons to select percentage of water supplied OR value

WATER LOSSES (Water Supplied - Authorized Consumption) 3,534.071 MG/Yr

Apparent Losses

Unauthorized consumption:	+ ?	30.699	MG/Yr	+ ?	0.25%	MG/Yr

Default option selected for unauthorized consumption - a grading of 5 is applied but not displayed

Customer metering inaccuracies:	+ ? 7	173.538	MG/Yr	+ ? 7	1.99%	MG/Yr
Systematic data handling errors:	+ ?	20.496	MG/Yr	+ ?	0.25%	MG/Yr

Default option selected for Systematic data handling errors - a grading of 5 is applied but not displayed

Apparent Losses: 224.734 MG/Yr

Real Losses (Current Annual Real Losses or CARL)

Real Losses = Water Losses - Apparent Losses: 3,309.337 MG/Yr

WATER LOSSES: 3,534.071 MG/Yr

NON-REVENUE WATER

NON-REVENUE WATER: 4,036.169 MG/Yr

= Water Losses + Unbilled Metered + Unbilled Unmetered

SYSTEM DATA

Length of mains:	+ ? 9	1,437.0	miles	+ ? 9	91.785	conn./mile main
Number of active AND inactive service connections:	+ ? 9	91.785	conn./mile main	+ ? 9	64	conn./mile main

Are customer meters typically located at the curbstop or property line? Yes

Average length of customer service line: + ? (length of service line, beyond the property boundary, that is the responsibility of the utility)

Average length of customer service line has been set to zero and a data grading score of 10 has been applied

Average operating pressure: + ? 7 99.5 psi

COST DATA

Total annual cost of operating water system:	+ ? 10	\$37,307,698	\$/Year	+ ? 10	\$7.17	\$/100 cubic feet (ccf)
Customer retail unit cost (applied to Apparent Losses):	+ ? 9	\$7.17	\$/100 cubic feet (ccf)	+ ? 9	\$401.59	\$/Million gallons
Variable production cost (applied to Real Losses):	+ ? 7	\$401.59	\$/Million gallons	+ ? 7	\$401.59	\$/Million gallons

Use Customer Retail Unit Cost to value real losses

WATER AUDIT DATA VALIDITY SCORE:

*** YOUR SCORE IS: 82 out of 100 ***

A weighted scale for the components of consumption and water loss is included in the calculation of the Water Audit Data Validity Score

PRIORITY AREAS FOR ATTENTION:

Based on the information provided, audit accuracy can be improved by addressing the following components:

- 1: Volume from own sources
- 2: Unauthorized consumption
- 3: Systematic data handling errors

See accompanying Report of Independent Auditors on Supplemental Information.

Knoxville Utilities Board Water Division
Supplemental Information - Schedule of Unaccounted for Water
June 30, 2018
(Unaudited)

Schedule 4

AWWA Free Water Audit Software:
System Attributes and Performance Indicators

WAS v5.0
 American Water Works Association.
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Water Audit Report for: Knoxville Utilities Board

Reporting Year: 2018 | 7/2017 - 6/2018

*** YOUR WATER AUDIT DATA VALIDITY SCORE IS: 82 out of 100 ***

System Attributes:

Apparent Losses:	224.734	MG/Yr
+ Real Losses:	3,309.337	MG/Yr
= Water Losses:	3,534.071	MG/Yr
? Unavoidable Annual Real Losses (UARL):	782.35	MG/Yr
Annual cost of Apparent Losses:	\$2,154,049	
Annual cost of Real Losses:	\$1,328,997	Valued at Variable Production Cost
		Return to Reporting Worksheet to change this assumption

Performance Indicators:

Financial:	{	Non-revenue water as percent by volume of Water Supplied: 32.9% Non-revenue water as percent by cost of operating system: 9.9%	Real Losses valued at Variable Production Cost
Operational Efficiency:	{	Apparent Losses per service connection per day: 6.71 gallons/connection/day Real Losses per service connection per day: 98.78 gallons/connection/day Real Losses per length of main per day*: N/A Real Losses per service connection per day per psi pressure: 0.99 gallons/connection/day/psi	
From Above, Real Losses = Current Annual Real Losses (CARL): 3,309.34 million gallons/year ? Infrastructure Leakage Index (ILI) [CARL/UARL]: 4.23			

* This performance indicator applies for systems with a low service connection density of less than 32 service connections/mile of pipeline

See accompanying Report of Independent Auditors on Supplemental Information.



Report of Independent Auditors on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*

Board of Commissioners
Water Division of the Knoxville Utilities Board
Knoxville, Tennessee

We have audited, in accordance with the 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, the financial statements of the Water Division (the Division) of the Knoxville Utilities Board, a component unit of the City of Knoxville, Tennessee, as of and for the year ended June 30, 2018, and the related notes to the financial statements, which collectively comprise the Division's basic financial statements, and have issued our report thereon dated October 25, 2018.

Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered the Division's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Division's internal control. Accordingly, we do not express an opinion on the effectiveness of the Division's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees in the normal course of performing their assigned functions, to prevent, or detect and correct misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the Division's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over financial reporting that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control over financial reporting that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.



Board of Commissioners
Water Division of the Knoxville Utilities Board
Knoxville, Tennessee

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the Division's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the Division's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Division's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Coulter & Justus, P.C.

Knoxville, Tennessee
October 25, 2018

THE WASTEWATER DIVISION

THE WASTEWATER DIVISION

INTRODUCTION

The Wastewater Division was established June 16, 1953 as a separate department of the City of Knoxville. On November 4, 1986, voters in the City elected to transfer operation of the City's Wastewater Division to KUB, effective July 1, 1987. While the Wastewater Division is a self-sustained financial entity, the operations of both the water distribution and wastewater collection and treatment systems have been merged to achieve operating efficiencies.

The wastewater system provides collection and treatment throughout the City and portions of East Knox County.

WASTEWATER SYSTEM

When established, the wastewater system had two treatment plants. The two treatment plants and the lines were adequate to serve the needs of the original City. However, the annexation of additional land and the needs of the population created a demand beyond the capacity of the system.

The system embarked upon a significant expansion program throughout the 1960s and 1970s. This included the acquisition of the sewage facilities of the Fountain City Sanitary District. In 1982, the City completed construction of its 40 million gallons per day (MGD) treatment facility at the mouth of Third Creek. In 1985 the capacity of the Fourth Creek Treatment Plant was expanded.

In July 1987, as a result of an earlier public referendum, the operation of the wastewater system was transferred from the City to KUB. In June of 1988, the East Knox Utility District was acquired by KUB. KUB acquired the Northeast Knoxville Utility District wastewater facilities in 2002. The present KUB wastewater system consists of four treatment plants, 75 pumping stations, and approximately 1,306 miles of service mains. The Third Creek Plant, now known as Kuwahee, is located at the mouth of Third Creek and serves the First Creek, Second Creek, Holston River, Baker Creek, and Goose Creek drainage areas and that portion of the Third Creek area within the original City boundaries. Secondly, the Loves Creek Treatment Plant is located at the mouth of Loves Creek and serves this entire drainage area. The Fourth Creek Treatment Plant is located at the mouth of Fourth Creek and serves the Fourth Creek drainage area, the Ten Mile Creek drainage area, and that portion of the Third Creek area outside the original city limits. The Eastbridge Treatment Plant, located on the Holston River, serves the Lyons Creek Drainage Basin and the Eastbridge Industrial Park.

In addition to the service areas outlined above, service is provided to other drainage basins through an agreement with West Knox Utility District. At the present time, the quantities of flow received from this utility district are small in comparison to total system flows.

Total flows through the wastewater system for the twelve months ended June 30, 2018 were 13.7 billion gallons. Average daily flow through the system was 37.5 MGD. The wastewater

system presently provides service to approximately 71,242 customers.

Century II is KUB's proactive long-range program to improve and maintain the electric, natural gas, water and wastewater systems for its customers. It includes the maintenance and asset replacement strategies for each system and establishes sustainable replacement cycles. Century II moves KUB into its second century of service by improving each system through sound planning, resource allocation, and continued, but accelerated, investment.

In 2013, the Board extended the funding approach for Century II to include the wastewater system, although the Wastewater Division had maintained a ten-year funding plan since the inception of the federal Consent Decree (see below). The Board formally endorsed and adopted by resolution, a ten-year funding plan for the Wastewater Division, which included a combination of rate increases and debt issues to fully fund the wastewater system's Century II program.

In April 2014, KUB management provided the Board an updated assessment of the overall condition of each utility system, including a recommendation for annual rate increases for each division for the next three fiscal years.

In June 2014, the Board approved three annual rate increases for the Wastewater Division. The three rate increases went into effect in October 2014, October 2015, and October 2016. Each rate increase provided an additional \$4.7 million of annual sales revenue.

In May 2017, a new Century II funding resolution was adopted by the KUB Board to express the continued commitment to funding Century II programs for the next ten years. The funding will be achieved through a combination of rate increases and debt issues supplemented by cost savings and new revenue from net customer additions.

In June 2017, the Board approved the next phase of wastewater rate increases to support the Century II program. The first two of the three approved wastewater rate increases went into effect in July 2017 and July 2018, generating \$4.3 million and \$4.2 million in additional annual revenue, respectively. The remaining rate increase is effective in July 2019 and is expected to provide an additional \$4.5 million in annual revenue to assist with the funding of the Wastewater Division.

KUB staff and the Board are beginning discussions on the future rate increases to provide for funding of Century II programs. Future increases are anticipated to be effective beginning July 2020 and follow the three-year annual increase format previously utilized by the Board.

In fiscal year 2018, KUB rehabilitated or replaced 16 miles of wastewater system main while staying within the Division's total capital budget. KUB remains on track and on budget in meeting all requirements of the Federal Consent Decree.

FEDERAL CONSENT DECREE

In February 2005, a Consent Decree was entered into federal court regarding the operation of KUB's wastewater system. Under the terms of the Consent Decree, the remediation of identified sanitary sewer overflows (SSOs) on KUB's wastewater system had to be completed by

June 30, 2016. KUB completed all the requirements of the Consent Decree for the collection system two years in advance of the deadline.

The Consent Decree also required KUB to perform an evaluation of the wet weather performance and capacity of its wastewater treatment plants. In July 2007, KUB submitted a Composite Correction Plan (CCP) for its wastewater treatment plants to EPA for review. The development and filing of the CCP was a requirement of the federal order of February 2005. The CCP includes recommended improvements to KUB's Kuwahee and Fourth Creek treatment plants to address wet weather capacity issues noted in prior assessments. The EPA approved the CCP in January 2009 including a recommended schedule of plant improvements that extends beyond the expiration date of the original Consent Decree. An amendment to the Consent Decree incorporating and establishing this schedule was agreed to by all parties and was entered on June 23, 2009. The purpose of the Amendment is to allow KUB to complete a portion of work outlined in the CCP after the Consent Decree deadline of June 30, 2016. The CCP provides for a biologically enhanced high-rate clarification (the BEHRC) secondary treatment system to be installed at the Fourth Creek treatment plant by June 30, 2018 and at the Kuwahee treatment plant by June 30, 2021. KUB successfully completed the installation of the BEHRC system at the Fourth Creek treatment plant ahead of schedule in April 2018. Work is currently ongoing at the Kuwahee treatment plant and remains on schedule for completion before the deadline of June 30, 2021. The total cost of such improvements is estimated to be approximately \$58 million.

KUB's funding plan for the Consent Decree includes long-term bonds and a series of rate increases phased in over the term of the order. Bond proceeds fund all types of wastewater capital projects, the majority of which are related to the Consent Decree. As of June 30, 2018, the Wastewater Division had issued \$530 million in bonds to fund system capital improvements since the inception of the Consent Decree. The Board approved two 50 percent rate increases, which went into effect in April 2005 and January 2007. The Board also approved an 8 percent rate increase, which was effective in September 2008, two 12 percent rate increases, which were effective in April 2011 and October 2012, three 6 percent rate increases effective October 2014, October 2015 and October 2016 and three 5 percent rate increases effective July 2017, July 2018, and July 2019. KUB anticipates additional bond issues and rate increases over the next decade to help fund wastewater capital improvements.

KUB successfully completed the first cycle of Maintenance Operation Management (MOM) requirements one year before the deadline by inspecting manholes and gravity mains, smoke testing gravity mains, performing required inspections of pump stations and the related force mains, and completing all Corrective Action Plan/Engineering Report (CAP/ER) projects. KUB initiated the second MOM cycle that continues to focus on the prevention of SSOs. As part of the Century II initiative, formally known as the PACE10 program, KUB has installed storage tanks providing 34 million gallons of wastewater storage to control wet weather overflows and rehabilitated or replaced approximately 368.8 miles of collection system pipe. KUB also continues to maintain a proactive operations and maintenance plan for the wastewater collection system including inspection, grease control, and private lateral enforcement. The result of the Pace10/Century II initiative has been an 83 percent reduction in SSOs.

As of June 30, 2018, the Wastewater Division had completed its 14th full year under the Consent Decree, spending \$536.9 million on capital investments to meet Consent Decree requirements.

PENSION PLAN

Description of Plan

The Knoxville Utilities Board Pension Plan (the Plan) is a governmental plan as defined by the Employee Retirement Income Security Act of 1974 (ERISA or the Act), is not subject to any of the provisions of the Act, and was revised January 1, 2017 to include all prior approved amendments. The Plan is a single-employer contributory, defined benefit pension plan established by Knoxville Utilities Board Resolution No. 980 dated February 18, 1999, effective July 1, 1999, as authorized by the Charter of the City of Knoxville §1107(J). The Plan is designed to provide retirement, disability and death benefits to KUB employees. KUB administers the Plan through an Administrative Committee consisting of seven KUB employees that are appointed by KUB's President and CEO. Any amendments to the Plan involving costs not approved in the operating budget must be adopted by KUB's Board of Commissioners, upon recommendation by KUB's President and CEO. All other amendments to the Plan may be approved by KUB's President and CEO upon 60 days notification to the Board's Audit and Finance Committee. The Plan issues a financial report, which includes financial statements and required supplementary information. The report may be obtained by writing the Knoxville Utilities Board Retirement System, P.O. Box 59017, Knoxville, TN 37950-9017. For purposes of this disclosure, presentation is on a consolidated basis unless division's share is specified.

Effective January 1, 2011, KUB closed the Plan such that persons employed or re-employed by KUB on or after January 1, 2011, are not eligible to participate, but that eligible employees hired prior to January 1, 2011, who have not separated from service, shall continue as Participants and to accrue benefits under the Plan.

Participants in the Plan consisted of the following as of December 31:

	2017	2016
Inactive plan members:		
Terminated vested participants	34	43
Retirees and beneficiaries	602	605
Active plan members	<u>629</u>	<u>662</u>
Total	<u>1,265</u>	<u>1,310</u>

Retirement Benefits

The Plan provides three benefit arrangements for KUB participants, retirees, and beneficiaries.

The Plan provides pension benefits through the Career Equity Program ("CEP") for eligible employees hired on or after January 1, 1999, and for eligible former "City System Plan A" participants who elected CEP coverage as of July 1, 1999. The guaranteed pension benefit payable to a participant who has completed five or more years of service (or reached the normal retirement date, if earlier) upon termination of KUB employment shall be a lump sum equal to the participant's average compensation times their benefit percentage, as defined in the Plan document, or an annuity may be chosen by the participant.

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In addition, the Plan provided retirement benefits through “Plan A” for former City System Plan A participants who elected not to participate in the CEP. Plan A is a closed plan and is not available to KUB employees hired after July 1, 1999. Plan A provides for early retirement benefits with 25 years of service and normal retirement benefits at age 62 or later. Benefits provided to Plan A participants include several different forms of monthly annuity payments.

The Plan also provides retirement benefits through “Plan B” for former “City System Plan B” participants. Plan B is a closed plan providing benefits to participants not covered by Social Security. Benefits provided to Plan B participants include several different forms of monthly annuity payments available to participants.

Effective January 1, 2012, KUB began to provide for additional monthly supplements, which are not subject to cost of living adjustments, to certain former employees and surviving dependents of former employees who are eligible for and have elected coverage under the KUB retiree medical plan and are eligible for Medicare. This was done to compensate for the elimination of drug coverage under the KUB retiree medical plan and to assist such individuals in obtaining prescription drug coverage under Medicare Part D.

Contributions

Participation in Plan A requires employee contributions of 3 percent of the first \$4,800 of annual earnings and 5 percent of annual earnings in excess of \$4,800. KUB contributions are determined by the enrolled actuary of the Plan and equal the amount necessary to provide the benefits under the Plan determined by the application of accepted actuarial methods and assumptions. The method of funding shall be consistent with Plan objectives.

Plan Funding

KUB maintains a Funding Policy for the Plan in accordance with Tennessee State Law. The primary goal of the Policy is to document the method KUB has adopted to provide assurance that future KUB and employee contributions and current Plan assets will be sufficient to fund all benefits expected to be paid to current active, inactive and retired Plan participants and their beneficiaries. Per the Funding Policy, KUB fully funds its annual Actuarially Determined Contribution.

Investments

The Plan’s investments are held by State Street Bank and Trust Company (the “Trustee”). The Plan’s policy in regard to the allocation of invested assets is established by the Retirement System Investment Committee and approved by the KUB Board of Commissioners and may only be amended by the KUB Board of Commissioners. It is the policy of the Retirement System Investment Committee to pursue an investment strategy that reduces risk through the prudent diversification of the portfolio across a broad selection of distinct asset classes. The following was the Plan’s adopted asset allocation policy as of December 31, 2017:

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Asset Class	Target
Domestic equity – large cap	20% - 50%
Domestic equity – mid cap	0% - 15%
Domestic equity – small cap	0% - 15%
Domestic equity – convertible securities	0% - 10%
Non-U.S. equity	0% - 20%
Real estate equity	0% - 10%
Fixed income – aggregate bonds	5% - 25%
Fixed income – long-term bonds	10% - 25%
Cash and deposits	0% - 5%

Contributions of \$3,756,283 and \$4,816,913 for 2016 and 2015, respectively, were made during the Plan sponsor's fiscal years ending June 30, 2018 and 2017, respectively. Of these amounts, \$826,382 and \$1,059,721 are attributable to the Wastewater Division. The fiscal year 2018 contribution was determined as part of the January 1, 2016 valuation using the Individual Entry Age Normal funding method. The objective under this method is to fund each participant's benefits under the Plan as payments which are level as a percentage of salary, starting on the original participation date (employment date) and continuing until the assumed retirement, termination, disability or death.

The Pension Plan actuarial valuation for the Plan year ending December 31, 2017 resulted in an actuarially determined contribution of \$3,156,661 for the fiscal year ending June 30, 2019, based on the Plan's current funding policy. The Wastewater Division's portion of this contribution is \$694,465. Subsequent to June 30, 2018, the actuarial valuation for the Plan year ending December 31, 2018 was completed. The actuarial valuation resulted in an actuarially determined contribution of \$2,585,824 for the fiscal year ending June 30, 2020, based on the Plan's current funding policy. The Wastewater Division's portion of this contribution is \$568,881. For the Plan year ending December 31, 2018, the Plan's actuarial funded ratio was 107.84 percent.

See Appendix E-2 for additional pension plan information.

QUALIFIED EXCESS BENEFIT ARRANGEMENT (QEBA)

Description

In fiscal year 2017, KUB implemented a qualified governmental excess benefit arrangement (QEBA) under IRC section 415(m), which was created by Congress to allow the payment of pension benefits that exceed the IRC section 415(b) limits (and therefore cannot be paid from a qualified retirement plan). The QEBA is a single-employer defined benefit pension plan, administered by KUB. The number of participants in any given year for the QEBA is determined by the number of KUB Pension Plan participants who exceed the current year's section 415(b) limitations, as calculated by the KUB Pension Plan actuary. The amount of QEBA benefit will be the amount specified by the terms of the KUB Pension Plan without regard to Section 415(b) limitations minus the amount payable from the KUB Pension Plan as limited by Section 415(b). QEBA benefits are not subject to cost of living adjustments.

As of June 30, 2018, there are 602 active employees eligible for the KUB Pension Plan who are potentially eligible to receive QEBA benefits. There are no inactive employees or retirees currently in the QEBA. The KUB Pension Plan was closed effective January 1, 2011, such that persons employed or re-employed by KUB on or after January 1, 2011, are not eligible to participate, but that eligible employees hired prior to January 1, 2011, who have not separated from service, shall continue as Participants and accrue benefits under the KUB Pension Plan. The KUB Pension Plan was amended to include the provision of QEBA benefits, therefore, amendments to the QEBA require the same authority as amendments to the KUB Pension Plan. As required by federal tax law, the QEBA is unfunded within the meaning of the federal tax laws. KUB may not pre-fund the QEBA to cover future liabilities beyond the current year. KUB has established procedures to pay for these benefits on a pay-as-you-go basis, funded by KUB. There are no assets accumulated in a trust that meets the GASB's criteria.

Implementation of GASB 73

In fiscal year 2016, KUB adopted GASB Statement No. 73, *Accounting and Financial Reporting for Pensions and Related Assets That Are Not within the Scope of GASB Statement 68, and Amendments to Certain Provisions of GASB Statements 67 and 68* ("GASB 73"). GASB 73 extends a similar approach of financial reporting to plans meeting specific criteria that are not administered through trusts that GASB 68 established for pension plans. GASB 73 requires measurement of the total pension liability of the QEBA. The amounts reported as of June 30 must be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 and 2017 will be based on the December 31, 2017 and 2016 measurement dates, respectively. The Division's share of the total pension liability at June 30, 2018 is \$61,675 and at June 30, 2017 is \$40,717.

GASB 73 requires certain disclosures related to the total pension liability of the QEBA, as disclosed below:

	2017	2016
Total pension liability	\$280,341	\$185,077
Deferred outflows	(69,716)	-
Deferred inflows	-	-
Net impact on Statement of Net Position	<u>\$210,625</u>	<u>\$185,077</u>
Covered payroll	\$43,309,374	\$44,437,747
Total pension liability as a % of covered payroll	0.65%	0.42%

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Changes in total pension liability of the QEBA are as follows:

	<u>Increase (Decrease)</u>
	Total Pension Liability
Balances at December 31, 2016	\$ 185,077
Changes for the year:	
Service cost	584
Interest	7,535
Changes of Benefits	-
Differences between Expected and Actual Experience	13,684
Changes of Assumptions	73,461
Contributions – employer	-
Contributions – rollovers	-
Contributions – member	-
Net investment income	-
Benefit payments	-
Net changes	<u>95,264</u>
Balances at December 31, 2017	<u>\$ 280,341</u>

Actuarial Assumptions

The total pension liability of the QEBA was determined by an actuarial valuation as of January 1, 2017 and projected to December 31, 2017, using the following actuarial assumptions, applied to all periods included in the measurement:

Actuarial cost method	Individual entry age
Asset valuation method	5-year smoothed market
Amortization method	Level dollar closed period with 24 years remaining as of January 1, 2017 and 25 years remaining as of January 1, 2016
Salary increase	From 2.80% to 5.15% for January 1, 2017 and January 1, 2016, based on years of service
Mortality	Sex distinct RP-2000 Combined Mortality projected to 2024 using Scale AA
Inflation	2.8 percent

The actuarial assumptions used in the January 1, 2017 valuation were based on the results of an actuarial experience study for the period January 1, 2009 through December 31, 2013.

Discount rate

The QEBA is not funded. In accordance with paragraph 31 of GASB 73, the discount rate is based on the Bond Buyer 20-Bond GO index. This rate was 3.44% at December 31, 2017.

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Sensitivity of the total pension liability to changes in the discount rate

The following presents the total pension liability of the QEBA as of December 31, 2017, calculated using the discount rate of 3.44 percent, as well as what the QEBA's total pension liability would be if it were calculated using a discount rate that is one percent lower (2.44 percent) or one percent higher (4.44 percent) than the current rate:

	1% Decrease (2.44%)	Current Discount Rate (3.44%)	1% Increase (4.44%)
QEBA's total pension liability	\$ 307,013	\$ 280,341	\$ 257,483

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

For the year ended June 30, 2018, KUB recognized pension expense of \$29,527 for the QEBA (Division's share \$6,496). This amount is not expected to be the same as KUB's contribution to the QEBA (\$3,979), but instead represents the change in the net impact on KUB's Statement of Net Position plus employer contributions [\$210,625 - \$185,077 + \$3,979].

The impact of experience gains or losses and assumption changes on the total pension liability are recognized in the pension expense over the average expected remaining service life of all active and inactive members, determined as of the beginning of the measurement period. As of December 31, 2016, this average was 5 years. During the measurement year, there was an experience loss of \$13,684 with approximately \$2,737 recognized in the current year and each of the next four years, resulting in a deferred outflow of \$10,947 (Division's share \$2,409).

During the measurement year, there were no benefit changes. There was an increase in the total pension liability due to assumption changes of \$73,461 with approximately \$14,692 recognized in the current year and each of the next four years, resulting in a deferred outflow of \$58,769 (Division's share \$12,929).

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The table below summarizes the current balances of deferred outflows and deferred inflows of resources along with the net recognition over future years:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 10,947	\$ -
Changes in assumptions	58,769	-
Total	<u>\$ 69,716</u>	<u>\$ -</u>
Division's share	<u>\$ 15,338</u>	<u>\$ -</u>

Year ended June 30:

2019	\$ 17,429
2020	17,429
2021	17,429
2022	17,429
Thereafter	-

For the year ended June 30, 2017, KUB recognized pension expense of \$185,077 for the QEBA (Division's share \$40,717). This amount is not expected to be the same as KUB's contribution to the QEBA (\$0), but instead represents the change in the net impact on KUB's Statement of Net Position plus employer contributions.

The impact of experience gains or losses and assumption changes on the total pension liability are recognized in the pension expense over the average expected remaining service life of all active and inactive members, determined as of the beginning of the measurement period. As of December 31, 2015, this average was 5 years. During the measurement year, there were no assumption changes or experience gains or losses. The benefit change of \$0.2 million is due to the implementation of the QEBA. Benefit changes are reflected immediately in the total pension liability of the QEBA.

OTHER POST-EMPLOYMENT BENEFITS (OPEB)

Description of Trust

The Knoxville Utilities Board Other Post-Employment Benefits Trust (the Trust) is a single-employer Other Post-Employment Benefits Plan (OPEB Plan) established by the Knoxville Utilities Board of Commissioners through Resolution No. 1168, as amended, dated October 18, 2007. The applicable documentation was submitted to the State Funding Board and, in December 2007, the State Funding Board approved the Trust. The Trust was also approved by the Internal Revenue Service in June 2008. KUB administers the Trust through a Board of Trustees consisting of seven KUB employees that are appointed by KUB's President and CEO. Any amendments to the Trust involving costs not approved in the operating budget must be approved by KUB's Board of Commissioners, upon recommendation by KUB's President and CEO. All other amendments to the Trust may be approved by KUB's President and CEO upon 60 days notification to the Board's Audit and Finance Committee. The investment of all deposits to the Trust is governed by an Investment Policy, which was adopted by the KUB Board and approved by the State Funding

Board. The Trust issues a financial report, which includes financial statements and required supplementary information. The report may be obtained by writing the Knoxville Utilities Board Retirement System, P.O. Box 59017, Knoxville, TN 37950-9017. For purposes of this disclosure, presentation is on a consolidated basis unless division's share is specified.

Effective July 1, 1999, KUB closed the OPEB Plan such that persons employed or re-employed by KUB on or after July 1, 1999, are not eligible to participate, but that eligible employees hired prior to July 1, 1999, who are retired and who (prior to retirement) qualified for retiree medical insurance by meeting the "Rule of 80", the sum of age and at least 20 years of qualified service equal or exceed 80, accrue benefits under the OPEB Plan.

Participants in the OPEB Plan consisted of the following as of June 30:

	2018	2017
Retirees	562	567
Dependents of retirees	561	580
Eligible active employees	309	334
Total	<u>1,432</u>	<u>1,481</u>

Benefits

Other post-employment benefits may include, but shall not be limited to, medical, prescription drugs, dental, vision, hearing, Medicare Part B or Part D premiums, life insurance, long-term care, and long-term disability. Only medical and pharmacy are currently provided to eligible retirees.

Contributions and Plan Funding

The primary goal of the Funding Policy for the Trust is to document the method KUB has adopted to provide assurance that future KUB and retiree contributions and current Trust assets will be sufficient to fund all benefits expected to be paid to Trust beneficiaries. Per the Funding Policy, KUB's current practice is to fully fund its annual Actuarially Determined Contribution, which is determined by actuarial valuation.

Contributions are authorized by the terms of the Trust as established by KUB Resolution No. 1168, as amended, as approved by the Tennessee State Funding Board. KUB shall have the right at any time to amend, in whole or in part, the provisions of this Trust; however, no such amendment shall authorize or permit the assets of the Trust to be used for or diverted to purposes other than those expressed in the Declaration of Trust.

It shall be the sole and exclusive responsibility of KUB to determine the level of contributions KUB will make to the Trust for the purpose of financing other post-employment benefits accrued by its respective participants. Neither the Trust, nor the Trust's Board shall be responsible for collecting or otherwise determining the level of contributions needed by KUB to finance any other post-employment benefits offered by KUB. The assets of the Trust shall be expended solely to make payments for other post-employment benefits pursuant to and in accordance with the terms of the Trust and to pay the cost of administration.

Based on the date of retirement, certain retired plan members are required to contribute specified amounts monthly to maintain health insurance. Those who retired prior to July 1983 have no required monthly premiums for themselves or dependents. The retirees, or their surviving dependents, who retired between August 1983 and January 1998 are required to pay \$250 per month for pre-Medicare family health insurance. For individuals who retired after January 1998 the required monthly premium for pre-Medicare health insurance is \$250 for single coverage and \$500 for family coverage. There is currently no premium for Medicare eligible retirees or dependents. KUB is responsible for determining the level of retired plan member contributions on an annual basis, as part of its review of healthcare cost sharing.

Investments

The Trust holds investments in a balanced fund, which invests in passively managed common trust index funds, managed and sponsored by State Street Global Advisors (SSgA), with an asset allocation mirroring the asset allocation of the Trust and rebalanced monthly. The Trust's Investment Policy was established and may only be amended by the KUB Board of Commissioners. The Trust's Investment Policy is to invest in a manner that will provide sufficient investment return to meet current and future retiree health benefits, while conforming to all governing State and Federal statutes. It allows investment of Trust assets in any type of security instrument allowed for in T.C.A 8-50-1203. The following was the Trust's adopted investment target allocations as set forth in the Trust's Investment Policy as of June 30, 2018:

<u>Asset Class</u>	<u>Target Allocation</u>
Domestic Equity:	
Large Cap	30%
Small Cap	8%
International Equity:	
Developed	16%
Emerging	8%
Real Estate Equity	8%
Debt Securities	30%
Total	<u>100%</u>

Contributions of zero and \$620,015 were made to the OPEB Trust for the fiscal years ending June 30, 2018 and 2017, respectively, based on the OPEB Plan's actuarial valuations as of January 1, 2016, and 2015. Of these amounts, zero and \$136,403 were attributable to the Wastewater Division.

The OPEB Plan actuarial valuation as of January 1, 2017 resulted in an actuarially determined contribution of zero for the fiscal year ending June 30, 2019, based on the Plan's current funding policy. Subsequent to June 30, 2018, the actuarial valuation as of January 1, 2018 was completed. The actuarial valuation resulted in an actuarially determined contribution of \$311,324 for the fiscal year ending June 30, 2020, based on the Plan's current funding policy. The Wastewater Division's portion of this contribution is \$68,491. The Plan's actuarial funded ratio was 102.78 percent.

See Appendix E-2 for additional OPEB information.

FISCAL YEAR 2019 FINANCIAL UPDATE

In October 2018, Gabriel Bolas II, Senior Vice President and Chief Engineer, was sworn in as KUB's seventh President and CEO. He was selected by the KUB Board of Commissioners to replace Mintha Roach, who served in the position since 2004.

KUB sold \$12 million in wastewater system revenue bonds in August 2018 for the purpose of funding wastewater system capital improvements. As of April 30, 2019, the Wastewater Division had \$512 million in outstanding debt, representing a debt to capitalization ratio of 61.3 percent. The Wastewater Division's maximum debt service coverage ratio is projected to be 1.95, for the twelve months ending June 30, 2019.

For the ten months ending April 30, 2019, KUB's Wastewater Division recorded earnings of \$18.3 million, representing an increase of \$0.9 million compared to the same period last fiscal year. This increase is the net result of the July 2018 rate increase offset by a 1.2 percent decrease in sales volumes compared to the same period last fiscal year.

Capital investment in wastewater system infrastructure is projected to be approximately \$56.4 million for fiscal year 2019, reflecting KUB's continued commitment to collection system replacement and treatment plant upgrades.

In May 2019, the KUB Board of Commissioners adopted the resolution to approve the fiscal year 2020 budget appropriations of \$138.1 million for the Wastewater Division. The funding of the fiscal year 2020 budget anticipates the debt issuance of \$16 million in wastewater revenue bonds.

WASTEWATER RATES

The current rate schedules of the Wastewater Division are as follows:

WASTEWATER GENERAL SERVICE – RESIDENTIAL RATE SCHEDULE

Availability

Service under this rate schedule shall be available only to residential customers served individually through a separate meter.

An existing customer or applicant for service under this schedule may be required to execute a contract specifying, among other things, a minimum bill and minimum term for service under this schedule.

Rate

The Wastewater Service Charge shall be calculated using the applicable rate tables provided below, based on the customer's water usage and water meter size with the following exceptions:

For customers whose wastewater discharge volumes are metered separately from their water usage, the metered wastewater discharge volumes will be used to calculate Service Charges under this schedule. The meter size used to calculate the Additional Monthly Charge under this schedule will be the largest equivalent water meter size as determined by KUB.

If neither the customer's water usage nor wastewater discharge volumes are metered, the average water usage and water meter size of comparable metered customers as determined by KUB will be used to calculate the charges under this schedule.

In the event more than one meter is utilized to determine billed consumption, multiple customer charges may apply. Charges will apply without regard to ownership of the meter(s).

I. Inside City Rate

For wastewater service provided to premises entirely within the corporate limits of the City of Knoxville:

	<u>Customer Charge</u>
5/8" meter	\$ 33.60
1" meter	\$ 48.60
1 1/2" meter	\$ 60.60
2" meter	\$ 80.60

For meters greater than 2" the Customer Charges listed in the Wastewater Nonresidential schedule shall be utilized.

	<u>Commodity Charge</u>
First	2 Ccf at \$ 1.40 per Ccf
Over	2 Ccf at \$ 8.70 per Ccf

II. Outside City Rate

For wastewater service provided to premises entirely or partly outside the corporate limits of the City of Knoxville:

	<u>Customer Charge</u>
5/8" meter	\$ 37.60
1" meter	\$ 51.60
1 1/2" meter	\$ 68.60
2" meter	\$ 88.60

For meters greater than 2" the Customer Charges listed in the Wastewater Nonresidential schedule shall be utilized.

	<u>Commodity Charge</u>
First	2 Ccf at \$ 1.55 per Ccf
Over	2 Ccf at \$ 9.30 per Ccf

Additional Charges

In addition to the wastewater service charge, users whose wastewater has strength characteristics in excess of normal domestic wastewater shall pay an Extra Strength Surcharge as set forth in Schedule B. A Sewer Improvement Charge may also be payable as set forth in Schedule D.

Rules and Regulations

Service is subject to Rules and Regulations of KUB.

WASTEWATER GENERAL SERVICE – NONRESIDENTIAL RATE SCHEDULE

Availability

Service under this rate schedule shall be available to any commercial or industrial customer.

An existing customer or applicant for service under this schedule may be required to execute a contract specifying, among other things, a minimum bill and minimum term for service under this schedule.

Rate

The Wastewater Service Charge shall be calculated using the applicable rate tables provided below, based on the customer's water usage and water meter size with the following exceptions:

For customers whose wastewater discharge volumes are metered separately from their water usage, the metered wastewater discharge volumes will be used to calculate Service Charges under this schedule. The meter size used to calculate the Additional Monthly Charge under this schedule will be the largest equivalent water meter size as determined by KUB.

If neither the customer's water usage nor wastewater discharge volumes are metered, the average water usage and water meter size of comparable metered customers as determined by KUB will be used to calculate the charges under this schedule.

In the event more than one meter is utilized to determine billed consumption, multiple customer charges may apply. Charges will apply without regard to ownership of the meter(s).

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I. Inside City

For wastewater service provided to premises entirely within the corporate limits of the City of Knoxville:

	<u>Customer Charge</u>
5/8" meter	\$33.60
1" meter	\$48.60
1 1/2" meter	\$60.60
2" meter	\$80.60
3" meter	\$153.00
4" meter	\$250.00
6" meter	\$533.00
8" meter	\$926.00
10" meter	\$1,404.00
12" meter	\$2,068.00

	<u>Commodity Charge</u>
First	2 Ccf at \$0.95 per Ccf
Next	8 Ccf at \$12.25 per Ccf
Next	90 Ccf at \$10.95 per Ccf
Next	300 Ccf at \$9.40 per Ccf
Next	4,600 Ccf at \$7.65 per Ccf
Over	5,000 Ccf at \$4.50 per Ccf

II. Outside City

For wastewater service provided to premises entirely or partly outside the corporate limits of the City of Knoxville:

	<u>Customer Charge</u>
5/8" meter	\$37.60
1" meter	\$51.60
1 1/2" meter	\$68.60
2" meter	\$88.60
3" meter	\$173.00
4" meter	\$276.00
6" meter	\$586.00
8" meter	\$1,019.00
10" meter	\$1,539.00
12" meter	\$2,271.00

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<u>Commodity Charge</u>	
First	2 Ccf at \$1.10 per Ccf
Next	8 Ccf at \$13.50 per Ccf
Next	90 Ccf at \$12.00 per Ccf
Next	300 Ccf at \$10.25 per Ccf
Next	4,600 Ccf at \$8.55 per Ccf
Over	5,000 Ccf at \$5.05 per Ccf

Rules and Regulations

Service is subject to Rules and Regulations of KUB.

SCHEDULE B – EXTRA STRENGTH SURCHARGES

Applicability

For user whose discharge of wastewater contains a quantity of BOD in excess of 2,000 pounds per million gallons (240 mg/l), and a quantity of suspended solids in excess of 2,500 pounds per million gallons (300 mg/l), an additional charge, based on the following schedule, shall be applied to the excess contribution, as determined by laboratory analysis of the user's discharge. This Extra Strength Surcharge is in addition to all other charges that may be applicable under KUB's rate schedules.

Rate

BOD	\$13.60 per hundred pounds of excess
Suspended Solids	\$12.90 per hundred pounds of excess

Rules and Regulations

Service is subject to Rules and Regulations of KUB.

SCHEDULE C – HOLDING TANK AND SPECIAL WASTE CHARGES

Domestic Waste (Commercial Waste Disposal)

For users engaged in the business of cleaning wastewater and wastewater residues from septic tanks and other private disposal systems, a domestic waste discharge permit is required and certain fees and charges are assessed against those users.

(1) Annual Access Fee:

The annual access fee for the use of KUB's disposal facilities shall be \$100.00 per fiscal year, per permitted vehicle. The full fee shall be payable for any fraction of the fiscal year. Bills under this section will be rendered annually at the beginning of KUB's

fiscal year or such later time during the fiscal year that service is commenced.

(2) Domestic Waste Discharge Rate:

Each load of Domestic Waste discharged to KUB's facilities shall be subject to a Discharge Rate of \$97.90 per 1,000 gallons. Bills under this section will be rendered monthly.

Special Waste

For users who dispose of any other waste from any tank, pond, pit or other source into the KUB system, a special waste discharge permit is required and the following fees and charges will be assessed against those users.

(1) Special Waste Discharge Permit Application Fee:

A special Wastewater Discharge Permit must be obtained before any Special Waste may be discharged into KUB's facilities. The application fee for such permit is \$75.00. The application fee is non-refundable and is applicable whether or not the application is approved or the permit issued. The fee must be paid prior to discharge.

(2) Special Waste Discharge Fee:

Due to the widely differing character of Special Wastes, the Discharge Fee shall vary, but, at a minimum, the Fee will be the sum of the Wastewater Service Charge as set forth by the Nonresidential Rate Schedule of the Wastewater Division of KUB plus the Extra Strength Surcharges as set forth in Schedule B to the Rate Schedules of the Wastewater Division of KUB. In addition to those charges set forth in the aforementioned Schedules, the Customer will be required to pay the cost to KUB of analyzing, or providing special handling for, the Customer's Special Waste, plus a reasonable charge for the impact that the Special Waste is expected to have on the KUB treatment facilities as determined by KUB. Bills under this section will be rendered upon completion of the discharge.

Operating Procedures

KUB shall establish operating procedures including such items as permit issuance, acceptable wastes, disposal locations, reporting and billing methods for the implementation of this Rate Schedule C, which may be changed from time to time by KUB.

Rules and Regulations

Service is subject to Rules and Regulations of KUB.

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SCHEDULE D – SEWER IMPROVEMENT CHARGE

Applicable Charges

All properties connected or having access to the wastewater system shall be subject to a Sewer Improvement Charge which shall be determined as follows:

For all users not described in paragraph A (2), or A (3), the Sewer Improvement Charge shall be an amount equal to the Contribution in Aid of Construction determined in accordance with the provisions of Section 33-19 of the Rules and Regulations for the Wastewater Division that may from time to time be in effect. Any contribution in Aid of Construction that is assessed under Section 33-19 (b) of the Rules and Regulations on or after December 1, 1992 may, at the customer's option, be paid as a part of the customer's utility bill in monthly installments for a period not to exceed ten (10) years at an annual interest rate of nine percent (9%).

For all users that: (i) on December 1, 1992 are being assessed, or which properly should be assessed, a Sewer Improvement Charge under the terms of this Schedule D as it existed immediately prior to December 1, 1992 or, (ii) which are located in areas annexed into the corporate limits of the City of Knoxville pursuant to Ordinance No. 0-31-87, the Sewer Improvement Charge shall be calculated on multiples of a basic charge (the "Basic Charge"), which shall be Six Hundred Seventy -Five Dollars (\$675.00). At the customer's option, the Sewer Improvement Charge may be paid as a part of the customer's utility bill in monthly installments of Three and 25/100 dollars (\$3.25) for the three hundred sixty (360) months. Sewer Improvement Charges assessed under the terms of this paragraph A (2) shall be calculated as follows:

- (a) Each user consisting of a single-family dwelling shall pay a Sewer Improvement Charge equal to the Basic Charge, regardless of area.
- (b) Each multifamily, commercial or industrial user shall pay a Sewer Improvement Charge based on the greater of the following two calculations:
 - (i) Area/meter basis: The lesser of (a) the Basic charge times the square footage of the area of the property divided by 15,000 or (b) the Basic Charge times the following multiples based on meter size:

<u>Meter Size</u>	<u>Multiple</u>
5/8"	1
3/4"	1.5
1"	2.5
1 1/2"	5
2"	8
3"	15
4"	25
6"	50
8"	80
10"	120
12"	155

* If a user is served by more than one meter, the multiple used shall be the sum of the multiple computed on each meter.

- (ii) Frontage Basis – the Basic Charge times the total frontage of the property measured in feet at the building line parallel to the street along which the property lies for the greater distance divided by 100.
- (c) For service to users located entirely or partly outside the corporate limits of the City of Knoxville, the Sewer Improvement Charge imposed under this paragraph A (2) shall be one and one-half (1-1/2) times the above schedule of charges.
- (d) Any user charged a Sewer Improvement Charge under this paragraph A (2) that reconnects to the Wastewater system on or after December 1, 1992 because of a change in the level or character of the user's wastewater service shall upon such reconnection be subject to the Sewer Improvement Charge calculated under paragraph A (1) hereof.

For all property located in a Transfer Area, that is subject to a Fee Agreement, the user shall be subject to a Sewer Improvement Charge equal in amount to the payments that would have been owed under the Fee Agreement for the affected property, assuming the Fee Agreement remained in effect for its duration, adjusted in accordance with KUB's policies for any additional property users as permitted under the Fee Agreement, less a credit for any payments actually paid to KUB under the Fee Agreement. Except as otherwise provided herein, Sewer Improvement Charges assessed under this paragraph A (3) shall be paid on the same terms provided in the Fee Agreement for the affected property. As used herein" (i) the term "Transfer Area" shall mean an area: (a) that was previously provided wastewater service by a municipal utility (other than KUB) or a utility district, and (b) with respect to which KUB acquired or otherwise succeeded to the right to provide wastewater service; and (ii) the term "Fee Agreement" shall mean a contract or other agreement entered into between the owner or other user of a tract of property and a municipal utility (other than KUB) or a utility district, by the terms of which the owner or other user of the property agrees to pay all or any part of the cost of extending wastewater lines and facilities to such property or otherwise making wastewater service available to such property.

Deferral of Payment

A Sewer Improvement Charge shall not be billed or collectible for any monthly billing for any period for which a wastewater service charge is not payable.

Prepayment

A customer who has elected to pay the Sewer Improvement Charge in monthly installments may thereafter prepay the balance of such charge in whole (but not in part) in an amount equal to the unamortized balance of the Sewer Improvement charge as of the date of such prepayment.

Installment Terms

A customer who has elected to pay the Sewer Improvement Charge in monthly installments pursuant to paragraph A (1) shall be obligated to make such payments at the rate of interest and

length of payment period specified in this Schedule D as of the date of the customer's election, notwithstanding customer's right of prepayment.

Definitions

The defined terms in this Schedule D shall have the meanings given to them from time to time in the Rules and Regulations for Wastewater Division.

Rules and Regulations

Service is subject to Rules and Regulations of KUB.

SCHEDULE E – WHOLESALE WASTEWATER TREATMENT

Service under this Schedule shall be available only to governmental entities, including Utility Districts, that deliver through their wastewater collection system all or portions of their wastewater flow to KUB facilities for treatment. Applicants under this schedule may be required to execute a contract specifying, among other things, a minimum bill and minimum term for service under this schedule.

Rate

Metered Flows	\$4.85 per Thousand Gallons
Unmetered Flows	\$5.50 per Thousand Gallons

For the purpose of determining billing volumes, metered flows are those flows metered at the point of delivery to KUB's collection system, pumping station or treatment facility; unmetered flows are those flows based upon the actual water use of the customers served by the collection system discharging to KUB's facilities, said water use being determined by the water meter readings furnished by the water service provider.

Rules and Regulations

Service is subject to Rules and Regulations of KUB.

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**KNOXVILLE UTILITIES BOARD
WASTEWATER DIVISION
CAPITALIZATION HISTORY**

Historical	Fiscal Year	Accumulated Earnings	Contributed Capital	Revenue		Revenue Notes	Total Capitalization	Debt as % of Capitalization
				Bonds	Revenue			
	2009	\$ 209,932,351	\$ -	\$ 306,295,000	\$ -	-	\$ 516,227,351	59.33%
	2010	\$ 218,192,589	\$ -	\$ 334,005,000	\$ -	-	\$ 552,197,589	60.49%
	2011	\$ 227,596,321	\$ -	\$ 398,405,000	\$ -	-	\$ 626,001,321	63.64%
	2012	\$ 239,554,829	\$ -	\$ 390,745,000	\$ -	-	\$ 630,299,829	61.99%
	2013	\$ 248,325,320	\$ -	\$ 458,595,000	\$ -	-	\$ 706,920,320	64.87%
	2014	\$ 253,999,330	\$ -	\$ 450,050,000	\$ -	-	\$ 704,049,330	63.92%
	2015	\$ 261,594,704	\$ -	\$ 503,260,000	\$ -	-	\$ 764,854,704	65.80%
	2016	\$ 271,115,564	\$ -	\$ 492,330,000	\$ -	-	\$ 763,445,564	64.49%
	2017	\$ 284,390,014	\$ -	\$ 499,850,000	\$ -	-	\$ 784,240,014	63.74%
	2018	\$ 305,219,517	\$ -	\$ 512,890,000	\$ -	-	\$ 818,109,517	62.69%

KNOXVILLE UTILITIES BOARD
WASTEWATER DIVISION
 OPERATING STATISTICS
 for the Fiscal Years ending on June 30

Revenues:	2014	2015	2016	2017	2018
Service Charge	\$ 71,109,817	\$ 75,004,494	\$ 79,418,091	\$ 84,323,092	\$ 90,215,876
Industrial Surcharge	394,995	412,718	246,459	337,502	388,511
Other Charges	698,362	647,804	582,525	543,009	625,826
Utility Districts	311,727	331,220	334,779	361,157	375,143
Total Sales Revenues	\$ 72,514,901	\$ 76,396,236	\$ 80,581,854	\$ 85,564,760	\$ 91,605,356
Other Revenues	\$ 2,526,744	\$ 2,809,792	\$ 3,063,655	\$ 2,952,451	\$ 3,110,408
Total Revenues	\$ 75,041,645	\$ 79,206,028	\$ 83,645,509	\$ 88,517,210	\$ 94,715,764

NUMBER OF CUSTOMERS - WASTEWATER

Fiscal Year	Total	New Customers
08 / 09	68,314	-43
09 / 10	68,906	592
10 / 11	68,744	-162
11 / 12	69,183	439
12 / 13	69,528	345
13 / 14	69,613	85
14 / 15	69,847	234
15 / 16	70,265	418
16 / 17	70,751	486
17 / 18	71,242	491

**KNOXVILLE UTILITIES BOARD
WASTEWATER DIVISION**

CONDENSED STATEMENTS OF REVENUES, EXPENSES AND CHANGES IN NET POSITION

For The Fiscal Years Ended June 30

	2014	2015	2016	2017	2018
Operating Revenues:	\$ 75,041,645	\$ 79,206,028	\$ 83,645,509	\$ 88,517,210	\$ 94,715,764
Operating Expenses:					
Treatment	\$ 10,768,467	\$ 11,596,638	\$ 12,515,728	\$ 11,914,383	\$ 11,674,833
Collection	7,794,582	8,608,980	7,462,333	7,686,373	7,410,791
Customer services	2,605,271	2,837,597	2,961,518	3,072,606	3,106,304
Administrative and general	8,483,808	7,845,973	8,571,620	9,257,078	8,747,272
Provision for deprec. & amortization	16,086,344	17,130,721	18,342,674	18,517,403	19,137,860
Taxes and tax equivalents	4,092,366	4,300,666	4,537,378	4,795,532	5,038,630
Total Operating Expenses	\$ 49,830,838	\$ 52,320,575	\$ 54,391,251	\$ 55,243,375	\$ 55,115,690
Operating Income	\$ 25,210,807	\$ 26,885,453	\$ 29,254,258	\$ 33,273,835	\$ 39,600,074
Non-Operating Revenues / Expenses:					
Contributions in aid of construction	\$ 916,996	\$ 394,551	\$ 652,525	\$ 723,825	\$ 2,237,910
Interest and dividend income	291,711	301,292	461,544	641,747	1,205,290
Interest expense	(19,263,722)	(19,355,169)	(20,168,993)	(20,232,835)	(20,508,567)
Loss on write down of plant assets	(916,996)	(394,551)	(652,525)	(723,825)	(2,237,910)
Other	(836,436)	(433,013)	(716,631)	(872,081)	(740,509)
Total Non-Operating	\$ (19,808,447)	\$ (19,486,890)	\$ (20,424,080)	\$ (20,463,169)	\$ (20,043,786)
Changes in Net Position before Capital Contributions	\$ 5,402,360	\$ 7,398,563	\$ 8,830,178	\$ 12,810,666	\$ 19,556,288
Capital Contributions	271,650	357,246	690,682	463,784	278,222
Change in Net Position	\$ 5,674,010	\$ 7,755,809	\$ 9,520,860	\$ 13,274,450	\$ 19,834,510
Net Position, beginning of year	\$ 248,325,320	\$ 253,999,330	\$ 261,594,704	\$ 271,115,564	\$ 284,390,014
Adjustment	-	(160,435)	-	-	994,993
Net Position, end of year	\$ 253,999,330	\$ 261,594,704	\$ 271,115,564	\$ 284,390,014	\$ 305,219,517

Source: The above amounts have been derived from the Annual Audited Financial Statements for the Knoxville Utilities Board, Wastewater Division and the Board's internal financial records and should be read in conjunction therewith.

TEN LARGEST WASTEWATER SYSTEM CUSTOMERS - 2018

The ten largest Wastewater System customers, as of June 30, 2018, in order of total sales generated are listed below. Those ten wastewater customers represent 14.09% of the total wastewater sales based on revenue and 18.77% of the total wastewater based on sales volume.

	Customer	Usage CCF	Sales Revenue	Percent of Sales Revenue
1.	University of Tennessee	689,947	\$ 5,695,150	6.22%
2.	KCDC	156,837	1,442,578	1.57%
3.	University Health Systems Inc	155,123	973,317	1.06%
4.	Rohm & Haas Tennessee Inc	158,478	874,538	0.95%
5.	Pepsi	110,629	802,496	0.88%
6.	Knox County Schools	60,822	729,467	0.80%
7.	Volunteer Knitwear Corporation	112,968	710,735	0.78%
8.	Processed Food Corporation	76,255	588,739	0.64%
9.	Tamko Building Products Inc	50,267	558,610	0.61%
10.	Public Building Authority	55,490	529,382	0.58%
	TOTAL	1,626,816	\$ 12,905,012	14.09%

Total Wastewater Sales Revenue		\$ 91,605,356
Top 10 as Percent of Total Wastewater Sales Revenue		14.09%
Total Wastewater Sales Volume (CCF)	8,664,915	
Top 10 as Percent of Total Wastewater Sales Volume	18.77%	

KNOXVILLE UTILITIES BOARD
WASTEWATER DIVISION
BONDS OUTSTANDING

The following table shows the outstanding bond indebtedness of the Wastewater Division.

Amount Issued	Series	Due Date	Interest Rates	Outstanding as of June 30, 2019 (1)
\$ 30,000,000	(2) Wastewater System Revenue Bonds, Series 2010 (Federally Taxable Build America Bonds)	04-01-45	Fixed	\$ 30,000,000
70,000,000	(2) Wastewater System Revenue Bonds, Series 2010C (Federally Taxable Build America Bonds)	04-01-40	Fixed	60,050,000
17,070,000	Wastewater System Revenue Refunding Bonds, Series 2012A	04-01-29	Fixed	11,800,000
65,000,000	Wastewater System Revenue Bonds, Series 2012B	04-01-47	Fixed	59,325,000
113,340,000	Wastewater System Revenue Bonds, Series 2013A	04-01-37	Fixed	109,800,000
30,000,000	Wastewater System Revenue Bonds, Series 2014A	04-01-49	Fixed	27,800,000
129,825,000	Wastewater System Revenue Refunding Bonds, Series 2015A	04-01-42	Fixed	121,390,000
30,000,000	Wastewater System Revenue Bonds, Series 2015B	04-01-50	Fixed	28,000,000
20,000,000	Wastewater System Revenue Bonds, Series 2016	04-01-46	Fixed	18,750,000
11,965,000	Wastewater System Revenue Refunding Bonds, Series 2017A	04-01-27	Fixed	9,100,000
25,000,000	Wastewater System Revenue Bonds, Series 2017B	04-01-47	Fixed	24,260,000
12,000,000	Wastewater System Revenue Bonds, Series 2018 (Issued 09-14-2018)	04-01-48	Fixed	11,720,000
\$ 554,200,000	TOTAL DEBT (As of June 30, 2019, unaudited)			\$ 511,995,000
\$ 16,000,000	Wastewater System Revenue Bonds, Series 2019	04-01-49	Fixed	\$ 16,000,000
\$ 570,200,000	TOTAL INDEBTEDNESS			\$ 527,995,000

NOTES:

(1) Amounts represent audited June 30, 2018 outstanding debt adjusted for current year payments and debt issuances. Totals are unaudited. For more information, see the notes to the Financial Statements in the FINANCIAL STATEMENTS included herein. The above figures do not include short-term notes outstanding, if any.

(2) The original federal subsidy of 35.0% on the Wastewater System Revenue Bonds, Series 2010 (Federally Taxable Build America Bonds) and the Wastewater System Revenue Bonds, Series 2010C (Federally Taxable Build America Bonds) has been reduced by 6.2% for the federal fiscal year ending September 30, 2019 as a result of the sequestration by the Budget Control Act of 2011. After October 1, 2019 the sequestration rate will be subject to change.

**KNOXVILLE UTILITIES BOARD
WASTEWATER DIVISION
DEBT SERVICE REQUIREMENTS**

Fiscal Year	Outstanding Fiscal Year Debt Service on Bonds as of June 30, 2019					Wastewater System Revenue Bonds, Series 2019			% Principal Repaid on Series 2019 Bonds	NET TOTAL DEBT SERVICE (1)				% Principal Repaid on All Debt
	Principal	Interest	Est. Rebate (2)	Total		Principal	Interest (3)	Total		Principal	Interest	Est. Rebate (2)	Total	
2020	\$ 13,415,000	\$ 20,190,259	\$ (1,879,847)	\$ 31,725,412	\$	250,000	\$ 346,817	\$ 596,817	1.56%	\$ 13,665,000	\$ 20,537,075	\$ (1,879,847)	\$ 32,322,229	2.59%
2021	13,970,000	19,622,139	(1,856,495)	31,735,644		300,000	552,450	852,450		14,270,000	20,174,589	(1,856,495)	32,588,094	
2022	14,600,000	18,965,784	(1,832,413)	31,733,371		315,000	537,450	852,450		14,515,000	19,503,234	(1,832,413)	32,585,821	
2023	15,260,000	18,277,894	(1,804,924)	31,732,970		330,000	521,700	851,700		15,590,000	18,799,594	(1,804,924)	32,584,670	
2024	15,975,000	17,569,844	(1,775,401)	31,769,443		345,000	505,200	850,200	9.63%	16,320,000	18,075,044	(1,775,401)	32,619,643	14.16%
2025	16,540,000	17,002,069	(1,741,408)	31,800,661		360,000	487,950	847,950		16,900,000	17,490,019	(1,741,408)	32,648,611	
2026	14,965,000	16,424,544	(1,704,894)	29,684,650		380,000	469,950	849,950		15,345,000	16,894,494	(1,704,894)	30,534,600	
2027	15,590,000	15,883,044	(1,659,258)	29,813,786		400,000	450,950	850,950		15,990,000	16,333,994	(1,659,258)	30,664,736	
2028	16,240,000	15,312,844	(1,609,471)	29,943,373		420,000	430,950	850,950		16,660,000	15,743,794	(1,609,471)	30,794,323	
2029	16,845,000	14,714,050	(1,556,236)	30,002,814		435,000	409,950	844,950	22.09%	17,280,000	15,124,000	(1,556,236)	30,847,764	29.72%
2030	17,600,000	14,113,894	(1,500,441)	30,213,453		455,000	388,200	843,200		18,055,000	14,502,094	(1,500,441)	31,056,653	
2031	18,230,000	13,494,638	(1,442,088)	30,282,550		475,000	370,000	845,000		18,705,000	13,864,638	(1,442,088)	31,127,550	
2032	18,855,000	12,847,113	(1,379,613)	30,322,500		495,000	351,000	846,000		19,350,000	13,198,113	(1,379,613)	31,168,500	
2033	19,530,000	12,174,875	(1,314,513)	30,390,363		515,000	331,200	846,200		20,045,000	12,506,075	(1,314,513)	31,236,563	
2034	20,195,000	11,481,063	(1,246,263)	30,429,800		530,000	315,750	845,750	37.53%	20,725,000	11,796,813	(1,246,263)	31,275,550	48.07%
2035	20,950,000	10,724,563	(1,175,388)	30,499,175		545,000	299,850	844,850		21,495,000	11,024,413	(1,175,388)	31,344,025	
2036	21,750,000	9,937,069	(1,100,838)	30,586,231		560,000	283,500	843,500		22,310,000	10,220,569	(1,100,838)	31,429,731	
2037	22,580,000	9,110,488	(1,021,843)	30,668,645		580,000	266,700	846,700		23,160,000	9,377,188	(1,021,843)	31,515,345	
2038	23,075,000	8,249,981	(939,111)	30,385,870		595,000	249,300	844,300		23,670,000	8,499,281	(939,111)	31,230,170	
2039	23,895,000	7,355,131	(852,644)	30,397,488		615,000	231,450	846,450	55.63%	24,510,000	7,586,581	(852,644)	31,243,938	69.88%
2040	24,830,000	6,356,713	(762,440)	30,424,273		615,000	213,000	828,000		25,445,000	6,569,713	(762,440)	31,252,273	
2041	22,550,000	5,391,231	(668,500)	27,272,731		635,000	194,550	829,550		23,185,000	5,585,781	(668,500)	28,102,281	
2042	23,495,000	4,541,319	(668,500)	27,367,819		655,000	175,500	830,500		24,150,000	4,716,819	(668,500)	28,198,319	
2043	18,050,000	3,654,756	(668,500)	21,036,256		675,000	155,850	830,850		18,725,000	3,810,606	(668,500)	21,867,106	
2044	18,350,000	2,738,125	(441,000)	20,647,125		700,000	135,600	835,600	76.13%	19,050,000	2,873,725	(441,000)	21,482,725	90.82%
2045	18,705,000	1,831,525	(220,500)	20,316,025		720,000	114,600	834,600		19,425,000	1,946,125	(220,500)	21,150,625	
2046	9,085,000	913,281	-	9,998,281		740,000	93,000	833,000		9,825,000	1,006,281	-	10,831,281	
2047	8,420,000	610,206	-	9,030,206		765,000	70,800	835,800		9,185,000	681,006	-	9,866,006	
2048	3,675,000	325,831	-	4,000,831		785,000	47,850	832,850		4,460,000	373,681	-	4,833,681	
2049	3,200,000	185,975	-	3,385,975		810,000	24,300	834,300	100.00%	4,010,000	210,275	-	4,220,275	99.70%
2050	1,575,000	63,000	-	1,638,000		-	-	-		1,575,000	63,000	-	1,638,000	100.00%
	\$ 511,995,000	\$ 310,063,244	\$ (32,822,523)	\$ 789,235,721	\$	\$ 16,000,000	\$ 9,025,367	\$ 25,025,367		\$ 527,995,000	\$ 319,088,611	\$ (32,822,523)	\$ 814,261,088	

NOTES:

- (1) Amounts represent audited June 30, 2018 outstanding debt adjusted for current year payments and debt issuances. Totals are unaudited. For more information, see the notes to the Financial Statements in the FINANCIAL STATEMENTS included herein. The above figures do not include short-term notes outstanding, if any.
- (2) The original federal subsidy of 35.0% on the Wastewater System Revenue Bonds, Series 2010 (Federally Taxable Build America Bonds) and the Wastewater System Revenue Bonds, Series 2010IC (Federally Taxable Build America Bonds) has been reduced by 6.2% for the federal fiscal year ending September 30, 2019 as a result of the sequestration by the Budget Control Act of 2011. After October 1, 2019 the sequestration rate will be subject to change.
- (3) True Interest Cost of 2.788%.

KNOXVILLE UTILITIES BOARD
WASTEWATER DIVISION
HISTORICAL DEBT SERVICE COVERAGES

The historical coverage for the actual debt service requirements and the projected maximum annual debt service requirements (FY 2021) of the Outstanding Bonds and the Series 2018 Bonds and the Series 2019 Bonds for fiscal years ended June 30, 2014 through June 30, 2018 is set forth below.

	2014	2015	2016	2017	2018
Operating revenues	\$ 75,041,645	\$ 79,206,028	\$ 83,645,509	\$ 88,517,210	\$ 94,715,764
Operating expenses*	(29,652,128)	(30,889,188)	(31,511,199)	(31,930,440)	(30,939,200)
Net income before					
Depreciation & taxes	\$ 45,389,517	\$ 48,316,840	\$ 52,134,310	\$ 56,586,770	\$ 63,776,564
Other revenue (Net)	291,711	301,292	461,544	641,747	1,205,290
FICA & Medicare Tax Expense	(719,291)	(725,205)	(747,389)	(778,144)	(820,374)
Income available for debt service	<u>\$ 44,961,937</u>	<u>\$ 47,892,927</u>	<u>\$ 51,848,465</u>	<u>\$ 56,450,373</u>	<u>\$ 64,161,480</u>
Actual annual debt service requirements on outstanding bonds	\$ 28,041,968	\$ 29,023,441	\$ 30,819,779	\$ 31,494,379	\$ 32,372,447
Coverage (Times)	1.60 x	1.65 x	1.68 x	1.79 x	1.98 x
Maximum projected annual debt ** service requirements (FY2021) on Outstanding Bonds, the Series 2018 Bonds and the Series 2019 Bonds***					
	\$ 34,444,589	\$ 34,444,589	\$ 34,444,589	\$ 34,444,589	\$ 34,444,589
Coverage (Times)	1.31 x	1.39 x	1.51 x	1.64 x	1.86 x

* Excluding Provision for Depreciation and Taxes

** From Debt Service Requirements Chart. Maximum debt excludes estimated BABS rebate.

*** Series 2018 Bonds were issued on September 14, 2018. Series 2019 Bonds were issued on August 20, 2019

KNOXVILLE UTILITIES BOARD
WASTEWATER DIVISION
OPERATING REVENUE FROM WASTEWATER SALES

<u>Fiscal Year</u> <u>Ended June 30</u>	<u>Revenue</u>
2009	\$ 62,399,578
2010	\$ 61,250,002
2011	\$ 65,774,599
2012	\$ 70,502,494
2013	\$ 74,579,313
2014	\$ 75,041,645
2015	\$ 79,206,028
2016	\$ 83,645,509
2017	\$ 88,517,210
2018	\$ 94,715,764

**WASTEWATER DIVISION
REPORT OF INDEPENDENT AUDITORS AND FINANCIAL STATEMENTS**



Wastewater Division

**Financial Statements and Supplemental Information
June 30, 2018 and 2017**

KUB Board of Commissioners

Celeste Herbert - Chair
Dr. Jerry W. Askew - Vice Chair
John Worden
Kathy Hamilton
Sara Hedstrom Pinnell
Tyvi Small
Adrienne Simpson-Brown

Management

Mintha Roach
President and
Chief Executive Officer

Mark Walker
Senior Vice President and
Chief Financial Officer

Susan Edwards
Senior Vice President and
Chief Administrative Officer

Gabe Bolas
Senior Vice President and
Chief Engineer

Eddie Black
Senior Vice President

Derwin Hagood
Senior Vice President of Operations

Mike Bolin
Vice President

Julie Childers
Vice President

John Gresham
Vice President

Dawn Mosteit
Vice President

Paul Randolph
Vice President

Knoxville Utilities Board Wastewater Division

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June 30, 2018 and 2017

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Independent Auditors' Report

Board of Commissioners
Wastewater Division of the Knoxville Utilities Board
Knoxville, Tennessee

We have audited the accompanying financial statements of the Wastewater Division (the Division) of the Knoxville Utilities Board, a component unit of the City of Knoxville, Tennessee, as of and for the years ended June 30, 2018 and 2017, and the related notes to the financial statements, which collectively comprise the Division's basic financial statements as listed in the index.

Management's Responsibility for the Financial Statements

The Division's 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 Division'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 Division'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 Wastewater Division of the Knoxville Utilities Board as of June 30, 2018 and 2017, and the changes in financial position and cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Change in Accounting Principle

As discussed in Note 13 to the financial statements, effective July 1, 2017, the Division adopted new accounting guidance, Governmental Accounting Standards Board Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. Our opinion is not modified with respect to that matter.

Board of Commissioners
Wastewater Division of the Knoxville Utilities Board
Knoxville, Tennessee

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 26 and the required supplementary information on pages 62 through 66 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the Division's basic financial statements. The supplemental information is presented for purposes of additional analysis and is not a required part of the basic financial statements. The supplemental information has not been subjected to the auditing procedures applied in the audit of the basic financial statements and, accordingly, we do not express an opinion or provide any assurance on it.

Emphasis of Matter

As discussed in Note 1, the financial statements present only the Wastewater Division and do not purport to, and do not, present fairly the financial position of the Knoxville Utilities Board, as of June 30, 2018 and 2017, and the changes in its financial position and its cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America. Our opinion is not modified with respect to this matter.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated October 25, 2018, on our consideration of the Division'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 solely 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 effectiveness of 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 Division's internal control over financial reporting and compliance.

Coulter & Justus, P.C.

Knoxville, Tennessee
October 25, 2018

Knoxville Utilities Board Wastewater Division

Management's Discussion and Analysis

June 30, 2018 and 2017

Knoxville Utilities Board (KUB), comprised of the Electric Division, Gas Division, Water Division, and Wastewater Division (Divisions), is reported as a component unit enterprise fund in the financial statements of the City of Knoxville. KUB's responsibility is to oversee the purchase, production, distribution, and processing of electricity, natural gas, water, and wastewater services. A seven-member Board of Commissioners (Board) governs KUB. The Board has all powers to construct, acquire, expand, and operate the Divisions. It has full control and complete jurisdiction over the management and operation of the Divisions. The Wastewater Division (Division) provides services to certain customers in Knox County and in two surrounding counties in East Tennessee. The Division's accounts are maintained in conformity with the Uniform System of Accounts of the National Association of Regulatory Utility Commissioners (NARUC) and the Governmental Accounting Standards Board (GASB), as applicable. The financial statements present only the Wastewater Division and do not purport to, and do not, present fairly the consolidated financial position of Knoxville Utilities Board at June 30, 2018 and 2017, and the changes in its financial position for the years then ended in conformity with accounting principles generally accepted in the United States of America.

The Division's discussion and analysis is designed to (a) assist the reader in focusing on significant financial issues, (b) provide an overview of the Division's financial activity, (c) identify major changes in the Division's financial position, and (d) identify any financial concerns.

The Division's Management Discussion and Analysis (MD&A) focuses on the fiscal year ending June 30, 2018 activities, resulting changes and current known facts, and should be read in conjunction with the Division's financial statements.

Wastewater Division Highlights

System Highlights

The wastewater service area covers 243 square miles and includes 71,242 wastewater customers. KUB maintains 1,312 miles of services mains, 75 pump stations, and 4 treatment plants to treat 13.7 billion gallons of wastewater on an annual basis. The average daily flow is 37.5 million gallons.

KUB has added approximately 1,395 wastewater system customers over the past three years, representing annual growth of less than one percent. In fiscal year 2018, 491 customers were added.

The typical residential wastewater customer's average monthly wastewater bill was \$59.50 as of June 30, 2018, representing an increase of \$3 compared to June 30, 2017. The increase in the monthly bill reflects a rate increase effective July 2017.

KUB's treatment plants continue to meet high standards of operation. KUB's Kuwahee, Eastbridge, Loves Creek, and Fourth Creek wastewater treatment plants were awarded Operational Excellence awards from the Tennessee Kentucky Water Environment Association for having one or less permit violations within the 2017 calendar year. The treatment plants additionally won awards at various levels based on performance from the National Association of Clean Water Agencies for peak performance. The Eastbridge wastewater treatment plant achieved a Platinum award for continued outstanding compliance performance over multiple years. Loves Creek wastewater treatment plant won a Gold Award for having zero violations in calendar year 2017. Kuwahee and Fourth Creek wastewater treatment plants won Silver Awards for having one violation in 2017.

KUB continued to maintain Platinum certification with the National Biosolids Partnership following a rigorous review process and independent audit that was conducted in December 2017. (Biosolids are nutrient-rich organic matter produced by wastewater treatment and is a registered fertilizer with the Tennessee Department of Agriculture).

Knoxville Utilities Board Wastewater Division

Management's Discussion and Analysis

June 30, 2018 and 2017

Century II Infrastructure Program

Century II is KUB's proactive long-range program to improve and maintain the electric, natural gas, water and wastewater systems for its customers. It includes the maintenance and asset replacement strategies for each system and establishes sustainable replacement cycles. Century II moves KUB into its second century of service by improving each system through sound planning, resource allocation, and continued, but accelerated, investment.

In 2013, the Board extended the funding approach for Century II to include the wastewater system, although the Wastewater Division had maintained a ten-year funding plan since the inception of the federal Consent Decree (see below). The Board formally endorsed and adopted by resolution, a ten-year funding plan for the Wastewater Division, which included a combination of rate increases and debt issues to fully fund the wastewater system's Century II program.

In April 2014, KUB management provided the Board an updated assessment of the overall condition of each utility system, including a recommendation for annual rate increases for each division for the next three fiscal years.

In June 2014, the Board approved the three annual rate increases for the Wastewater Division. The three rate increases went into effect in October 2014, October 2015, and October 2016. Each rate increase provided an additional \$4.7 million of annual sales revenue.

In May 2017, a new Century II funding resolution was adopted by the KUB Board to express the continued commitment to funding Century II programs for the next ten years. The funding will be achieved through a combination of rate increases and debt issues supplemented by cost savings and new revenue from net customer additions.

In June 2017, the Board approved the next phase of wastewater rate increases to support the Century II program. The first of the three approved wastewater rate increases went into effect in July 2017, generating \$4.3 million in additional annual revenue. The remaining two rate increases are effective in July 2018 and July 2019 and are expected to provide an additional \$4.2 million and \$4.5 million in annual revenue, respectively, to assist with the funding of the Wastewater Division.

In fiscal year 2018, KUB rehabilitated or replaced 16 miles of wastewater system main while staying within the Division's total capital budget.

Consent Decree

In February 2005, a Consent Decree was entered into federal court regarding the operation of KUB's wastewater system. Under the terms of the Consent Decree, the remediation of identified sanitary sewer overflows (SSOs) on KUB's wastewater system had to be completed by June 30, 2016. KUB completed all the requirements of the Consent Decree for the collection system two years in advance of the deadline.

The Consent Decree also required KUB to perform an evaluation of the wet weather performance and capacity of its wastewater treatment plants. In July 2007, KUB submitted a Composite Correction Plan (CCP) for its wastewater treatment plants to EPA for review. The development and filing of the CCP was a requirement of the federal order of February 2005. The CCP includes recommended improvements to KUB's Kuwahee and Fourth Creek treatment plants to address wet weather capacity issues noted in prior assessments. The EPA approved the CCP in January 2009 including a recommended schedule of plant improvements that extends beyond the expiration date of the original Consent Decree. An amendment to the Consent Decree incorporating and establishing this schedule was agreed to by all parties and was entered on June 23, 2009. The purpose of the Amendment is to allow KUB to complete a portion of work

Knoxville Utilities Board Wastewater Division Management's Discussion and Analysis June 30, 2018 and 2017

outlined in the CCP after the Consent Decree deadline of June 30, 2016. The CCP provides for a biologically enhanced high-rate clarification (the BEHRC) secondary treatment system to be installed at the Fourth Creek treatment plant by June 30, 2018 and at the Kuwahee treatment plant by June 30, 2021. KUB successfully completed the installation of the BEHRC system at the Fourth Creek treatment plant ahead of schedule in April 2018. Work is currently ongoing at the Kuwahee treatment plant and remains on schedule for completion before the deadline of June 30, 2021. The total cost of such improvements is estimated to be approximately \$58 million.

KUB's funding plan for the Consent Decree includes long-term bonds and a series of rate increases phased in over the term of the order. Bond proceeds fund all types of wastewater capital projects, the majority of which are related to the Consent Decree. As of June 30, 2018, the Wastewater Division had issued \$530 million in bonds to fund system capital improvements since the inception of the Consent Decree. The Board approved two 50 percent rate increases, which went into effect in April 2005 and January 2007. The Board also approved an 8 percent rate increase, which was effective in September 2008, two 12 percent rate increases, which were effective in April 2011 and October 2012, three 6 percent rate increases effective October 2014, October 2015 and October 2016 and three 5 percent rate increases effective July 2017, July 2018, and July 2019. KUB anticipates additional bond issues and rate increases over the next decade to help fund wastewater capital improvements.

KUB successfully completed the first cycle of Maintenance Operation Management (MOM) requirements one year before the deadline by inspecting manholes and gravity mains, smoke testing gravity mains, performing required inspections of pump stations and the related force mains, and completing all Corrective Action Plan/Engineering Report (CAP/ER) projects. KUB initiated the second MOM cycle that continues to focus on the prevention of SSOs. As part of the Century II initiative, formally known as the PACE10 program, KUB has installed storage tanks providing 34 million gallons of wastewater storage to control wet weather overflows and rehabilitated or replaced approximately 368.8 miles of collection system pipe. KUB also continues to maintain a proactive operations and maintenance plan for the wastewater collection system including inspection, grease control, and private lateral enforcement. The result of the Pace10/Century II initiative has been an 83 percent reduction in SSOs.

As of June 30, 2018, the Wastewater Division had completed its 14th full year under the Consent Decree, spending \$536.9 million on capital investments to meet Consent Decree requirements.

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Knoxville Utilities Board Wastewater Division

Management's Discussion and Analysis

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Financial Highlights

Fiscal Year 2018 Compared to Fiscal Year 2017

The Division's net position during the year increased \$19.8 million compared to a \$13.3 million increase last fiscal year. A restatement to the fiscal year 2018 beginning net position, based on a change in method of accounting for Other Post-Employment Benefits (OPEB), increased the total net position by \$1 million during the fiscal year 2018. The change resulted in a total increase of \$20.8 million in the Division's net position.

Operating revenue increased \$6.2 million or 7 percent, the result of additional revenue generated during the fiscal year from the rate increase effective July 2017 offset by a 0.2 percent decrease in customer billable flows.

Operating expenses decreased \$0.1 million. Operating and maintenance (O&M) expenditures decreased \$1 million. Depreciation expense rose \$0.6 million or 3.4 percent. Taxes and tax equivalents increased \$0.2 million or 5.1 percent.

Interest income was \$0.6 million higher than the prior fiscal year. Interest expense was \$0.3 million higher than the prior fiscal year. Other income (net) was \$0.1 million higher.

Capital contributions decreased \$0.2 million, the result of a decrease in donated assets from developers compared to the previous fiscal year.

Total plant assets (net) increased \$13.2 million or 1.9 percent since the end of last fiscal year.

KUB sold \$25 million in wastewater system revenue bonds in August 2017 for the purpose of funding wastewater system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.08 percent.

Long-term debt represented 62.7 percent of the Division's capital structure as of June 30, 2018, as compared to 63.7 percent last year. The decrease is the net result of the issuance of new revenue bonds and the scheduled repayment of debt during the fiscal year. Capital structure equals long-term debt (which includes the current and long-term portion of revenue bonds and notes) plus net position.

The Division's bond covenants require a debt service coverage ratio of at least 1.2 times the maximum principal and interest payments over the life of the Division's outstanding bonds. Current year debt coverage for the fiscal year was 1.98. Maximum debt service coverage was 1.95.

Fiscal Year 2017 Compared to Fiscal Year 2016

The Division's net position during the year increased \$13.3 million compared to a \$9.5 million increase last fiscal year.

Operating revenue increased \$4.9 million or 5.8 percent, the result of additional revenue generated during the fiscal year from the rate increase effective October 2016 offset by a 0.3 percent decrease in customer billable flows.

Operating expenses increased \$0.9 million or 1.6 percent. Operating and maintenance (O&M) expenditures increased \$0.4 million or 1.3 percent. Depreciation expense rose \$0.2 million or 0.9 percent. Taxes and tax equivalents increased \$0.3 million or 5.7 percent.

Knoxville Utilities Board Wastewater Division

Management's Discussion and Analysis

June 30, 2018 and 2017

Interest income was \$0.2 million higher than the prior fiscal year. Interest expense was \$0.1 million higher than the prior fiscal year. Other income (net) was \$0.2 million lower.

Capital contributions decreased \$0.2 million, the result of a decrease in donated assets from developers compared to the previous fiscal year.

Total plant assets (net) increased \$19.7 million or 2.9 percent since the end of last fiscal year.

During fiscal year 2017, KUB sold \$20 million in wastewater system revenue bonds for the purpose of funding wastewater system capital improvements and also sold \$12 million in wastewater system revenue refunding bonds to refinance existing wastewater system bonds at lower interest rates. The refunding produced total debt service savings of \$1.4 million over the life of the bonds (\$1.3 million on a net present value basis).

Long-term debt represented 63.7 percent of the Division's capital structure as of June 30, 2017, as compared to 64.5 percent last year. The decrease is the net result of the issuance of new revenue bonds and the scheduled repayment of debt during the fiscal year. Capital structure equals long-term debt (which includes the current and long-term portion of revenue bonds and notes) plus net position.

The Division's bond covenants require a debt service coverage ratio of at least 1.2 times the maximum principal and interest payments over the life of the Division's outstanding bonds. Current year debt coverage for the fiscal year was 1.79. Maximum debt service coverage was 1.78.

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Knoxville Utilities Board Wastewater Division

Management's Discussion and Analysis

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Knoxville Utilities Board Wastewater Division - Financial Statements

The Division's financial performance is reported under three basic financial statements: the Statement of Net Position; the Statement of Revenues, Expenses and Changes in Net Position; and the Statement of Cash Flows.

Statement of Net Position

The Division reports its assets, deferred outflows of resources, liabilities, deferred inflows of resources, and net position in the Statement of Net Position. Assets are classified as current, restricted, wastewater plant in service, or other assets.

Liabilities are classified as current, other, or long-term debt. Net position is classified as net investment in capital assets, restricted, or unrestricted. Net position tells the user what the Division has done with its accumulated earnings, not just the balance.

Net investment in capital assets reflects the book value of all capital assets less the outstanding balances of debt used to acquire, construct, or improve those assets.

Restricted net position are assets that have been limited to specific uses by the Division's bond covenants or through resolutions passed by the KUB Board.

Unrestricted net position is a residual classification; the amount remaining after reporting net position is either invested in capital or restricted is reported there.

Statement of Revenues, Expenses and Changes in Net Position

The Division reports its revenues and expenses (both operating and non-operating) on the Statement of Revenues, Expenses and Changes in Net Position. In addition, any capital contributions or assets donated by developers are reported on this statement.

Total revenue less total expense equals the change in net position for the reporting period. Net position at the beginning of the period is increased or decreased, as applicable, by the change in net position for the reporting period.

The change in net position for the reporting period is added to the net position segment of the Statement of Net Position.

Statement of Cash Flows

The Division reports cash flows from operating activities, capital and related financing activities, and investing activities on the Statement of Cash Flows. This statement tells the user the Division's sources and uses of cash during the reporting period.

The statement indicates the Division's beginning cash balance and ending cash balance and how it was either increased or decreased during the reporting period.

The statement also reconciles cash flow to operating income as it appears on the Statement of Revenues, Expenses and Changes in Net Position.

Knoxville Utilities Board Wastewater Division
Management's Discussion and Analysis
June 30, 2018 and 2017

Condensed Financial Statements

Statement of Net Position

The following table reflects the condensed Statement of Net Position for the Wastewater Division compared to the prior two fiscal years.

Statements of Net Position
As of June 30

<i>(in thousands of dollars)</i>	2018	2017	2016
Current, restricted and other assets	\$ 106,805	\$ 82,060	\$ 80,075
Capital assets, net	719,979	706,752	687,056
Deferred outflows of resources	16,112	18,332	19,413
Total assets and deferred outflows of resources	<u>842,896</u>	<u>807,144</u>	<u>786,544</u>
Current and other liabilities	22,404	21,388	22,630
Long-term debt outstanding	512,135	500,207	492,466
Deferred inflows of resources	3,137	1,159	333
Total liabilities and deferred inflows of resources	<u>537,676</u>	<u>522,754</u>	<u>515,429</u>
Net position			
Net investment in capital assets	216,037	216,334	205,784
Restricted	3,159	3,010	2,737
Unrestricted	86,024	65,046	62,594
Total net position	<u>\$ 305,220</u>	<u>\$ 284,390</u>	<u>\$ 271,115</u>

Normal Impacts on Statement of Net Position

The following is a description of activities which will normally impact the comparability of the Statement of Net Position presentation.

- Change in net position (from Statement of Revenues, Expenses and Changes in Net Position): impacts (increase/decrease) current and other assets and/or capital assets and unrestricted net position.
- Issuing debt for capital: increases deferred outflows of resources and long-term debt.
- Spending debt proceeds on new capital: reduces current assets and increases capital assets.
- Spending of non-debt related current assets on new capital: (a) reduces current assets and increases capital assets and (b) reduces unrestricted net position and increases net investment in capital assets.
- Principal payment on debt: (a) reduces current and other assets and reduces long-term debt and (b) reduces unrestricted net position and increases net investment in capital assets.
- Reduction of capital assets through depreciation: reduces capital assets and net investment in capital assets.

Knoxville Utilities Board Wastewater Division

Management's Discussion and Analysis

June 30, 2018 and 2017

Impacts and Analysis

Current, Restricted and Other Assets

Fiscal Year 2018 Compared to Fiscal Year 2017

Current, restricted and other assets increased \$24.7 million or 30.2 percent, primarily due to a \$18.3 million increase in general fund cash (including cash and cash equivalents, short-term investments, and long-term investments), an increase in the actuarially determined net pension asset of \$4.3 million, an increase in the actuarially determined OPEB asset of \$0.8 million and a \$0.6 million increase in accounts receivable.

Fiscal Year 2017 Compared to Fiscal Year 2016

Current, restricted and other assets increased \$2 million or 2.4 percent, primarily due to a \$0.8 million increase in accounts receivable, a \$0.7 million increase in other current assets, and a \$0.2 million increase in general fund cash (including cash and cash equivalents, short-term investments, and long-term investments) during the fiscal year.

Capital Assets

Fiscal Year 2018 Compared to Fiscal Year 2017

Capital assets increased \$13.2 million or 1.9 percent, the result of capital expenditures, net of depreciation. Major capital expenditures during the year included \$26.7 million for major system improvements related to Century II.

Fiscal Year 2017 Compared to Fiscal Year 2016

Capital assets increased \$19.7 million or 2.9 percent, the result of capital expenditures, net of depreciation. Major capital expenditures during the year included \$30.9 million for major system improvements related to Century II.

Deferred Outflows of Resources

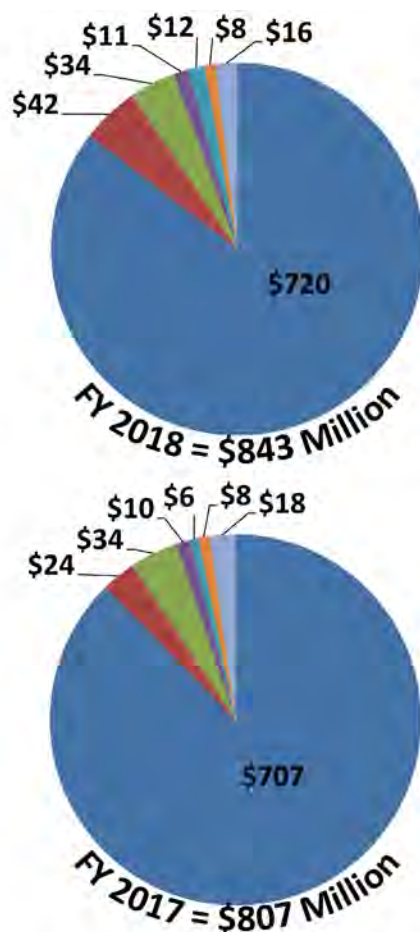
Fiscal Year 2018 Compared to Fiscal Year 2017

Deferred outflows decreased \$2.2 million compared to the prior year, reflecting a \$1.6 million decrease in pension outflow and a \$0.8 million decrease in unamortized bond refunding costs.

Fiscal Year 2017 Compared to Fiscal Year 2016

Deferred outflows decreased \$1.1 million compared to the prior year, reflecting a \$0.8 million decrease in unamortized bond refunding costs and a \$0.3 million decrease in pension outflow.

Knoxville Utilities Board Wastewater Division
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Wastewater Division Total Assets and Deferred Outflows of Resources (in Millions)

	<u>FY18</u>	<u>FY17</u>
Plant	86%	88%
General Fund	5%	3%
Contingency Fund	4%	4%
Accounts Receivable	1%	1%
Other Assets	1%	1%
Restricted Assets	1%	1%
Deferred Outflows of Resources	2%	2%

Current and Other Liabilities

Fiscal Year 2018 Compared to Fiscal Year 2017

Current and other liabilities were \$1 million higher than the prior fiscal year, primarily due to a \$0.9 million increase in the current portion of revenue bonds.

Fiscal Year 2017 Compared to Fiscal Year 2016

Current and other liabilities were \$1.2 million less than the prior fiscal year. This decrease was the net result of an increase of \$0.8 million in the current portion of revenue bonds offset by a \$1.1 million decrease in the actuarially determined net pension obligation and a \$0.8 million decrease in accounts payable.

Knoxville Utilities Board Wastewater Division

Management's Discussion and Analysis

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Long-Term Debt

Fiscal Year 2018 Compared to Fiscal Year 2017

The Division's outstanding long-term debt increased \$11.9 million or 2.4 percent. Wastewater system revenue bonds of \$25 million, sold in August 2017, were partially offset by the scheduled repayment of debt.

Fiscal Year 2017 Compared to Fiscal Year 2016

The Division's outstanding long-term debt increased \$7.7 million or 1.6 percent. Wastewater system revenue bonds of \$20 million, sold in July 2016, added to KUB's outstanding debt. In March 2017, revenue refunding bonds of \$12 million were issued to refinance bonds sold in 2005. The additional issuances offset by the defeased bonds and scheduled debt repayments accounted for the change in long-term debt.

Deferred Inflows of Resources

Fiscal Year 2018 Compared to Fiscal Year 2017

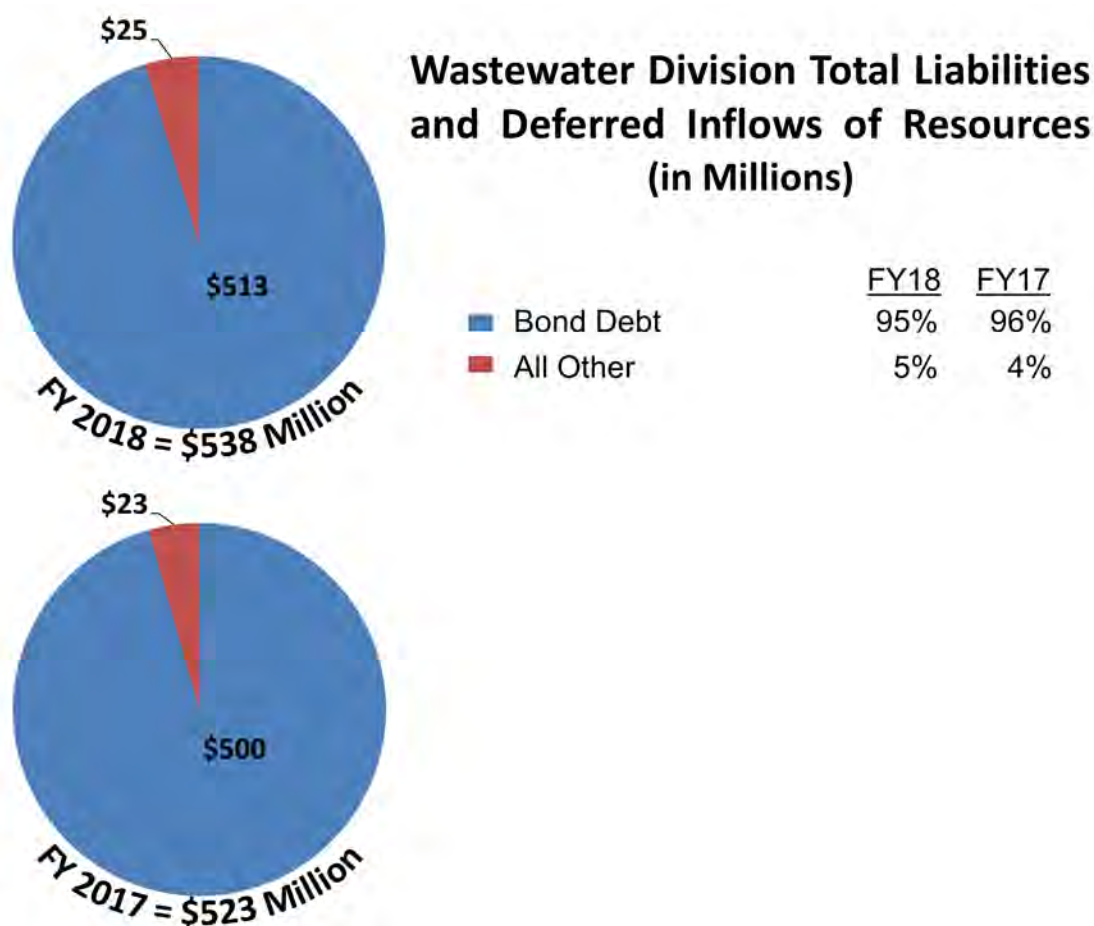
Deferred inflows of resources were \$2 million higher than the prior fiscal year due to differences in pension inflows.

Fiscal Year 2017 Compared to Fiscal Year 2016

Deferred inflows of resources were \$0.8 million higher than the prior fiscal year due to differences in pension inflows.

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Knoxville Utilities Board Wastewater Division
Management's Discussion and Analysis
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Net Position

Fiscal Year 2018 Compared to Fiscal Year 2017

Unrestricted assets increased \$21 million, primarily due to the \$24.5 million increase in current and other assets compared to the prior year, which includes an increase of \$18.3 million in general fund cash. Net investment in capital assets decreased \$0.3 million. The decrease was the result of \$13.2 million in net plant additions offset by an increase in current portion of revenue bonds and total long-term debt of \$13 million. Restricted net position was \$0.1 million higher than the previous fiscal year, primarily due to increases in bond fund reserves.

Fiscal Year 2017 Compared to Fiscal Year 2016

Net investment in capital assets increased \$10.6 million or 5.1 percent. The increase was the result of \$19.7 million in net plant additions offset by an increase in current portion of revenue bonds and total long-term debt of \$8.5 million. Unrestricted assets increased \$2.5 million, primarily due to the \$1.7 million increase in current and other assets compared to the prior year. Restricted net position was \$0.3 million higher than the previous fiscal year, primarily due to increases in bond fund reserves.

Knoxville Utilities Board Wastewater Division
Management's Discussion and Analysis
June 30, 2018 and 2017

Statement of Revenues, Expenses and Changes in Net Position

The following table reflects the condensed Statement of Revenues, Expenses and Changes in Net Position for the Wastewater Division compared to the prior two fiscal years.

Statements of Revenues, Expenses and Changes in Net Position
For the Years Ended June 30

<i>(in thousands of dollars)</i>	2018	2017	2016
Operating revenues	\$ 94,716	\$ 88,517	\$ 83,646
Operating expenses			
Treatment	11,675	11,914	12,516
Collection	7,411	7,686	7,462
Customer service	3,106	3,073	2,962
Administrative and general	8,747	9,257	8,572
Depreciation	19,138	18,517	18,343
Taxes and tax equivalents	5,039	4,796	4,537
Total operating expenses	<u>55,116</u>	<u>55,243</u>	<u>54,392</u>
Operating income	<u>39,600</u>	<u>33,274</u>	<u>29,254</u>
Interest income	1,205	642	462
Interest expense	(20,508)	(20,233)	(20,169)
Other income/(expense)	<u>(740)</u>	<u>(872)</u>	<u>(717)</u>
Change in net position before capital contributions	<u>19,557</u>	<u>12,811</u>	<u>8,830</u>
Capital contributions	<u>278</u>	<u>464</u>	<u>690</u>
Change in net position	\$ <u>19,835</u>	\$ <u>13,275</u>	\$ <u>9,520</u>

Normal Impacts on Statement of Revenues, Expenses and Changes in Net Position

The following is a description of activities which will normally impact the comparability of the Statement of Revenues, Expenses and Changes in Net Position presentation.

- Operating revenue is primarily determined by the amount of water usage billed during the fiscal year. KUB has certain commercial and industrial customers whose wastewater usage is metered separately from their water usage. Any change (increase/decrease) in wastewater rates would also cause a change in operating revenue.
- Operating expenses (treatment, collection system expense, customer service, administrative and general) are normally impacted by changes in areas including, but not limited to, labor cost (staffing, wage rates), active employee and retiree health insurance costs, chemicals, and wastewater system maintenance.
- Depreciation expense is impacted by plant additions and retirements during the fiscal year.
- Taxes and tax equivalents are impacted by plant additions/retirements and changes in property tax rates.
- Interest income is impacted by the level of interest rates and investments.

Knoxville Utilities Board Wastewater Division Management's Discussion and Analysis June 30, 2018 and 2017

- Interest expense is impacted by the level of outstanding debt and interest rates on the outstanding debt.
- Other income/(expense) is impacted by miscellaneous non-operating revenues and expenses.
- Capital contributions are impacted by a donation of facilities/infrastructure to KUB by developers and governmental agencies. The contributions are recognized as revenue and recorded as plant in service based on the fair market value of the asset(s).

Impacts and Analysis

Change in Net Position

Fiscal Year 2018 Compared to Fiscal Year 2017

The Division's Change in Net Position increased \$19.8 million in fiscal year 2018. A restatement to the fiscal year 2018 beginning net position, based on a change in method of accounting for OPEB, increased the total net position by an additional \$1 million. The change resulted in a total increase of \$20.8 million in the Division's net position. Comparatively, net position increased by \$13.3 million in fiscal year 2017.

Fiscal Year 2017 Compared to Fiscal Year 2016

The Division's net position during the year increased \$13.3 million compared to a \$9.5 million increase last fiscal year.

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Knoxville Utilities Board Wastewater Division

Management's Discussion and Analysis

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Margin from Sales

Fiscal Year 2018 Compared to Fiscal Year 2017

Operating revenue increased \$6.2 million or 7 percent for the fiscal year ending June 30, 2018, the result of additional revenue generated during the fiscal year from the July 2017 rate increase, offset by a 0.2 percent decrease in billable customer flows. Rebates on bond interest payments from the federal government for federally taxable Build America Bonds (BABs) are reported as revenue in accordance with GASB. KUB recognized \$1.8 million in revenue for BABs rebates in fiscal year 2018.

FY 2018 Total Wastewater Customers = 71,242 FY 2018 Wastewater Sales = 6.5 Billion Gallons



Residential customers accounted for 89 percent of wastewater customers and 41 percent of total billed sales volumes for the year. Commercial customers accounted for the largest portion of total sales volumes for the year with 51 percent.

KUB's ten largest wastewater customers accounted for 19 percent of KUB's billed wastewater volumes. Those ten customers represent five industrial and five commercial customers, including four governmental customers.

KUB has added 1,395 wastewater customers over the past three years, representing annual growth of less than one percent.

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Knoxville Utilities Board Wastewater Division

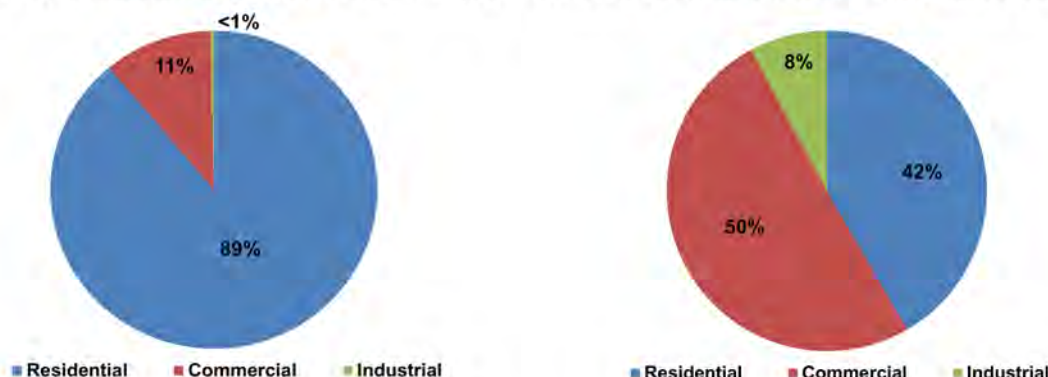
Management's Discussion and Analysis

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Fiscal Year 2017 Compared to Fiscal Year 2016

Operating revenue increased \$4.9 million or 5.8 percent for the fiscal year ending June 30, 2017, the result of additional revenue generated during the fiscal year from the October 2016 rate increase offset by a 0.3 percent decrease in customer billable flows. Rebates on bond interest payments from the federal government for federally taxable Build America Bonds (BABs) are reported as revenue in accordance with GASB. KUB recognized \$1.8 million in revenue for BABs rebates in fiscal year 2017.

FY 2017 Total Wastewater Customers = 70,751 FY 2017 Wastewater Sales = 6.5 Billion Gallons



Residential customers accounted for 89 percent of wastewater customers and 42 percent of total billed sales volumes for the year. Commercial customers accounted for the largest portion of total sales volumes for the year with 50 percent.

KUB's ten largest wastewater customers accounted for 18 percent of KUB's billed wastewater volumes. Those ten customers represent four industrial and six commercial customers, including four governmental customers.

KUB has added 1,138 wastewater customers over the past three years, representing annual growth of less than one percent.

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Knoxville Utilities Board Wastewater Division

Management's Discussion and Analysis

June 30, 2018 and 2017

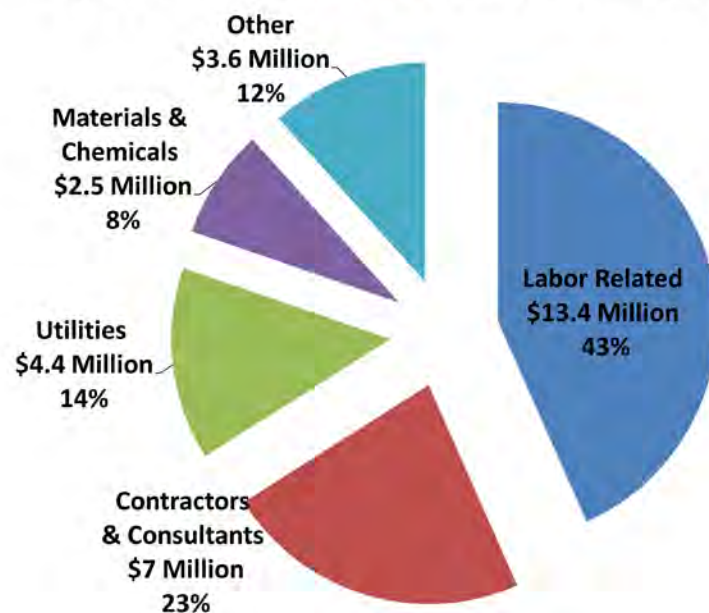
Operating Expenses

Fiscal Year 2018 Compared to Fiscal Year 2017

Operating expenses decreased \$0.1 million compared to fiscal year 2017. Operating expenses include operations and maintenance (O&M) expense, depreciation, and taxes/tax equivalents. O&M expenses can be further classified as treatment, collection, customer service, and administrative and general.

- Treatment expenses decreased \$0.2 million, primarily due to lower outside consultant and contractor expenses.
- Collection system expenses decreased \$0.3 million, reflecting lower outside contractor expenses for Century II initiatives.
- Customer service expenses were consistent with the prior fiscal year.
- Administrative and general expenses decreased \$0.5 million, primarily due to a decrease in labor related expenses.

FY 2018 Wastewater O&M Expense = \$30.9 Million



- Depreciation expense increased \$0.6 million or 3.4 percent, the result of a full year of depreciation on \$51.7 million of wastewater system assets placed in service during fiscal year 2017 and a partial year of depreciation of \$29.5 million of wastewater system assets placed in service during fiscal year 2018. Wastewater system assets of \$5.6 million were retired during the fiscal year.
- Taxes and tax equivalents increased \$0.2 million compared to the prior fiscal year due to increased plant in service levels.

Knoxville Utilities Board Wastewater Division

Management's Discussion and Analysis

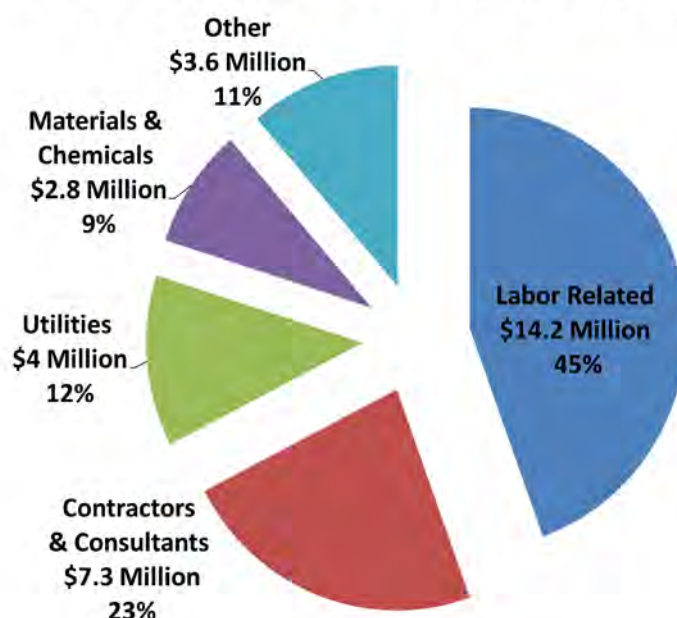
June 30, 2018 and 2017

Fiscal Year 2017 Compared to Fiscal Year 2016

Operating expenses increased \$0.9 million or 1.6 percent compared to fiscal year 2016. Operating expenses include operations and maintenance (O&M) expense, depreciation, and taxes/tax equivalents. O&M expenses can be further classified as treatment, collection, customer service, and administrative and general.

- Treatment expenses decreased \$0.6 million, primarily due to lower outside consultant and contractor expenses.
- Collection system expenses increased \$0.2 million, reflecting higher outside contractor expenses for Century II initiatives.
- Customer service expenses increased \$0.1 million.
- Administrative and general expenses increased \$0.7 million, primarily due to an increase in labor related expenses.

FY 2017 Wastewater O&M Expense = \$31.9 Million



- Depreciation expense increased \$0.2 million or 0.9 percent, the result of a full year of depreciation on \$53.6 million of wastewater system assets placed in service during fiscal year 2016 and a partial year of depreciation of \$51.7 million of wastewater system assets placed in service during fiscal year 2017. \$11 million of wastewater system assets were retired during the fiscal year.
- Taxes and tax equivalents increased \$0.3 million compared to the prior fiscal year due to increased plant in service levels.

Knoxville Utilities Board Wastewater Division

Management's Discussion and Analysis

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Other Income and Expense

Fiscal Year 2018 Compared to Fiscal Year 2017

Interest income was \$0.6 million higher than the prior fiscal year primarily due to higher short-term interest rates.

Interest expense was \$0.3 million higher than the prior fiscal year, reflecting the net effect of interest expense from new revenue bonds sold during the fiscal year and savings on refunding of outstanding bonds.

Other income (net) was \$0.1 million higher than the prior fiscal year.

Capital contributions decreased \$0.2 million compared to last fiscal year as a result of a decrease in assets received from developers and other governmental entities.

Fiscal Year 2017 Compared to Fiscal Year 2016

Interest income was \$0.2 million higher than the prior fiscal year.

Interest expense was \$0.1 million higher than the prior fiscal year.

Other income (net) was \$0.2 million lower, primarily due to an increase in miscellaneous income deductions.

Capital contributions decreased \$0.2 million compared to last fiscal year as a result of a decrease in assets received from developers and other governmental entities.

Knoxville Utilities Board Wastewater Division
Management's Discussion and Analysis
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Capital Assets

	Capital Assets As of June 30 (Net of Depreciation)		
<i>(in thousands of dollars)</i>	2018	2017	2016
Pumping & Treatment Plant	\$ 152,026	\$ 148,916	\$ 144,383
Collection Plant			
Mains and Metering	454,420	445,740	416,102
Other Accounts	67,355	68,745	70,145
Total Collection Plant	<u>521,775</u>	<u>514,485</u>	<u>486,247</u>
Total General Plant	<u>8,217</u>	<u>8,660</u>	<u>8,480</u>
Total Wastewater Plant	\$ <u>682,018</u>	\$ <u>672,061</u>	\$ <u>639,110</u>
Work In Progress	37,961	34,691	47,946
Total Net Plant	<u><u>\$ 719,979</u></u>	<u><u>\$ 706,752</u></u>	<u><u>\$ 687,056</u></u>

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Knoxville Utilities Board Wastewater Division

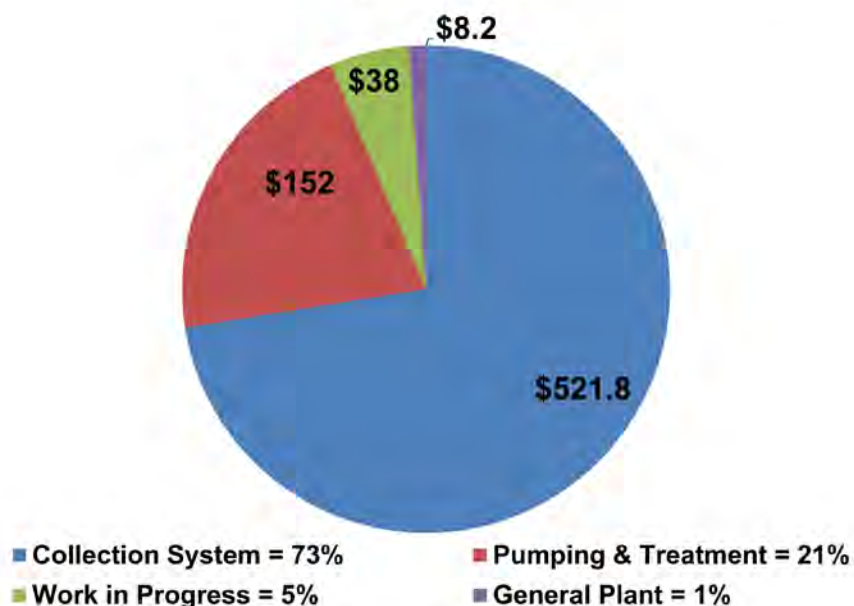
Management's Discussion and Analysis

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Fiscal Year 2018 Compared to Fiscal Year 2017

As of June 30, 2018, the Division had \$720 million invested in a variety of capital assets, as reflected in the schedule of capital assets, which represents a net increase (including additions, retirements, and depreciation) of \$13.2 million or 1.9 percent over the end of the last fiscal year.

FY 2018 Wastewater Division Capital Assets = \$720 Million
(in Millions)



Major capital asset expenditures during the year were as follows:

- \$26.7 million related to Century II projects
 - \$12.9 million for wastewater treatment plant upgrades
 - \$7.2 million for sewer mini-basin rehabilitation and replacement
 - \$4.9 million for sewer trunk line rehabilitation and replacement
 - \$1.7 million for pump station construction and improvements

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Knoxville Utilities Board Wastewater Division

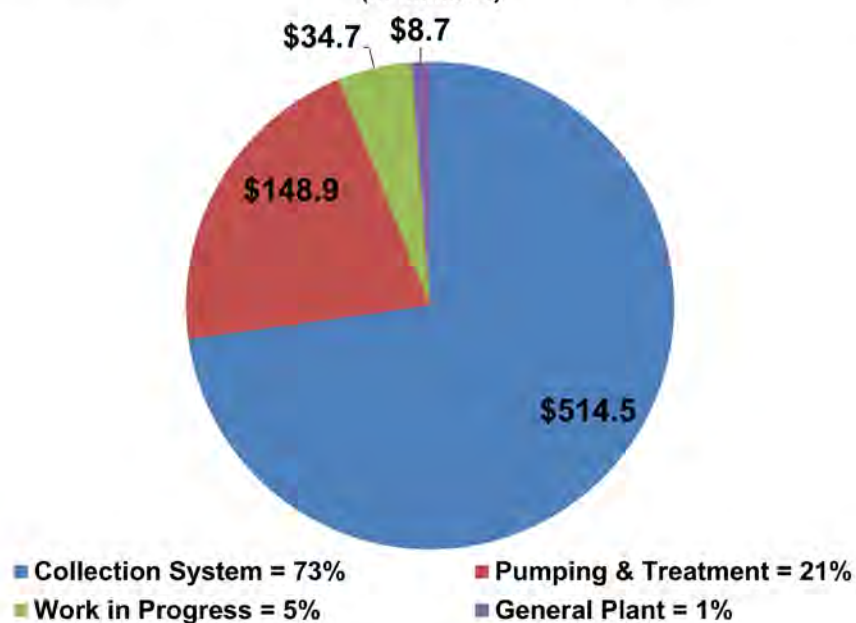
Management's Discussion and Analysis

June 30, 2018 and 2017

Fiscal Year 2017 Compared to Fiscal Year 2016

As of June 30, 2017, the Division had \$706.8 million invested in a variety of capital assets, as reflected in the schedule of capital assets, which represents a net increase (including additions, retirements, and depreciation) of \$19.7 million or 2.9 percent over the end of the last fiscal year.

FY 2017 Wastewater Division Capital Assets = \$706.8 Million
(in Millions)



Major capital asset expenditures during the year were as follows:

- \$30.9 million related to Century II projects
 - \$12.4 million for wastewater treatment plant upgrades
 - \$10.6 million for sewer trunk line rehabilitation and replacement
 - \$5.3 million for sewer mini-basin rehabilitation and replacement
 - \$2.6 million for pump station construction and improvements

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Knoxville Utilities Board Wastewater Division

Management's Discussion and Analysis

June 30, 2018 and 2017

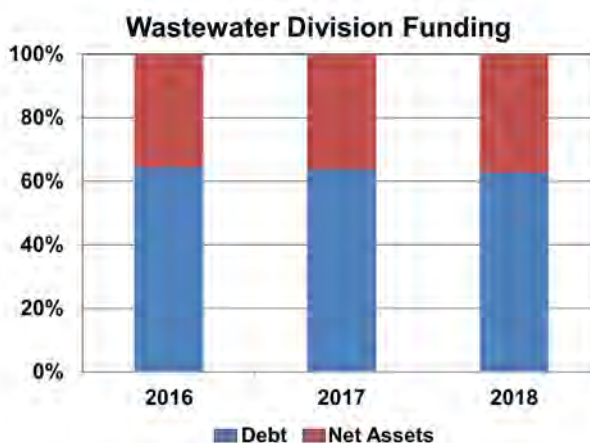
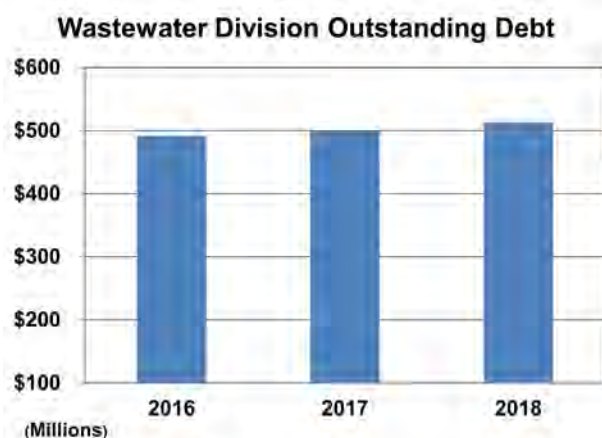
Debt Administration

As of June 30, 2018, the Wastewater Division had \$512.9 million in outstanding wastewater system bonds. The Division's outstanding debt has remained at a steady level over the past three years, reflecting new bond issues and scheduled repayment of revenue bonds. Bond proceeds from new revenue bond sales are used to fund capital improvements for the wastewater system. The bonds are secured solely by revenues of the Wastewater Division. Debt as a percentage of the Division's capital structure was 62.7 percent in 2018, 63.7 percent in 2017, and 64.5 percent at the end of fiscal year 2016. KUB's Debt Management Policy limits the Division's debt ratio to 70 percent or less.

Outstanding Debt As of June 30

(in thousands of dollars)

	2018	2017	2016
Revenue bonds	\$ 512,890	\$ 499,850	\$ 492,330
Total outstanding debt	\$ 512,890	\$ 499,850	\$ 492,330



The Division will pay \$146.7 million in principal payments over the next ten years, representing 28.6 percent of the outstanding bonds. KUB's Debt Management Policy requires a minimum of 20 percent of wastewater debt principal be repaid over the next ten years.

Fiscal Year 2018 Compared to Fiscal Year 2017

As of June 30, 2018, the Division had \$512.9 million in outstanding debt (including the current portion of revenue bonds), representing an increase of \$13 million or 2.6 percent. The increase is attributable to new revenue bonds issued during the fiscal year offset by the scheduled repayment of debt. The Division's weighted average cost of debt as of June 30, 2018 was 3.96 percent (3.61 percent including the impact of Build America Bonds rebates).

KUB sold \$25 million in wastewater system revenue bonds in August 2017 for the purpose of funding wastewater system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.08 percent.

Knoxville Utilities Board Wastewater Division

Management's Discussion and Analysis

June 30, 2018 and 2017

The Division's outstanding debt is rated by Standard & Poor's and Moody's Investors Service. As of June 30, 2018, the Division's revenue bonds were rated AA+ by Standard & Poor's and Aa2 by Moody's Investors Service.

Fiscal Year 2017 Compared to Fiscal Year 2016

As of June 30, 2017, the Division had \$499.9 million in outstanding debt (including the current portion of revenue bonds), representing an increase of \$7.5 million or 1.5 percent. The increase is attributable to the net effect of new revenue and refunding bond issues. The Division's weighted average cost of debt as of June 30, 2017 was 3.99 percent (3.64 percent including the impact of Build America Bonds rebates).

KUB sold \$20 million in wastewater system revenue bonds in July 2016 for the purpose of funding wastewater system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 2.72 percent.

KUB sold \$12 million in wastewater system revenue refunding bonds in March 2017 for the purpose of refinancing existing wastewater system bonds at lower interest rates. KUB will realize a total debt service savings of \$1.4 million over the life of the bonds (\$1.3 million on a net present value basis). The true interest cost of the bonds, which were sold through a competitive bidding process, was 1.95 percent.

The Division's outstanding debt is rated by Standard & Poor's and Moody's Investors Service. As of June 30, 2017, the Division's revenue bonds were rated AA+ by Standard & Poor's and Aa2 by Moody's Investors Service.

Impacts on Future Financial Position

KUB anticipates adding 350 wastewater customers in fiscal year 2019.

In June 2017, the KUB Board adopted three years of rate increases for all four utility Divisions to help fund the ongoing Century II infrastructure programs for each system. The two remaining approved wastewater rate increases are effective July 2018 and July 2019 and are expected to provide an additional \$4.2 million and \$4.5 million, respectively, in annual revenue to assist with the funding of the Wastewater Division.

KUB sold \$12 million in wastewater system revenue bonds in August 2018 for the purpose of funding wastewater system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.49 percent.

KUB long-term debt includes \$91.6 million of Wastewater Division 2010 Build America Bonds (BABs). The BABs were sold on a taxable basis with the United States Treasury providing a rebate to KUB for a percentage of the interest cost. The interest rebates were subject to federal sequestration during the fiscal year and were reduced by 6.6 percent. Any future actions by Congress may also affect the anticipated rebates for future fiscal years.

The Pension Plan actuarial valuation for the Plan year ending December 31, 2017 resulted in an actuarially determined contribution of \$3,156,661 for the fiscal year ending June 30, 2019, based on the Plan's current funding policy. The Wastewater Division's portion of this contribution is \$694,465. Subsequent to June 30, 2018, the actuarial valuation for the Plan year ending December 31, 2018 was completed. The actuarial valuation resulted in an actuarially determined contribution of \$2,585,824 for the fiscal year ending June 30, 2020, based on the Plan's current funding policy. The Wastewater Division's portion of this contribution is \$568,881. For the Plan year ending December 31, 2018, the Plan's actuarial funded ratio was 107.84 percent.

Knoxville Utilities Board Wastewater Division Management's Discussion and Analysis June 30, 2018 and 2017

The OPEB Plan actuarial valuation as of January 1, 2017 resulted in an actuarially determined contribution of zero for the fiscal year ending June 30, 2019, based on the Plan's current funding policy. Subsequent to June 30, 2018, the actuarial valuation as of January 1, 2018 was completed. The actuarial valuation resulted in an actuarially determined contribution of \$311,324 for the fiscal year ending June 30, 2020, based on the Plan's current funding policy. The Wastewater Division's portion of this contribution is \$68,491. The Plan's actuarial funded ratio was 102.78 percent.

GASB Statement No. 83, *Certain Asset Retirement Obligations*, is effective for fiscal years beginning after June 15, 2018. GASB Statement No. 84, *Fiduciary Activities*, is effective for fiscal years beginning after December 15, 2018. GASB Statement No. 87, *Leases*, is effective for fiscal years beginning after December 15, 2019. GASB Statement No. 88, *Certain Disclosure Related to Debt, Including Direct Borrowings and Direct Placements*, is effective for fiscal years beginning after June 15, 2018. GASB Statement No. 89, *Accounting for Interest Cost Incurred Before the End of a Construction Period*, is effective for fiscal years beginning after December 15, 2019. KUB has not elected early implementation of these standards and has not completed the process of evaluating the impact of these statements on its financial statements.

No other facts, decisions, or conditions are currently known which would have a significant impact on the Division's financial position or results of operations during fiscal year 2018.

Financial Contact

The Division's financial statements are designed to present users (citizens, customers, investors, and creditors) with a general overview of the Division's financial position and results of operations for the fiscal years ending June 30, 2018 and 2017. If you have questions about the statements or need additional financial information, contact KUB's Chief Financial Officer at 445 South Gay Street, Knoxville, Tennessee 37902.

Knoxville Utilities Board Wastewater Division
Statements of Net Position
June 30, 2018 and 2017

	2018	2017
Assets and Deferred Outflows of Resources		
Current assets:		
Cash and cash equivalents	\$ 42,297,513	\$ 18,973,860
Short-term investments	-	4,982,900
Short-term contingency fund investments	11,101,917	14,559,854
Other current assets	524,169	699,213
Accrued interest receivable	34,729	20,406
Accounts receivable, less allowance of uncollectible accounts of \$86,556 in 2018 and \$82,667 in 2017	10,576,375	9,933,764
Inventories	523,984	336,145
Prepaid expenses	72,469	78,703
Total current assets	<u>65,131,156</u>	<u>49,584,845</u>
Restricted assets:		
Wastewater bond fund	8,232,210	7,909,840
Other funds	4,718	6,915
TVA contract proceeds	-	74,619
Total restricted assets	<u>8,236,928</u>	<u>7,991,374</u>
Wastewater plant in service	877,008,227	853,154,323
Less accumulated depreciation	<u>(194,989,639)</u>	<u>(181,093,401)</u>
	682,018,588	672,060,922
Retirement in progress	426,420	185,548
Construction in progress	<u>37,534,482</u>	<u>34,505,477</u>
Net plant in service	<u>719,979,490</u>	<u>706,751,947</u>
Other assets:		
Net pension asset	4,351,242	27,267
Net OPEB asset	825,235	-
Long-term contingency fund investments	22,914,748	19,229,072
Other	<u>5,346,014</u>	<u>5,227,545</u>
Total other assets	<u>33,437,239</u>	<u>24,483,884</u>
Total assets	<u>826,784,813</u>	<u>788,812,050</u>
Deferred outflows of resources:		
Pension outflow	428,530	1,999,978
OPEB outflow	145,724	-
Unamortized bond refunding costs	<u>15,537,275</u>	<u>16,331,740</u>
Total deferred outflows of resources	<u>16,111,529</u>	<u>18,331,718</u>
Total assets and deferred outflows of resources	<u>\$ 842,896,342</u>	<u>\$ 807,143,768</u>

The accompanying notes are an integral part of these financial statements.

Knoxville Utilities Board Wastewater Division
Statements of Net Position
June 30, 2018 and 2017

	2018	2017
Liabilities, Deferred Inflows, and Net Position		
Current liabilities:		
Current portion of revenue bonds	\$ 12,615,000	\$ 11,710,000
Accounts payable	1,566,588	1,522,921
Accrued expenses	813,958	764,678
Customer deposits plus accrued interest	849,208	819,927
Accrued interest on revenue bonds	5,078,360	4,982,240
Total current liabilities	<u>20,923,114</u>	<u>19,799,766</u>
Other liabilities:		
Accrued compensated absences	1,348,345	1,507,005
Customer advances for construction	4,600	-
Net pension liability - QEBA	61,675	40,717
Other	66,723	40,081
Total other liabilities	<u>1,481,343</u>	<u>1,587,803</u>
Long-term debt:		
Wastewater revenue bonds	500,275,000	488,140,000
Unamortized premiums/discounts	11,860,393	12,067,331
Total long-term debt	<u>512,135,393</u>	<u>500,207,331</u>
Total liabilities	<u>534,539,850</u>	<u>521,594,900</u>
Deferred inflows of resources:		
Pension inflow	3,066,215	1,158,854
OPEB inflow	70,760	-
Total deferred inflows of resources	<u>3,136,975</u>	<u>1,158,854</u>
Total liabilities and deferred inflows of resources	<u>537,676,825</u>	<u>522,753,754</u>
Net position		
Net investment in capital assets	216,036,743	216,334,381
Restricted for:		
Debt service	3,153,850	2,927,600
Other	4,718	81,534
Unrestricted	86,024,206	65,046,499
Total net position	<u>305,219,517</u>	<u>284,390,014</u>
Total liabilities, deferred inflows, and net position	<u>\$ 842,896,342</u>	<u>\$ 807,143,768</u>

The accompanying notes are an integral part of these financial statements.

Knoxville Utilities Board Wastewater Division
Statements of Revenues, Expenses and Changes in Net Position
Years Ended June 30, 2018 and 2017

	2018	2017
Operating revenues	\$ 94,715,764	\$ 88,517,210
Operating expenses		
Treatment	11,674,833	11,914,383
Collection	7,410,791	7,686,373
Customer service	3,106,304	3,072,606
Administrative and general	8,747,272	9,257,078
Provision for depreciation	19,137,860	18,517,403
Taxes and tax equivalents	5,038,630	4,795,532
Total operating expenses	55,115,690	55,243,375
Operating income	39,600,074	33,273,835
Non-operating revenues (expenses)		
Contributions in aid of construction	2,237,910	723,825
Interest and dividend income	1,205,290	641,747
Interest expense	(20,508,567)	(20,232,835)
Amortization of debt costs	(368,685)	(443,847)
Write-down of plant for costs recovered through contributions	(2,237,910)	(723,825)
Other	(371,824)	(428,234)
Total non-operating revenues (expenses)	(20,043,786)	(20,463,169)
Change in net position before capital contributions	19,556,288	12,810,666
Capital contributions	278,222	463,784
Change in net position	19,834,510	13,274,450
Net position, beginning of year, as previously reported	284,390,014	271,115,564
Change in method of accounting for OPEB	994,993	-
Net position, beginning of year, as restated	285,385,007	271,115,564
Net position, end of year	\$ 305,219,517	\$ 284,390,014

The accompanying notes are an integral part of these financial statements.

Knoxville Utilities Board Wastewater Division

Statements of Cash Flows

Years Ended June 30, 2018 and 2017

	2018	2017
Cash flows from operating activities:		
Cash receipts from customers	\$ 92,107,107	\$ 85,189,254
Cash (payments to) receipts from other operations	1,757,517	1,434,648
Cash payments to suppliers of goods or services	(20,810,035)	(21,876,100)
Cash payments to employees for services	(11,119,039)	(11,144,919)
Payment in lieu of taxes	(4,218,257)	(4,017,388)
Net cash provided by operating activities	<u>57,717,293</u>	<u>49,585,495</u>
Cash flows from capital and related financing activities:		
Net proceeds from bond issuance	25,111,895	33,146,531
Principal paid on revenue bonds and notes payable	(11,960,000)	(24,445,000)
Interest paid on revenue bonds and notes payable	(20,412,447)	(20,214,379)
Acquisition and construction of wastewater plant	(34,629,295)	(38,745,442)
Changes in wastewater bond fund, restricted	(322,370)	(213,456)
Customer advances for construction	4,600	-
Proceeds received on disposal of plant	1,762	12,004
Cash received from developers and individuals for capital purposes	2,237,910	723,825
Net cash used in capital and related financing activities	<u>(39,967,945)</u>	<u>(49,735,917)</u>
Cash flows from investing activities:		
Purchase of investment securities	(15,048,777)	(15,807,997)
Maturities of investment securities	19,572,141	10,832,597
Interest received	1,171,280	595,577
Other property and investments	(120,339)	(221,540)
Net cash provided by (used in) investing activities	<u>5,574,305</u>	<u>(4,601,363)</u>
Net increase (decrease) in cash and cash equivalents	23,323,653	(4,751,785)
Cash and cash equivalents, beginning of year	<u>18,973,860</u>	<u>23,725,645</u>
Cash and cash equivalents, end of year	<u>\$ 42,297,513</u>	<u>\$ 18,973,860</u>
Reconciliation of operating income to net cash provided by operating activities		
Operating income	\$ 39,600,074	\$ 33,273,835
Adjustments to reconcile operating income to net cash provided by operating activities:		
Depreciation expense	19,440,304	18,777,420
Changes in operating assets and liabilities:		
Accounts receivable	(642,611)	(757,319)
Inventories	(187,839)	(22,111)
Prepaid expenses	6,234	6,694
Other assets	240,335	(730,075)
Accounts payable and accrued expenses	(795,127)	(837,342)
Customer deposits plus accrued interest	29,281	(97,807)
Other liabilities	26,642	(27,800)
Net cash provided by operating activities	<u>\$ 57,717,293</u>	<u>\$ 49,585,495</u>
Noncash capital activities:		
Acquisition of plant assets through developer contributions	\$ 278,222	\$ 463,784

The accompanying notes are an integral part of these financial statements.

Knoxville Utilities Board Wastewater Division

Notes to Financial Statements

June 30, 2018 and 2017

1. Description of Business

Knoxville Utilities Board (KUB), comprised of the Electric Division, Gas Division, Water Division, and Wastewater Division (Divisions), is reported as a component unit enterprise fund in the financial statements of the City of Knoxville. KUB's responsibility is to oversee the purchase, production, distribution, and processing of electricity, natural gas, water, and wastewater services. A seven-member Board of Commissioners (Board) governs KUB. The Board has all powers to construct, acquire, expand, and operate the Divisions. It has full control and complete jurisdiction over the management and operation of the Divisions including setting rates. The Wastewater Division (Division) provides services to certain customers in Knox County and in two surrounding counties in East Tennessee. The Division's accounts are maintained in conformity with the Uniform System of Accounts of the National Association of Regulatory Utility Commissioners (NARUC) and the Governmental Accounting Standards Board (GASB), as applicable. The financial statements present only the Wastewater Division and do not purport to, and do not, present fairly the consolidated financial position of Knoxville Utilities Board at June 30, 2018 and 2017, and the changes in its financial position for the years then ended in conformity with accounting principles generally accepted in the United States of America.

2. Significant Accounting Policies

Basis of Accounting

In conformity with Generally Accepted Accounting Principles (GAAP), KUB follows the provisions of GASB Statement No. 34 (Statement No. 34), *Financial Statements – and Management's Discussion and Analysis – for State and Local Governments* as amended by GASB Statement No. 63 (Statement No. 63), *Financial Reporting of Deferred Outflows of Resources, Deferred Inflows of Resources and Net Position*. Statement No. 34 established standards for external financial reporting for all state and local governmental entities. Under Statement No. 63, financial statements include deferred outflows of resources and deferred inflows of resources, in addition to assets and liabilities, and report *net position* instead of net assets. In addition, KUB follows GASB Statement No. 62 (Statement No. 62), *Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements* as it relates to certain items for regulatory accounting. Regulatory accounting allows a regulated utility to defer a cost (a regulatory asset) or recognize an obligation (a regulatory liability) if it is probable that through the rate making process, there will be a corresponding increase or decrease in future revenues. Accordingly, KUB has recognized certain regulatory assets and regulatory liabilities in the accompanying Statements of Net Position.

The financial statements are prepared on the accrual basis of accounting, whereby revenues are recognized when earned and expenses are recognized when incurred. The accounting and financial reporting treatment applied to the Division is determined by measurement focus. The transactions of the Division are accounted for on a flow of economic resources measurement focus. With this measurement focus, all assets and all liabilities associated with the operations are included on the Statement of Net Position. Net position (i.e., total assets and deferred outflows of resources net of total liabilities and deferred inflows of resources) is segregated into net investment in capital assets, restricted for capital activity and debt service, and unrestricted components.

Recently Adopted New Accounting Pronouncements

In June 2015, the GASB issued GASB Statement No. 75 (Statement No. 75), *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. The Statement addresses reporting by governments that provide OPEB to their employees. Statement No. 75 is effective for fiscal years beginning after June 15, 2017.

Knoxville Utilities Board Wastewater Division

Notes to Financial Statements

June 30, 2018 and 2017

In March 2017, the GASB issued GASB Statement No. 85 (Statement No. 85), *Omnibus 2017*. The objective of this Statement is to address practice issues that have been identified during implementation and application of certain GASB Statements. Statement No. 85 is effective for fiscal years beginning after June 15, 2017.

In May 2017, the GASB issued GASB Statement No. 86 (Statement No. 86), *Certain Debt Extinguishment Issues*. The objective of this Statement is to improve consistency in accounting and financial reporting for in-substance defeasance of debt. The Statement provides guidance for transactions in which cash and other monetary assets acquired with existing resources or resources other than the proceeds of refunding debt, are placed in an irrevocable trust for the sole purpose of extinguishing debt. This Statement also improves accounting and financial reporting for prepaid insurance on debt that is extinguished and notes to financial statements for debt that is defeased in substance. Statement No. 86 is effective for fiscal years beginning after June 15, 2017.

Wastewater Plant

Wastewater plant and other property are stated on the basis of original cost. The cost of current repairs and minor replacements is charged to operating expense. The cost of renewals and improvements is capitalized. The original cost of utility plant assets retired or otherwise disposed of and the cost of removal less salvage value is charged to accumulated depreciation. When other property is retired, the related asset and accumulated depreciation are removed from the accounts, and the gain or loss is included in the results of operations.

The provision for depreciation of wastewater plant in service is based on the estimated useful lives of the assets, which range from three to fifty years, and is computed using the straight-line method. Pursuant to NARUC, the caption "Provision for depreciation" in the Statements of Revenue, Expenses and Change in Net Position does not include depreciation for transportation equipment of \$302,444 in fiscal year 2018 and \$260,017 in fiscal year 2017. Under regulatory accounting, interest costs are expensed as incurred with construction of plant assets.

Operating Revenue

Operating revenue consists primarily of charges for services provided by the principal operations of the KUB Wastewater Division. Operating revenue is recorded when the service is rendered, on a cycle basis, and includes an estimate of unbilled revenue. Revenues are reported net of bad debt expense of \$297,270 in fiscal year 2018 and \$183,561 in fiscal year 2017.

Non-operating Revenue

Non-operating revenue consists of revenues that are related to financing and investing types of activities and result from non-exchange transactions or ancillary activities.

Expense

When an expense is incurred for purposes for which there are both restricted and unrestricted net assets available, it is KUB's policy to apply those expenses to restricted net assets to the extent such are available and then to unrestricted net assets.

Net Position

GASB Statement No. 63 requires the classification of net position into three components – net investment in capital assets; net position-restricted; and net position-unrestricted.

These classifications are defined as follows:

- Net investment in capital assets – This component of net position consists of capital assets, including restricted capital assets, net of accumulated depreciation and reduced by the outstanding balances of any bonds, mortgages, notes, or other borrowings that are

Knoxville Utilities Board Wastewater Division

Notes to Financial Statements

June 30, 2018 and 2017

attributable to the acquisition, construction, or improvement of those assets. Deferred outflows of resources and deferred inflows of resources that are attributable to the acquisition, construction, or improvement of those assets or related debt also should be included in this component of net position. If there are significant unspent related debt proceeds at year end, the portion of the debt attributable to the unspent proceeds are not included in the calculation of net investment in capital assets. Rather, that portion of the debt is included in the same net position component as the unspent proceeds.

- Net position-restricted – This component of net position consists of restricted assets reduced by liabilities and deferred inflows of resources related to those assets. Generally, a liability relates to restricted assets if the asset results from a resource flow that also results in the recognition of a liability or if the liability will be liquidated with the restricted assets reported.
- Net position-unrestricted – This component of net position consists of assets, deferred outflows of resources, liabilities, and deferred inflows of resources that are not included in the determination of net investment in capital assets or the restricted component of net position.

Contributions in Aid of Construction and Capital Contributions

Contributions in aid of construction are cash collections from customers or others for a particular purpose, generally the construction of new facilities to serve new customers in excess of the investment KUB is willing to make for a particular incremental revenue source. KUB reduces the plant account balances to which contributions relate by the actual amount of the contribution and recognizes the contributions as non-operating revenue in accordance with Statement No. 62.

Capital contributions represent contributions of utility plant infrastructure constructed by developers and others in industrial parks and other developments, and transferred to KUB upon completion of construction and the initiation of utility service. In accordance with GASB Statement No. 33, *Accounting and Financial Reporting for Nonexchange Transactions*, such contributions are recognized as revenues and capital assets upon receipt.

Inventories

Inventories, consisting of plant materials and operating supplies, are valued at the lower of average cost or replacement value.

Change in method of accounting for OPEB

In June 2015, the Governmental Accounting Standards Board (GASB) issued Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*, which addresses reporting by governments that provide OPEB to their employees. This standard was adopted by KUB in 2018 and resulted in a restatement of beginning net position of \$4,522,695 (Division's share \$994,993) to increase the net OPEB asset by \$4,522,695 (Division's share \$994,993) based on revised actuarial assumptions to conform with GASB 75.

OPEB Plan

KUB's employees hired prior to July 1, 1999, who are retired and who (prior to retirement) qualified for retiree medical insurance by meeting the Rule of 80 (age plus years of service) with a minimum of 20 years of service, and were enrolled in medical coverage on their last day are eligible for post-employment health care established by KUB's Board of Commissioners through Resolution No. 1168, as amended, dated October 18, 2007. KUB's policy is to fully fund the annual actuarially determined contributions, which are determined by actuarial valuation. As required by GASB Statement No. 75, KUB measures net OPEB liability as total OPEB liability less the amount of the Plan's fiduciary net position. The amounts reported as of June 30, 2018

Knoxville Utilities Board Wastewater Division

Notes to Financial Statements

June 30, 2018 and 2017

must be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 are based on a June 30, 2018 measurement date.

Pension Plan and Qualified Excess Benefit Arrangement

KUB's employees are participants in the Knoxville Utilities Board Pension Plan as authorized by the Charter of the City of Knoxville §1107(J) (Note 10). KUB's policy is to fully fund the annual actuarially determined contributions. As required by GASB Statement No. 68, KUB measures net pension liability as total pension liability less the amount of the Plan's fiduciary net position. The amounts reported as of June 30, 2018 and 2017 must be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 and 2017 are based on a December 31, 2017 and 2016 measurement date, respectively. The net pension asset is \$19,778,372 (Division's share \$4,351,242) as of June 30, 2018 and \$123,941 (Division's share \$27,267) as of June 30, 2017.

KUB implemented a qualified governmental excess benefit arrangement (QEBA) under IRC section 415(m), which was created by Congress to allow the payment of pension benefits that exceed the IRC section 415(b) limits (and therefore cannot be paid from a qualified retirement plan). The QEBA is a single-employer defined benefit pension plan, administered by KUB (Note 11). As required by GASB Statement No. 73, KUB measures the total pension liability of the QEBA. The amounts reported as of June 30, 2018 and 2017 must be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 and 2017 will be based on the December 31, 2017 and 2016 measurement dates. The total pension liability of the QEBA is \$280,341 (Division's share \$61,675) and \$185,077 (Division's share \$40,717) as of June 30, 2017.

Investments

Investments are carried at fair value as determined by quoted market prices at the reporting date.

Self-Insurance

KUB has established self-insurance programs covering portions of workers' compensation, employee health, environmental liability, general liability, property and casualty liability, and automobile liability claims. A liability is accrued for claims as they are incurred. When applicable, claims in excess of the self-insured risk are covered by KUB's insurance carrier. Additionally, KUB provides certain lifetime health benefits to eligible retired employees under a self-insurance plan administered by a third party.

Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. These estimates are based on historical experience and various other assumptions that KUB believes are reasonable under the circumstances. However, future events are subject to change and the best estimates and judgments routinely require adjustment. Estimates are used for, but not limited to, inventory valuation, allowance for uncollectible accounts, depreciable lives of plant assets, unbilled revenue volumes, pension trust valuations, OPEB trust valuations, insurance liability reserves, and potential losses from contingencies and litigation. Actual results could differ from those estimates.

Knoxville Utilities Board Wastewater Division

Notes to Financial Statements

June 30, 2018 and 2017

Restricted and Designated Assets

Certain assets are restricted by bond resolutions for utility plant construction and debt repayment. Certain additional assets are designated by management for contingency purposes and economic development.

Cash Equivalents

For purposes of the Statements of Cash Flows, KUB considers all unrestricted and undesignated highly liquid investments with an original maturity of three months or less when purchased to be cash equivalents.

Deferred Outflows and Inflows of Resources

Deferred outflows of resources are items related to the acquisition of assets or related debt which are amortized over the life of the asset or debt. Deferred inflows of resources are items related to the acquisition of assets or related debt which are amortized over the life of the asset or debt. KUB records costs associated with the gain or loss on refunding of debt as either a deferred outflow or inflow based on the parameters of Statement No. 65. Deferred outflows of resources also include employer pension contributions made subsequent to the measurement date of the net pension liability and before the end of the employer's reporting period in accordance with Statement No. 71. Deferred inflows and deferred outflows also include the net difference between projected and actual earnings on pension plan investments and OPEB plan investments, differences between expected and actual experience, and changes in assumptions in accordance with Statement No. 68 and Statement No. 75.

Debt Premium/Discount

KUB records unamortized premium and discount on debt as a separate line item in the Long Term Debt section of the Financial Statements. Amortization of these amounts is recorded over the life of the applicable debt as amortization expense.

Debt Issuance Costs

In accordance with regulatory accounting, KUB records debt issuance costs as an Other Asset. Amortization of these amounts is recorded over the life of the applicable debt as amortization expense.

Deferred Gain/Loss on Refunding of Debt

KUB records costs associated with the gain or loss on refunding of debt as either a deferred outflow or inflow based on the parameters of Statement No. 65. Amortization of these amounts is recorded over the life of the applicable debt as amortization expense.

Compensated Absences

KUB accrues a liability for earned but unpaid paid-time off (PTO) days.

Subsequent Events

KUB has evaluated events and transactions through October 25, 2018, the date these financial statements were issued, for items that should potentially be recognized or disclosed. KUB sold \$12 million in wastewater system revenue bonds in August 2018 for the purpose of funding wastewater system capital improvements in fiscal year 2019. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.49 percent. Annual debt service payments including principal and interest range from \$513,941 to \$648,756 with final maturity in fiscal year 2048.

Reclassifications

Certain reclassifications have been made to the fiscal year 2017 balances to conform to fiscal year 2018 presentation.

Knoxville Utilities Board Wastewater Division

Notes to Financial Statements

June 30, 2018 and 2017

Recently Issued Accounting Pronouncements

In November 2016, the GASB issued GASB Statement No. 83 (Statement No. 83), *Certain Asset Retirement Obligations*. The objective of this Statement is to define asset retirement obligations as a legally enforceable liability associated with the retirement of a tangible capital asset. A government that has legal obligations is required to perform future asset retirement activities related to its tangible capital assets to recognize a liability based on the guidance in this Statement. Statement No. 83 is effective for fiscal years beginning after June 15, 2018.

In January 2017, the GASB issued GASB Statement No. 84 (Statement No. 84), *Fiduciary Activities*. The objective of this Statement is to improve guidance regarding the identification of fiduciary activities for accounting and financial reporting purposes and how those activities should be reported. Statement No. 84 is effective for fiscal years beginning after December 15, 2018.

In June 2017, the GASB issued GASB Statement No. 87 (Statement No. 87), *Leases*. This Statement requires recognition of certain lease assets and liabilities for leases that previously were classified as operating leases and recognized as inflows of resources or outflows of resources based on the payment provisions of the contract. Under this Statement, a lessee is required to recognize a lease liability and an intangible right-to-use lease asset. Statement No. 87 is effective for fiscal years beginning after December 15, 2019.

In April 2018, the GASB issued GASB Statement No. 88 (Statement No. 88), *Certain Disclosure Related to Debt, Including Direct Borrowings and Direct Placements*. The primary objective of this Statement is to improve the information that is disclosed in notes to government financial statements related to debt, including direct borrowing and direct placements. It also clarifies which liabilities governments should include when disclosing information related to debt. Statement No. 88 is effective for fiscal years beginning after June 15, 2018.

In June 2018, the GASB issued GASB Statement No. 89 (Statement No. 89), *Accounting for Interest Cost Incurred Before the End of a Construction Period*. The objectives of this Statement are to enhance the relevance and comparability of information about capital assets and the cost of borrowing for a reporting period, and to simplify accounting for interest cost incurred before the end of a construction period. Statement No. 89 is effective for fiscal years beginning after December 15, 2019.

KUB has not elected early implementation of these standards and has not completed the process of evaluating the impact of these statements on its financial statements.

3. Deposits and Investments

KUB follows the provisions of Statement No. 40 of the Governmental Accounting Standards Board, *Deposit and Investment Risk Disclosures—an amendment of GASB Statement No. 3*. This Statement establishes and modifies disclosure requirements for state and local governments related to deposit and investment risks. KUB classifies its fair value measurements within the fair value hierarchy established by Statement No. 72 of the Governmental Accounting Standards Board, *Fair Value Measurement and Application*.

KUB's investment policy provides the framework for the administration and investment of cash deposits. The investment policy follows Tennessee State law and defines the parameters under which KUB funds should be invested. State law authorizes KUB to invest in obligations of the United States Treasury, its agencies and instrumentalities; certificates of deposit; repurchase agreements; money market funds; and the State Treasurer's Investment Pool.

Knoxville Utilities Board Wastewater Division

Notes to Financial Statements

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Interest Rate Risk. KUB's primary investment objectives are to place investments in a manner to ensure the preservation of capital, remain sufficiently liquid to meet all operating requirements, and maximize yield of return. KUB minimizes its exposure to interest rate risk by adhering to Tennessee State law requirements for the investment of public funds. This includes limiting investments to those types described above and limiting maturity horizons. The maximum maturity is four years from the date of investment. KUB also limits its exposure by holding investments to maturity unless cash flow requirements dictate otherwise.

Credit Risk. KUB's investment policy, as required by state law, is to apply the prudent-person rule: Investments are made with judgment and care, under circumstances then prevailing, which persons of prudence, discretion, and intelligence exercise in the management of their own affairs, not for speculation, but for investment, considering the probable income to be derived, as well as the probable safety of their capital.

Custodial Credit Risk. KUB's investment policy limits exposure to custodial credit risk by restricting investments to a standard set forth by state law. All deposits in excess of federal depository insurance limits are collateralized with government securities held in KUB's name by a third-party custodian bank(s) acting as KUB's agent(s), or through the State of Tennessee's collateral pool. Financial institutions that participate in the collateral pool are subject to special assessment; therefore, the deposits are considered insured. A portion of KUB's investments are generally held in the State of Tennessee Local Government Investment Pool (LGIP). The LGIP is a part of the State Pooled Investment Fund and is sponsored by the State of Tennessee Treasury Department. Tennessee Code Annotated ¶9-4-701 *et seq.* authorizes local governments to invest in the LGIP. None of KUB's investments are exposed to custodial credit risk.

Classification of deposits and investments per Statement of Net Position:

	2018	2017
Current assets		
Cash and cash equivalents	\$ 42,297,513	\$ 18,973,860
Short-term investments	-	4,982,900
Short-term contingency fund investments	11,101,917	14,559,854
Other assets		
Long-term contingency fund investments	22,756,018	19,090,029
Restricted assets		
Wastewater bond fund	8,232,210	7,909,840
Other funds	4,718	6,915
	<u>\$ 84,392,376</u>	<u>\$ 65,523,398</u>

The above amounts do not include accrued interest of \$158,730 in fiscal year 2018 and \$139,043 in fiscal year 2017. Interest income is recorded on an accrual basis.

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Knoxville Utilities Board Wastewater Division

Notes to Financial Statements

June 30, 2018 and 2017

Investments and maturities of KUB's deposits and investments as held by financial institutions as of June 30, 2018:

	Deposit and Investment Maturities (in Years)		
	Fair Value	Less Than 1	1-5
Supersweep NOW and Other Deposits	\$ 36,505,314	\$ 36,505,314	\$ -
State Treasurer's Investment Pool	4,436,823	4,436,823	-
Agency Bonds	41,259,686	11,101,917	30,157,769
Certificates of Deposits	3,795,286	3,795,286	-
	<u>\$ 85,997,109</u>	<u>\$ 55,839,340</u>	<u>\$ 30,157,769</u>

KUB categorizes its fair value measurements within the fair value hierarchy established by Statement No. 72 of the Governmental Accounting Standards Board, *Fair Value Measurement and Application*. The hierarchy is based on the valuation inputs used to measure the fair value of an asset with a maturity at purchase greater than one year. Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are significant unobservable inputs.

KUB has the following recurring fair value measurements as of June 30, 2018:

- U.S. Agency bonds of \$30,157,769, which have a maturity at purchase of greater than one year, are valued using quoted market prices (Level 1 inputs)

KUB measures investments with a maturity at purchase of one year or less at amortized cost, which is considered a fair value equivalent due to their nature. Investments in the State Treasurer's Investment Pool are measured at net asset value (NAV) per share.

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Knoxville Utilities Board Wastewater Division
Notes to Financial Statements
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4. Accounts Receivable

Accounts receivable consists of the following:

	2018	2017
Wholesale and retail customers		
Billed services	\$ 5,637,649	\$ 5,733,191
Unbilled services	4,013,123	3,595,200
Other	1,012,159	688,040
Allowance for uncollectible accounts	(86,556)	(82,667)
	<u>\$ 10,576,375</u>	<u>\$ 9,933,764</u>

5. Accounts Payable and Accruals

Accounts payable and accruals were composed of the following:

	2018	2017
Trade accounts	\$ 1,566,588	\$ 1,522,921
Salaries and wages	412,966	348,485
Self-insurance liabilities	400,992	416,193
	<u>\$ 2,380,546</u>	<u>\$ 2,287,599</u>

6. Long-Term Obligations

Long-term debt consists of the following:

	Balance June 30, 2017	Additions	Payments	Defeased	Balance June 30, 2018	Amounts Due Within One Year
2008 - 4.0 - 6.0%	\$ 1,950,000	\$ -	\$ 1,950,000	\$ -	\$ -	\$ -
2010 - 6.3 - 6.5%	30,000,000	-	-	-	30,000,000	-
2010C - 1.18 - 6.1%	63,100,000	-	1,500,000	-	61,600,000	1,550,000
2012A - 2.0 - 4.0%	13,755,000	-	985,000	-	12,770,000	970,000
2012B - 1.25 - 5.0%	61,375,000	-	1,000,000	-	60,375,000	1,050,000
2013A - 2.0 - 4.0%	111,095,000	-	635,000	-	110,460,000	660,000
2014A - 2.0 - 4.0%	28,750,000	-	475,000	-	28,275,000	475,000
2015A - 3.0 - 5.0%	129,235,000	-	2,835,000	-	126,400,000	5,010,000
2015B - 3.0 - 5.0%	28,975,000	-	475,000	-	28,500,000	500,000
2016 - 2.0 - 5.0%	19,650,000	-	450,000	-	19,200,000	450,000
2017A - 3.0 - 5.0%	11,965,000	-	1,405,000	-	10,560,000	1,460,000
2017B - 2.0 - 5.0%	-	25,000,000	250,000	-	24,750,000	490,000
Total bonds	<u>\$ 499,850,000</u>	<u>\$ 25,000,000</u>	<u>\$ 11,960,000</u>	<u>\$ -</u>	<u>\$ 512,890,000</u>	<u>\$ 12,615,000</u>
Unamortized Premium	12,067,331	473,638	680,576	-	11,860,393	-
Total long term debt	<u>\$ 511,917,331</u>	<u>\$ 25,473,638</u>	<u>\$ 12,640,576</u>	<u>\$ -</u>	<u>\$ 524,750,393</u>	<u>\$ 12,615,000</u>

Knoxville Utilities Board Wastewater Division
Notes to Financial Statements
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	Balance June 30, 2016	Additions	Payments	Defeased	Balance June 30, 2017	Amounts Due Within One Year
2005B - 3.0 - 5.0%	\$ 14,635,000	\$ -	\$ 1,470,000	\$ 13,165,000	\$ -	\$ -
2008 - 4.0 - 6.0%	6,550,000	-	4,600,000	-	1,950,000	1,950,000
2010 - 6.3 - 6.5%	30,000,000	-	-	-	30,000,000	-
2010C - 1.18 - 6.1%	64,500,000	-	1,400,000	-	63,100,000	1,500,000
2012A - 2.0 - 4.0%	14,595,000	-	840,000	-	13,755,000	985,000
2012B - 1.25 - 5.0%	62,350,000	-	975,000	-	61,375,000	1,000,000
2013A - 2.0 - 4.0%	111,715,000	-	620,000	-	111,095,000	635,000
2014A - 2.0 - 4.0%	29,200,000	-	450,000	-	28,750,000	475,000
2015A - 3.0 - 5.0%	129,360,000	-	125,000	-	129,235,000	2,835,000
2015B - 3.0 - 5.0%	29,425,000	-	450,000	-	28,975,000	475,000
2016 - 2.0 - 5.0%	-	20,000,000	350,000	-	19,650,000	450,000
2017A - 3.0 - 5.0%	-	11,965,000	-	-	11,965,000	1,405,000
Total bonds	<u>\$ 492,330,000</u>	<u>\$ 31,965,000</u>	<u>\$ 11,280,000</u>	<u>\$ 13,165,000</u>	<u>\$ 499,850,000</u>	<u>\$ 11,710,000</u>
Unamortized Premium	11,066,224	1,684,616	600,100	83,409	12,067,331	-
Total long term debt	<u>\$ 503,396,224</u>	<u>\$ 33,649,616</u>	<u>\$ 11,880,100</u>	<u>\$ 13,248,409</u>	<u>\$ 511,917,331</u>	<u>\$ 11,710,000</u>

Debt service over remaining term of the debt is as follows:

Fiscal Year	Principal	Total Interest	Grand Total
2019	\$ 12,615,000	\$ 20,313,437	\$ 32,928,437
2020	13,180,000	19,776,753	32,956,753
2021	13,725,000	19,220,382	32,945,382
2022	14,345,000	18,576,278	32,921,278
2023	14,990,000	17,901,135	32,891,135
2024-2028	77,795,000	80,476,018	158,271,018
2029-2033	89,285,000	65,889,294	155,174,294
2034-2038	106,480,000	48,343,995	154,823,995
2039-2043	110,370,000	26,516,295	136,886,295
2044-2048	55,330,000	6,097,513	61,427,513
2049-2050	4,775,000	248,975	5,023,975
Total	<u>\$ 512,890,000</u>	<u>\$ 323,360,075</u>	<u>\$ 836,250,075</u>

The Division has pledged sufficient revenue, after deduction of all current operating expenses (exclusive of tax equivalents), to meet bond principal and interest payments when due. The bond covenants relating to the Wastewater Revenue Bonds require the establishment of a Wastewater Bond Fund for the payment of principal and interest requirements. As of June 30, 2018, those bond covenants had been satisfied.

During fiscal year 2009, KUB's Wastewater Division issued Series 2008 bonds to fund wastewater system capital improvements.

During fiscal year 2010, KUB's Wastewater Division issued Series 2010 bonds to fund capital improvements. These bonds were issued as federally taxable Build America Bonds with a 35 percent interest payment rebate to be received from the United States Government for each interest payment. Effective October 1, 2017 these bonds became subject to a 6.6 percent reduction in rebate payment amounts due to the United States Government sequestration. The

Knoxville Utilities Board Wastewater Division

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sequestration is effective until intervening Congressional action, at which time the sequestration rate is subject to change.

During fiscal year 2011, KUB's Wastewater Division issued Series 2010C bonds to fund wastewater system capital improvements. These bonds were issued as federally taxable Build America Bonds with a 35 percent interest payment rebate to be received from the United States Government for each interest payment. Effective October 1, 2017 these bonds became subject to a 6.6 percent reduction in rebate payment amounts due to the United States Government sequestration. The sequestration is effective until intervening Congressional action, at which time the sequestration rate is subject to change.

During fiscal year 2012, KUB's Wastewater Division issued Series 2012A bonds to retire Series 2004A bonds.

During fiscal year 2013, KUB's Wastewater Division issued Series 2012B bonds to fund wastewater system capital improvements. KUB's Wastewater Division also issued Series 2013A bonds to retire a portion of outstanding Series 2005A bonds.

During fiscal year 2015, KUB's Wastewater Division issued Series 2015A bonds to retire a portion of outstanding Series 2005A, Series 2007, and Series 2008 bonds. KUB's Wastewater Division also issued Series 2014A and Series 2015B bonds to fund wastewater system capital improvements.

During fiscal year 2017, KUB's Wastewater Division issued Series 2016 bonds to fund wastewater system capital improvements. KUB's Wastewater Division also issued Series 2017A bonds to retire outstanding Series 2005B bonds.

During fiscal year 2018, KUB's Wastewater Division issued Series 2017B bonds to fund wastewater system capital improvements.

Other liabilities consist of the following:

	Balance June 30, 2017	Increase	Decrease	Balance June 30, 2018
Accrued compensated absences	\$ 1,507,005	\$ 3,147,407	\$ (3,306,067)	\$ 1,348,345
Customer advances for construction	-	4,600	-	4,600
Other	40,081	99,005	(72,363)	66,723
	<u>\$ 1,547,086</u>	<u>\$ 3,251,012</u>	<u>\$ (3,378,430)</u>	<u>\$ 1,419,668</u>

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	Balance June 30, 2016	Increase	Decrease	Balance June 30, 2017
Accrued compensated absences	\$ 1,584,302	\$ 2,802,419	\$ (2,879,716)	\$ 1,507,005
Other	<u>67,881</u>	<u>75,785</u>	<u>(103,585)</u>	<u>40,081</u>
	<u>\$ 1,652,183</u>	<u>\$ 2,878,204</u>	<u>\$ (2,983,301)</u>	<u>\$ 1,547,086</u>

7. Lease Commitments

KUB has non-cancelable operating lease commitments for office equipment, property, and vehicles, summarized for the following fiscal years:

2019	\$ 45,512
2020	<u>30,742</u>
Total operating minimum lease payments	<u>\$ 76,254</u>

8. Capital Assets

Capital asset activity was as follows:

	Balance June 30, 2017	Increase	Decrease	Balance June 30, 2018
Pumping & Treatment Plant	\$ 227,029,539	\$ 8,782,379	\$ (1,941,717)	\$ 233,870,201
Collection Plant				
Mains and Metering	516,446,174	19,007,807	(2,309,760)	533,144,221
Mains and Metering - Meters	-	154,826	-	154,826
Other Accounts	<u>80,354,716</u>	<u>-</u>	<u>(1,000)</u>	<u>80,353,716</u>
Total Collection Plant	<u>\$ 596,800,890</u>	<u>\$ 19,162,633</u>	<u>\$ (2,310,760)</u>	<u>\$ 613,652,763</u>
Total General Plant	<u>29,323,894</u>	<u>1,517,108</u>	<u>(1,355,739)</u>	<u>29,485,263</u>
Total Wastewater Plant	<u>\$ 853,154,323</u>	<u>\$ 29,462,120</u>	<u>\$ (5,608,216)</u>	<u>\$ 877,008,227</u>
Less accumulated depreciation	<u>(181,093,401)</u>	<u>(19,447,763)</u>	<u>5,551,525</u>	<u>(194,989,639)</u>
Net Plant Assets	<u>\$ 672,060,922</u>	<u>\$ 10,014,357</u>	<u>\$ (56,691)</u>	<u>\$ 682,018,588</u>
Work In Progress	<u>34,691,025</u>	<u>32,540,508</u>	<u>(29,270,631)</u>	<u>37,960,902</u>
Total Net Plant	<u>\$ 706,751,947</u>	<u>\$ 42,554,865</u>	<u>\$ (29,327,322)</u>	<u>\$ 719,979,490</u>

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Notes to Financial Statements
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	Balance June 30, 2016	Increase	Decrease	Balance June 30, 2017
Pumping & Treatment Plant	\$ 219,766,603	\$ 9,868,174	\$ (2,605,238)	\$ 227,029,539
Collection Plant				
Mains and Metering	483,684,427	39,595,263	(6,833,516)	516,446,174
Other Accounts	80,385,881	31,266	(62,431)	80,354,716
Total Collection Plant	\$ 564,070,308	\$ 39,626,529	\$ (6,895,947)	\$ 596,800,890
Total General Plant	28,589,760	2,244,371	(1,510,237)	29,323,894
Total Wastewater Plant	\$ 812,426,671	\$ 51,739,074	\$ (11,011,422)	\$ 853,154,323
Less accumulated depreciation	(173,316,844)	(18,784,879)	11,008,322	(181,093,401)
Net Plant Assets	\$ 639,109,827	\$ 32,954,195	\$ (3,100)	\$ 672,060,922
Work In Progress	47,946,144	38,244,076	(51,499,195)	34,691,025
Total Net Plant	\$ 687,055,971	\$ 71,198,271	\$ (51,502,295)	\$ 706,751,947

9. Risk Management

KUB is exposed to various risks of loss related to active and retiree medical claims; injuries to workers; theft of, damage to, and destruction of assets; environmental damages; and natural disasters. Claims expenditures and liabilities are reported when it is probable that a loss has occurred and the amount of that loss can be reasonably estimated. These losses include an estimate of claims that have been incurred but not reported.

These liabilities are included in accrued expenses in the Statement of Net Position. The liability is KUB's best estimate based on available information. At June 30, 2018 and June 30, 2017, the amount of these liabilities was \$400,992 and \$416,193, respectively, resulting from the following changes:

	2018	2017
Balance, beginning of year	\$ 416,193	\$ 385,656
Current year claims and changes in estimates	3,428,491	3,522,910
Claims payments	(3,443,692)	(3,492,373)
Balance, end of year	\$ 400,992	\$ 416,193

10. Pension Plan

Description of Plan

The Knoxville Utilities Board Pension Plan (the Plan) is a governmental plan as defined by the Employee Retirement Income Security Act of 1974 (ERISA or the Act), is not subject to any of the provisions of the Act, and was revised January 1, 2017 to include all prior approved amendments. The Plan is a single-employer contributory, defined benefit pension plan established by Knoxville Utilities Board Resolution No. 980 dated February 18, 1999, effective July 1, 1999, as authorized by the Charter of the City of Knoxville §1107(J). The Plan is designed to provide retirement, disability and death benefits to KUB employees. KUB administers the Plan through an Administrative Committee consisting of seven KUB employees that are appointed by KUB's President and CEO. Any amendments to the Plan involving costs not approved in the operating budget must be adopted by KUB's Board of Commissioners, upon recommendation by KUB's

Knoxville Utilities Board Wastewater Division

Notes to Financial Statements

June 30, 2018 and 2017

President and CEO. All other amendments to the Plan may be approved by KUB's President and CEO upon 60 days notification to the Board's Audit and Finance Committee. The Plan issues a financial report, which includes financial statements and required supplementary information. The report may be obtained by writing the Knoxville Utilities Board Retirement System, P.O. Box 59017, Knoxville, TN 37950-9017. For purposes of this disclosure, presentation is on a consolidated basis unless division's share is specified.

Effective January 1, 2011, KUB closed the Plan such that persons employed or re-employed by KUB on or after January 1, 2011, are not eligible to participate, but that eligible employees hired prior to January 1, 2011, who have not separated from service, shall continue as Participants and to accrue benefits under the Plan.

Participants in the Plan consisted of the following as of December 31:

	2017	2016
Inactive plan members:		
Terminated vested participants	34	43
Retirees and beneficiaries	602	605
Active plan members	<u>629</u>	<u>662</u>
Total	<u>1,265</u>	<u>1,310</u>

Retirement Benefits

The Plan provides three benefit arrangements for KUB participants, retirees, and beneficiaries.

The Plan provides pension benefits through the Career Equity Program ("CEP") for eligible employees hired on or after January 1, 1999, and for eligible former "City System Plan A" participants who elected CEP coverage as of July 1, 1999. The guaranteed pension benefit payable to a participant who has completed five or more years of service (or reached the normal retirement date, if earlier) upon termination of KUB employment shall be a lump sum equal to the participant's average compensation times their benefit percentage, as defined in the Plan document, or an annuity may be chosen by the participant.

In addition, the Plan provided retirement benefits through "Plan A" for former City System Plan A participants who elected not to participate in the CEP. Plan A is a closed plan and is not available to KUB employees hired after July 1, 1999. Plan A provides for early retirement benefits with 25 years of service and normal retirement benefits at age 62 or later. Benefits provided to Plan A participants include several different forms of monthly annuity payments.

The Plan also provides retirement benefits through "Plan B" for former "City System Plan B" participants. Plan B is a closed plan providing benefits to participants not covered by Social Security. Benefits provided to Plan B participants include several different forms of monthly annuity payments available to participants.

Effective January 1, 2012, KUB began to provide for additional monthly supplements, which are not subject to cost of living adjustments, to certain former employees and surviving dependents of former employees who are eligible for and have elected coverage under the KUB retiree medical plan and are eligible for Medicare. This was done to compensate for the elimination of drug coverage under the KUB retiree medical plan and to assist such individuals in obtaining prescription drug coverage under Medicare Part D.

Contributions

Participation in Plan A requires employee contributions of 3 percent of the first \$4,800 of annual earnings and 5 percent of annual earnings in excess of \$4,800. KUB contributions are determined

Knoxville Utilities Board Wastewater Division

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by the enrolled actuary of the Plan and equal the amount necessary to provide the benefits under the Plan determined by the application of accepted actuarial methods and assumptions. The method of funding shall be consistent with Plan objectives.

Plan Funding

KUB maintains a Funding Policy for the Plan in accordance with Tennessee State Law. The primary goal of the Policy is to document the method KUB has adopted to provide assurance that future KUB and employee contributions and current Plan assets will be sufficient to fund all benefits expected to be paid to current active, inactive and retired Plan participants and their beneficiaries. Per the Funding Policy, KUB fully funds its annual Actuarially Determined Contribution.

Investments

The Plan's investments are held by State Street Bank and Trust Company (the "Trustee"). The Plan's policy in regard to the allocation of invested assets is established by the Retirement System Investment Committee and approved by the KUB Board of Commissioners and may only be amended by the KUB Board of Commissioners. It is the policy of the Retirement System Investment Committee to pursue an investment strategy that reduces risk through the prudent diversification of the portfolio across a broad selection of distinct asset classes. The following was the Plan's adopted asset allocation policy as of December 31, 2017:

Asset Class	Target Allocation
Domestic equity – large cap	20% - 50%
Domestic equity – mid cap	0% - 15%
Domestic equity – small cap	0% - 15%
Domestic equity – convertible securities	0% - 10%
Non-U.S. equity	0% - 20%
Real estate equity	0% - 10%
Fixed income – aggregate bonds	5% - 25%
Fixed income – long-term bonds	10% - 25%
Cash and deposits	0% - 5%

Contributions of \$3,756,283 and \$4,816,913 for 2016 and 2015, respectively, were made during the Plan sponsor's fiscal years ending June 30, 2018 and 2017, respectively. Of these amounts, \$826,382 and \$1,059,721 are attributable to the Wastewater Division. The fiscal year 2018 contribution was determined as part of the January 1, 2016 valuation using the Individual Entry Age Normal funding method. The objective under this method is to fund each participant's benefits under the Plan as payments which are level as a percentage of salary, starting on the original participation date (employment date) and continuing until the assumed retirement, termination, disability or death.

Net Pension Liability

The below summarizes the disclosures of GASB Statement No. 68, *Accounting and Financial Reporting for Pensions – an amendment of GASB Statement No. 27* ("GASB 68"), which requires measurement of the net pension liability as total pension liability less the amount of the Plan's fiduciary net position. The amounts reported as of June 30 must be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 and 2017 will be based on the December 31, 2017 and 2016 measurement date,

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respectively. The Division's share of the net pension asset at June 30, 2018 is \$4,351,242 and at June 30, 2017 is \$27,267.

GASB 68 requires certain disclosures related to the net pension liability of the Plan as disclosed below:

	2017		2016
Total pension liability	\$ 207,598,733	\$	204,390,738
Plan fiduciary net position	(227,377,105)		(204,514,679)
Plan's net pension (asset) liability	\$ (19,778,372)	\$	(123,941)

Plan fiduciary net position as a percentage of the total pension liability	109.50%	100.06%

Changes in Net Pension Liability are as follows:

	Total Pension Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net Pension Liability (Asset) (a) - (b)
Balances at December 31, 2016	\$ 204,390,738	\$ 204,514,679	\$ (123,941)
Changes for the year:			
Service cost	4,607,486	-	4,607,486
Interest	15,015,282	-	15,015,282
Differences between Expected and Actual Experience	(1,087,161)	-	(1,087,161)
Changes of Assumptions	(357,633)	-	(357,633)
Contributions - employer	-	4,286,597	(4,286,597)
Contributions - rollovers	-	1,482,701	(1,482,701)
Contributions - member	-	5,931	(5,931)
Net investment income	-	32,442,458	(32,442,458)
Benefit payments	(14,969,979)	(14,969,979)	-
Administrative expense	-	(385,282)	385,282
Net changes	3,207,995	22,862,426	(19,654,431)
Balances at December 31, 2017	\$ 207,598,733	\$ 227,377,105	\$ (19,778,372)

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Actuarial Assumptions

The total pension liability was determined by an actuarial valuation as of December 31, 2017 and 2016, using the following actuarial assumptions, applied to all periods included in the measurement:

Actuarial cost method	Individual entry age
Asset valuation method	5-year smoothed market
Amortization method	Level dollar closed period with 25 years remaining as of January 1, 2016 and 26 years remaining as of January 1, 2015
Discount rate	7.5%
Salary increase	From 2.80% to 5.15% for January 1, 2016 and January 1, 2015, based on years of service
Mortality	Sex distinct RP-2000 Combined Mortality projected to 2024 using Scale AA
Inflation	2.8 %

The actuarial assumptions used in the December 31, 2017 and 2016 valuation were based on the results of an actuarial experience study for the period January 1, 2009 through December 31, 2013.

The long-term expected rate of return on Plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of Plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the Plan's target asset allocation as of December 31, 2017 and 2016 are summarized in the following table. The real rate of return reported for fixed income is for aggregate fixed income. The Plan has both aggregate and long duration fixed income.

Asset Class	Long Term Expected Real Rate of Return	
	2017	2016
Domestic equity	5.0%	5.6%
Non-U.S. equity	6.6%	7.2%
Real estate equity	5.6%	6.3%
Debt securities	1.4%	1.6%
Cash and deposits	0.7%	0.6%

Discount rate

The discount rate used to measure the total pension liability was 7.5 percent as of January 1, 2017 and 2016. The projection of cash flows used to determine the discount rate assumed that participant contributions will be made at the current contribution rate and that KUB contributions will be made at rates equal to the actuarially determined contribution rates. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

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Sensitivity of the net pension liability to changes in the discount rate

The following presents the net pension liability of the Plan as of December 31, 2017, calculated using the discount rate of 7.5 percent, as well as what the Plan's net pension liability would be if it were calculated using a discount rate that is one percent lower (6.5 percent) or one percent higher (8.5 percent) than the current rate:

	1% Decrease (6.5%)	Current Discount Rate (7.5%)	1% Increase (8.5%)
Plan's net pension liability	\$ (2,624,670)	\$ (19,778,372)	\$ (34,742,817)

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

For the year ended June 30, 2018, KUB recognized pension expense of (\$15,659) (Division's share (\$3,445)).

The impact of experience gains or losses and assumptions changes on the Total Pension Liability are recognized in the pension expense over the average expected remaining service life of all active and inactive members, determined as of the beginning of the measurement period. As of December 31, 2016, this average was 5.00 years. During the measurement year, there was an experience gain of \$1,087,161 with \$217,432 of that recognized in the current year and in each of the next four years, resulting in a deferred inflow of \$869,729 (Division's share \$191,340). Unrecognized experience gains from prior periods were \$2,921,210 of which \$824,819 was recognized as a reduction in pension expense in the current year and resulted in a deferred inflow of \$2,096,391 (Division's share \$461,206).

During the measurement year, there were no benefit changes. There was a gain due to assumption changes of \$357,633 with \$71,526 of that recognized in the current year and in each of the next four years, resulting in a deferred inflow of \$286,107 (Division's share \$62,944). Unrecognized assumption change gains from prior periods were \$2,346,307 of which \$586,577 was recognized as a reduction in pension expense in the current year and resulted in a deferred inflow of \$1,759,730 (Division's share \$387,141).

The impact of investment gains or losses is recognized over a period of five years. During the measurement year, there was an investment gain of \$17,456,614. \$3,491,323 of that gain was recognized in the current year and an identical amount will be recognized in each of the next four years. Net unrecognized investment losses from prior periods were \$6,682,351 of which \$1,642,445 was recognized as an increase in pension expense in the current year. The combination of unrecognized investment gains this year along with the net unrecognized investment losses from prior periods results in a net difference between projected and actual earnings on pension plan investments as of December 31, 2017 of (\$8,925,384) (Division's share (\$1,963,584)). The following table summarizes the current balances of deferred outflows and deferred inflows of resources along with the net recognition over future years. In addition, KUB recorded a deferred outflow of resources of \$1,878,146 (Division's share \$413,192) at June 30, 2018 for employer contributions made between December 31, 2017 and June 30, 2018.

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	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ -	\$ 2,966,120
Changes in assumptions	-	2,045,837
Net difference between projected and actual earnings on pension plan investments	-	8,925,385
Contributions subsequent to measurement date	1,878,146	-
Total	<u>\$ 1,878,146</u>	<u>\$ 13,937,342</u>
Division's share	<u>\$ 413,192</u>	<u>\$ 3,066,215</u>

\$1,878,146 reported as deferred outflows of resources resulting from contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability in the year ended June 30, 2019. Other amounts reported as deferred outflows and deferred inflows of resources will be recognized in pension expense as follows:

Year ended June 30:	
2019	\$ (3,549,235)
2020	(1,954,655)
2021	(4,653,172)
2022	(3,780,280)
Thereafter	-

For the year ended June 30, 2017, KUB recognized pension expense of \$4,674,543 (Division's share \$1,028,399).

The impact of experience gains or losses and assumptions changes on the Total Pension Liability are recognized in the pension expense over the average expected remaining service life of all active and inactive members, determined as of the beginning of the measurement period. As of December 31, 2015, this average was 5.00 years. During the measurement year, there was an experience gain of \$2,233,762 with \$446,752 of that recognized in the current year and in each of the next four years, resulting in a deferred inflow of \$1,787,010 (Division's share \$393,142). Unrecognized experience gains from prior periods were \$1,512,267 of which \$378,067 was recognized as a reduction in pension expense in the current year and resulted in a deferred inflow of \$1,134,200 (Division's share \$249,524).

During the measurement year, there were no benefit changes. There was a gain due to assumption changes of \$2,932,884 with \$586,577 of that recognized in the current year and in each of the next four years, resulting in a deferred inflow of \$2,346,307 (Division's share \$516,188).

The impact of investment gains or losses is recognized over a period of five years. During the measurement year, there was an investment loss of \$802,197. \$160,439 of that loss was recognized in the current year and an identical amount will be recognized in each of the next four years. Net unrecognized investment losses from prior periods were \$7,522,599 of which \$1,482,006 was recognized as an increase in pension expense in the current year. The combination of unrecognized investment losses this year along with the net unrecognized investment losses from prior periods results in a deferred outflow of resources as of December 31, 2016 of \$6,682,351 (Division's share \$1,470,117). The following table summarizes the current balances of deferred outflows and deferred inflows of resources along with the net

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recognition over future years. In addition, KUB recorded a deferred outflow of resources of \$2,408,459 (Division's share \$529,861) at June 30, 2017 for employer contributions made between December 31, 2016 and June 30, 2017.

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ -	\$ 2,921,210
Changes in assumptions	-	2,346,307
Net difference between projected and actual earnings on pension plan investments	6,682,351	-
Contributions subsequent to measurement date	2,408,459	-
Total	<u>\$ 9,090,810</u>	<u>\$ 5,267,517</u>
Division's share	<u>\$ 1,999,978</u>	<u>\$ 1,158,854</u>

11. Qualified Excess Benefit Arrangement

Description

In fiscal year 2017, KUB implemented a qualified governmental excess benefit arrangement (QEBA) under IRC section 415(m), which was created by Congress to allow the payment of pension benefits that exceed the IRC section 415(b) limits (and therefore cannot be paid from a qualified retirement plan). The QEBA is a single-employer defined benefit pension plan, administered by KUB. The number of participants in any given year for the QEBA is determined by the number of KUB Pension Plan participants who exceed the current year's section 415(b) limitations, as calculated by the KUB Pension Plan actuary. The amount of QEBA benefit will be the amount specified by the terms of the KUB Pension Plan without regard to Section 415(b) limitations minus the amount payable from the KUB Pension Plan as limited by Section 415(b). QEBA benefits are not subject to cost of living adjustments.

As of June 30, 2018, there are 602 active employees eligible for the KUB Pension Plan who are potentially eligible to receive QEBA benefits. There are no inactive employees or retirees currently in the QEBA. The KUB Pension Plan was closed effective January 1, 2011, such that persons employed or re-employed by KUB on or after January 1, 2011, are not eligible to participate, but that eligible employees hired prior to January 1, 2011, who have not separated from service, shall continue as Participants and accrue benefits under the KUB Pension Plan. The KUB Pension Plan was amended to include the provision of QEBA benefits, therefore, amendments to the QEBA require the same authority as amendments to the KUB Pension Plan. As required by federal tax law, the QEBA is unfunded within the meaning of the federal tax laws. KUB may not pre-fund the QEBA to cover future liabilities beyond the current year. KUB has established procedures to pay for these benefits on a pay-as-you-go basis, funded by KUB. There are no assets accumulated in a trust that meets the GASB's criteria.

Implementation of GASB 73

In fiscal year 2016, KUB adopted GASB Statement No. 73, *Accounting and Financial Reporting for Pensions and Related Assets That Are Not within the Scope of GASB Statement 68, and Amendments to Certain Provisions of GASB Statements 67 and 68* ("GASB 73"). GASB 73 extends a similar approach of financial reporting to plans meeting specific criteria that are not administered through trusts that GASB 68 established for pension plans. GASB 73 requires measurement of the total pension liability of the QEBA. The amounts reported as of June 30 must

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be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 and 2017 will be based on the December 31, 2017 and 2016 measurement dates, respectively. The Division's share of the total pension liability at June 30, 2018 is \$61,675 and at June 30, 2017 is \$40,717.

GASB 73 requires certain disclosures related to the total pension liability of the QEBA, as disclosed below:

	2017	2016
Total pension liability	\$280,341	\$185,077
Deferred outflows	(69,716)	-
Deferred inflows	-	-
Net impact on Statement of Net Position	<u>\$210,625</u>	<u>\$185,077</u>
Covered payroll	\$43,309,374	\$44,437,747
Total pension liability as a % of covered payroll	0.65%	0.42%

Changes in total pension liability of the QEBA are as follows:

	<u>Increase (Decrease)</u>
	<u>Total Pension Liability</u>
Balances at December 31, 2016	\$ 185,077
Changes for the year:	
Service cost	584
Interest	7,535
Changes of Benefits	-
Differences between Expected and Actual Experience	13,684
Changes of Assumptions	73,461
Contributions – employer	-
Contributions – rollovers	-
Contributions – member	-
Net investment income	-
Benefit payments	-
Net changes	<u>95,264</u>
Balances at December 31, 2017	<u>\$ 280,341</u>

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Actuarial Assumptions

The total pension liability of the QEBA was determined by an actuarial valuation as of January 1, 2017 and projected to December 31, 2017, using the following actuarial assumptions, applied to all periods included in the measurement:

Actuarial cost method	Individual entry age
Asset valuation method	5-year smoothed market
Amortization method	Level dollar closed period with 24 years remaining as of January 1, 2017 and 25 years remaining as of January 1, 2016
Salary increase	From 2.80% to 5.15% for January 1, 2017 and January 1, 2016, based on years of service
Mortality	Sex distinct RP-2000 Combined Mortality projected to 2024 using Scale AA
Inflation	2.8 percent

The actuarial assumptions used in the January 1, 2017 valuation were based on the results of an actuarial experience study for the period January 1, 2009 through December 31, 2013.

Discount rate

The QEBA is not funded. In accordance with paragraph 31 of GASB 73, the discount rate is based on the Bond Buyer 20-Bond GO index. This rate was 3.44% at December 31, 2017.

Sensitivity of the total pension liability to changes in the discount rate

The following presents the total pension liability of the QEBA as of December 31, 2017, calculated using the discount rate of 3.44 percent, as well as what the QEBA's total pension liability would be if it were calculated using a discount rate that is one percent lower (2.44 percent) or one percent higher (4.44 percent) than the current rate:

	1% Decrease (2.44%)	Current Discount Rate (3.44%)	1% Increase (4.44%)
QEBA's total pension liability	\$ 307,013	\$ 280,341	\$ 257,483

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

For the year ended June 30, 2018, KUB recognized pension expense of \$29,527 for the QEBA (Division's share \$6,496). This amount is not expected to be the same as KUB's contribution to the QEBA (\$3,979), but instead represents the change in the net impact on KUB's Statement of Net Position plus employer contributions [\$210,625 - \$185,077 + \$3,979].

The impact of experience gains or losses and assumption changes on the total pension liability are recognized in the pension expense over the average expected remaining service life of all active and inactive members, determined as of the beginning of the measurement period. As of December 31, 2016, this average was 5 years. During the measurement year, there was an experience loss of \$13,684 with approximately \$2,737 recognized in the current year and each of the next four years, resulting in a deferred outflow of \$10,947 (Division's share \$2,409).

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During the measurement year, there were no benefit changes. There was an increase in the total pension liability due to assumption changes of \$73,461 with approximately \$14,692 recognized in the current year and each of the next four years, resulting in a deferred outflow of \$58,769 (Division's share \$12,929).

The table below summarizes the current balances of deferred outflows and deferred inflows of resources along with the net recognition over future years:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 10,947	\$ -
Changes in assumptions	58,769	-
Total	<u>\$ 69,716</u>	<u>\$ -</u>
Division's share	<u>\$ 15,338</u>	<u>\$ -</u>

Year ended June 30:

2019	\$ 17,429
2020	17,429
2021	17,429
2022	17,429
Thereafter	-

For the year ended June 30, 2017, KUB recognized pension expense of \$185,077 for the QEBA (Division's share \$40,717). This amount is not expected to be the same as KUB's contribution to the QEBA (\$0), but instead represents the change in the net impact on KUB's Statement of Net Position plus employer contributions.

The impact of experience gains or losses and assumption changes on the total pension liability are recognized in the pension expense over the average expected remaining service life of all active and inactive members, determined as of the beginning of the measurement period. As of December 31, 2015, this average was 5 years. During the measurement year, there were no assumption changes or experience gains or losses. The benefit change of \$0.2 million is due to the implementation of the QEBA. Benefit changes are reflected immediately in the total pension liability of the QEBA.

12. Defined Contribution Plan

The KUB Asset Accumulation 401(k) Plan (the "401(k) Plan") is a defined contribution 401(k) employee retirement savings plan covering eligible KUB employees established by the KUB Board of Commissioners in accordance with the Charter of the City of Knoxville, Tennessee. The 401(k) Plan's assets are held in trust under an agreement between KUB and Fidelity Management Trust Company. Employees hired prior to January 1, 2011 may participate and receive a matching contribution of 50 percent of their own contribution up to a maximum match of 3 percent. Employees hired on or after January 1, 2011 have an enhanced 401(k) due to the closure of the Defined Benefit Pension Plan. They may participate and receive a matching contribution of 50 percent of their own contribution up to a maximum match of 3 percent. They

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also receive a nonelective KUB contribution of from 3 percent to 6 percent, depending on years of service, whether they contribute or not.

Matching contributions were previously remitted to the KUB Pension Plan (a separate defined benefit plan) in the name of the participant for employees hired prior to January 1, 2011. As of December 9, 2015, these Pension match assets moved from the KUB Pension Plan to the 401(k) Plan. Effective December 9, 2015, all matching contributions are remitted to the 401(k) Plan. The match and nonelective contributions for employees hired on or after January 1, 2011 are paid directly by KUB. KUB funded 401(k) matching contributions and nonelective contributions of \$2,174,711 (Division's share \$478,436) and \$1,963,541 (Division's share \$431,979), respectively, for the years ended June 30, 2018 and 2017.

13. Other Post-Employment Benefits (OPEB)

Description of Trust

The Knoxville Utilities Board Other Post Employment Benefits Trust (the Trust) is a single-employer Other Post Employment Benefits Plan (OPEB Plan) established by the Knoxville Utilities Board of Commissioners through Resolution No. 1168, as amended, dated October 18, 2007. The applicable documentation was submitted to the State Funding Board and, in December 2007, the State Funding Board approved the Trust. The Trust was also approved by the Internal Revenue Service in June 2008. KUB administers the Trust through a Board of Trustees consisting of seven KUB employees that are appointed by KUB's President and CEO. Any amendments to the Trust involving costs not approved in the operating budget must be approved by KUB's Board of Commissioners, upon recommendation by KUB's President and CEO. All other amendments to the Trust may be approved by KUB's President and CEO upon 60 days notification to the Board's Audit and Finance Committee. The investment of all deposits to the Trust is governed by an Investment Policy, which was adopted by the KUB Board and approved by the State Funding Board. The Trust issues a financial report, which includes financial statements and required supplementary information. The report may be obtained by writing the Knoxville Utilities Board Retirement System, P.O. Box 59017, Knoxville, TN 37950-9017. For purposes of this disclosure, presentation is on a consolidated basis unless division's share is specified.

Effective July 1, 1999, KUB closed the OPEB Plan such that persons employed or re-employed by KUB on or after July 1, 1999, are not eligible to participate, but that eligible employees hired prior to July 1, 1999, who are retired and who (prior to retirement) qualified for retiree medical insurance by meeting the "Rule of 80", the sum of age and at least 20 years of qualified service equal or exceed 80, accrue benefits under the OPEB Plan.

Participants in the OPEB Plan consisted of the following as of June 30:

	2018	2017
Retirees	562	567
Dependents of retirees	561	580
Eligible active employees	309	334
Total	1,432	1,481

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Benefits

Other post-employment benefits may include, but shall not be limited to, medical, prescription drugs, dental, vision, hearing, Medicare Part B or Part D premiums, life insurance, long-term care, and long-term disability. Only medical and pharmacy are currently provided to eligible retirees.

Contributions and Plan Funding

The primary goal of the Funding Policy for the Trust is to document the method KUB has adopted to provide assurance that future KUB and retiree contributions and current Trust assets will be sufficient to fund all benefits expected to be paid to Trust beneficiaries. Per the Funding Policy, KUB's current practice is to fully fund its annual Actuarially Determined Contribution, which is determined by actuarial valuation.

Contributions are authorized by the terms of the Trust as established by KUB Resolution No. 1168, as amended, as approved by the Tennessee State Funding Board. KUB shall have the right at any time to amend, in whole or in part, the provisions of this Trust; however, no such amendment shall authorize or permit the assets of the Trust to be used for or diverted to purposes other than those expressed in the Declaration of Trust.

It shall be the sole and exclusive responsibility of KUB to determine the level of contributions KUB will make to the Trust for the purpose of financing other post-employment benefits accrued by its respective participants. Neither the Trust, nor the Trust's Board shall be responsible for collecting or otherwise determining the level of contributions needed by KUB to finance any other post-employment benefits offered by KUB. The assets of the Trust shall be expended solely to make payments for other post-employment benefits pursuant to and in accordance with the terms of the Trust and to pay the cost of administration.

Based on the date of retirement, certain retired plan members are required to contribute specified amounts monthly to maintain health insurance. Those who retired prior to July 1983 have no required monthly premiums for themselves or dependents. The retirees, or their surviving dependents, who retired between August 1983 and January 1998 are required to pay \$250 per month for pre-Medicare family health insurance. For individuals who retired after January 1998 the required monthly premium for pre-Medicare health insurance is \$250 for single coverage and \$500 for family coverage. There is currently no premium for Medicare eligible retirees or dependents. KUB is responsible for determining the level of retired plan member contributions on an annual basis, as part of its review of healthcare cost sharing.

Investments

The Trust holds investments in a balanced fund, which invests in passively managed common trust index funds, managed and sponsored by State Street Global Advisors (SSgA), with an asset allocation mirroring the asset allocation of the Trust and rebalanced monthly. The Trust's Investment Policy was established and may only be amended by the KUB Board of Commissioners. The Trust's Investment Policy is to invest in a manner that will provide sufficient investment return to meet current and future retiree health benefits, while conforming to all governing State and Federal statutes. It allows investment of Trust assets in any type of security instrument allowed for in T.C.A 8-50-1203. The following was the Trust's adopted investment target allocations as set forth in the Trust's Investment Policy as of June 30, 2018:

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Asset Class	Target Allocation
Domestic Equity:	
Large Cap	30%
Small Cap	8%
International Equity:	
Developed	16%
Emerging	8%
Real Estate Equity	8%
Debt Securities	30%
Total	100%

Contributions of zero and \$620,015 were made to the OPEB Trust for the fiscal years ending June 30, 2018 and 2017, respectively, based on the OPEB Plan's actuarial valuations as of January 1, 2016, and 2015. Of these amounts, zero and \$136,403 were attributable to the Wastewater Division.

Implementation of GASB 75

In fiscal year 2018, KUB adopted GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions* ("GASB 75"), which requires measurement of the net OPEB liability as total OPEB liability, less the amount of the Trust's fiduciary net position. The amounts reported as of June 30, 2018 are based on the reporting date for the KUB Other Post-Employment Benefits Plan which is June 30, 2018. Measurements as of the reporting date are based on the fair value of assets as of June 30, 2018 and the Total OPEB Liability as of the valuation date, January 1, 2017, updated to June 30, 2018. The Division's share of the total net OPEB asset at June 30, 2018 is \$825,235 and at June 30, 2017 is \$994,993.

The components of the net OPEB liability of the Trust are as follows as of June 30:

	2018	2017
Total OPEB liability	\$ 45,604,431	\$ 44,477,738
Plan fiduciary net position	(49,355,499)	(49,000,433)
Net OPEB (asset) liability	<u>\$ (3,751,068)</u>	<u>\$ (4,522,695)</u>
Plan fiduciary net position as a percentage of the total OPEB liability	108.23%	110.17%

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Changes in Net OPEB Liability are as follows:

	Total OPEB Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net OPEB Liability (Asset) (a) - (b)
Balances at June 30, 2017	\$ 44,477,738	\$ 49,000,433	\$ (4,522,695)
Changes for the year:			
Service cost	202,603	-	202,603
Interest	3,295,240	-	3,295,240
Differences between Expected and Actual Experience	1,324,769	-	1,324,769
Changes of Assumptions	(397,180)	-	(397,180)
Contributions - employer	-	-	-
Contributions - member	-	-	-
Net investment income	-	3,705,473	(3,705,473)
Benefit payments	(3,298,739)	(3,298,739)	-
Administrative expense	-	(51,668)	51,668
Net changes	1,126,693	355,066	771,627
Balances at June 30, 2018	\$ 45,604,431	\$ 49,355,499	\$ (3,751,068)

Actuarial assumptions

The total OPEB liability was determined by an actuarial valuation as of January 1, 2017, updated to June 30, 2018, using the following actuarial assumptions, applied to all periods included in the measurement:

Discount rate:	7.5%
Healthcare cost trend rates:	Pre-Medicare: 7.83% grading down to 4.5% over 20 years; Medicare: 6.88% grading down to 4.5% over 20 years; Administrative expenses: 3.0% per year
Salary increases:	From 2.80% to 5.15%, based on years of service
Mortality:	Sex distinct RP-2000 Combined Mortality projected to 2024 using Scale AA
Inflation	2.8%

The actuarial assumptions used in the January 1, 2017 valuation were based on the results of an actuarial experience study for the period January 1, 2009 through December 31, 2013, with subsequent revisions to retirement and termination assumptions based upon a special experience study, which reflected experience through December 31, 2016.

The long-term expected rate of return on Trust investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of Trust investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The long-term expected rate of return may be lower in periods of current strong performance due to future valuations that mean revert to the long-term average. Best estimates of arithmetic real rates of return for each major asset class included in the Trust's target

Knoxville Utilities Board Wastewater Division

Notes to Financial Statements

June 30, 2018 and 2017

asset allocation (see the discussion of the Trust's Investment Policy) are summarized in the chart below.

Asset Class	Long Term Expected Real Rate of Return	
	2018	2017
Domestic equity	5.1%	5.5%
International equity	6.6%	6.8%
Real estate equity	5.8%	6.0%
Debt securities	1.6%	1.4%
Cash and deposits	0.8%	0.6%

Discount rate

The discount rate used to measure the total OPEB liability was 7.5 percent. The projection of cash flows used to determine the discount rate assumed that participant contributions will be made at the current contribution rate and that KUB contributions will be made at rates equal to the actuarially determined contribution rates. Based on those assumptions, the Trust's fiduciary net position was projected to be available to make all projected future benefit payments. Therefore, the long-term expected rate of return on Trust investments was applied to all periods of projected benefit payments to determine the total OPEB liability.

Sensitivity of the net OPEB liability to changes in the discount rate.

The following presents the net OPEB liability of the Trust as of June 30, 2018, calculated using the discount rate of 7.5 percent, as well as what the Trust's net OPEB liability would be if it were calculated using a discount rate that is 1 percent lower (6.5 percent) or 1 percent higher (8.5 percent) than the current rate:

	1% Decrease (6.5%)	Current Discount Rate (7.5%)	1% Increase (8.5%)
Net OPEB liability (asset)	\$1,172,935	\$(3,751,068)	\$(7,892,399)

Sensitivity of the net OPEB liability to changes in the healthcare cost trend rates.

The following presents the net OPEB liability of the Trust as of June 30, 2018, as well as what the Trust's net OPEB liability would be if it were calculated using a healthcare cost trend rate that is 1 percent lower or 1 percent higher than the current rate:

	1% Decrease	Baseline Trend	1% Increase
Net OPEB liability (asset)	\$(8,393,131)	\$(3,751,068)	\$1,703,576

Knoxville Utilities Board Wastewater Division

Notes to Financial Statements

June 30, 2018 and 2017

OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB

For the year ended June 30, 2018, KUB recognized OPEB expense of \$430,880 (Division's share \$94,794).

The impact of liability experience gains or losses and assumption changes on the Total OPEB Liability are recognized in the OPEB expense over the average expected remaining service life of all active and inactive members of the OPEB Plan. As of the beginning of the measurement period, this average was 2.0 years. During the measurement year, there was an experience loss of \$1,324,769 with \$662,385 of that recognized in the current year and the remaining amount will be recognized in the next year, resulting in a deferred outflow of resources of \$662,384 (Division's share \$145,724).

During the measurement year, there were no benefit changes. There was a decrease in the Total OPEB Liability due to assumption changes of \$397,180 with \$198,590 of that recognized in the current year and in the next year, resulting in a deferred inflow of \$198,590 (Division's share \$43,690).

The impact of investment gains or losses is recognized over a period of five years. During the measurement year, there was an investment gain of \$153,809. \$30,762 of that was recognized in the current year and \$123,047 (Division's share \$27,070) will become a deferred inflow of resources recognized over the next four years. The table below summarizes the current balances of deferred outflows and deferred inflows of resources along with the net recognition over future years.

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 662,384	\$ -
Changes in assumptions	-	198,590
Net difference between projected and actual earnings on OPEB plan investments	-	123,047
Total	<u>\$ 662,384</u>	<u>\$ 321,637</u>
Division's share	<u>\$ 145,724</u>	<u>\$ 70,760</u>

Amounts reported as deferred outflows and deferred inflows of resources will be recognized in OPEB expense as follows:

Year ended June 30:

2019	\$ 433,032
2020	(30,762)
2021	(30,762)
2022	(30,761)
Thereafter	-

Knoxville Utilities Board Wastewater Division

Notes to Financial Statements

June 30, 2018 and 2017

14. Related Party Transactions

The Division, in the normal course of operations, is involved in transactions with the City of Knoxville and with other divisions of KUB. Such transactions for the years ended June 30, 2018 and 2017 are summarized as follows:

	2018	2017
City of Knoxville		
Amounts billed by the Division for utilities and related services	\$ 1,067,941	\$ 965,919
Payments by the Division in lieu of property tax	4,218,257	4,017,388
Payments by the Division for services provided	682,763	1,700,079
Other divisions of KUB		
Amounts billed to other divisions for utilities and related services provided	346,746	312,380
Interdivisional rental expense	313,388	313,517
Interdivisional rental income	122,211	122,211
Amounts billed to the Division by other divisions for utilities services provided	3,251,471	3,148,117

With respect to these transactions, accounts receivable from the City of Knoxville included in the balance sheet at year end were:

	2018	2017
Accounts receivable	\$ 75,833	\$ 49,812

15. Other Commitments and Contingencies

In the normal course of business, there are various lawsuits pending against KUB. Management has reviewed these lawsuits with counsel, who is vigorously defending KUB's position and is of the opinion that the ultimate disposition of these matters will not have a material adverse effect on KUB's financial position, results of operations or cash flows.

In February 2005, a Consent Decree was entered into federal court regarding the operation of KUB's wastewater system. Under the terms of the Consent Decree, the remediation of identified sanitary sewer overflows (SSOs) on KUB's wastewater system had to be completed by June 30, 2016. KUB completed all the requirements of the Consent Decree for the collection system two years in advance of the deadline.

The Consent Decree also required KUB to perform an evaluation of the wet weather performance and capacity of its wastewater treatment plants. In July 2007, KUB submitted a Composite Correction Plan (CCP) for its wastewater treatment plants to EPA for review. The development and filing of the CCP was a requirement of the federal order of February 2005. The CCP includes recommended improvements to KUB's Kuwahee and Fourth Creek treatment plants to address wet weather capacity issues noted in prior assessments. The EPA approved the CCP in January 2009 including a recommended schedule of plant improvements that extends beyond the expiration date of the original Consent Decree. An amendment to the Consent Decree incorporating and establishing this schedule was agreed to by all parties and was entered on June 23, 2009. The purpose of the Amendment is to allow KUB to complete a portion of work outlined in the CCP after the Consent Decree deadline of June 30, 2016. The CCP provides for a

Knoxville Utilities Board Wastewater Division

Notes to Financial Statements

June 30, 2018 and 2017

biologically enhanced high-rate clarification (the BEHRC) secondary treatment system to be installed at the Fourth Creek treatment plant by June 30, 2018 and at the Kuwahee treatment plant by June 30, 2021. KUB successfully completed the installation of the BEHRC system at the Fourth Creek treatment plant ahead of schedule in April 2018. Work is currently ongoing at the Kuwahee treatment plant and remains on schedule for completion before the deadline of June 30, 2021. The total cost of such improvements is estimated to be approximately \$58 million.

KUB's funding plan for the Consent Decree includes long-term bonds and a series of rate increases phased in over the term of the order. Bond proceeds fund all types of wastewater capital projects, the majority of which are related to the Consent Decree. As of June 30, 2018, the Wastewater Division had issued \$530 million in bonds to fund system capital improvements since the inception of the Consent Decree. The Board approved two 50 percent rate increases, which went into effect in April 2005 and January 2007. The Board also approved an 8 percent rate increase, which was effective in September 2008, two 12 percent rate increases, which were effective in April 2011 and October 2012, three 6 percent rate increases effective October 2014, October 2015 and October 2016 and three 5 percent rate increases effective July 2017, July 2018, and July 2019. KUB anticipates additional bond issues and rate increases over the next decade to help fund wastewater capital improvements.

KUB successfully completed the first cycle of Maintenance Operation Management (MOM) requirements one year before the deadline by inspecting manholes and gravity mains, smoke testing gravity mains, performing required inspections of pump stations and the related force mains, and completing all Corrective Action Plan/Engineering Report (CAP/ER) projects. KUB initiated the second MOM cycle that continues to focus on the prevention of SSOs. As part of the Century II initiative, formally known as the PACE10 program, KUB has installed storage tanks providing 34 million gallons of wastewater storage to control wet weather overflows and rehabilitated or replaced approximately 368.8 miles of collection system pipe. KUB also continues to maintain a proactive operations and maintenance plan for the wastewater collection system including inspection, grease control, and private lateral enforcement. The result of the Pace10/Century II initiative has been an 83 percent reduction in SSOs.

As of June 30, 2018, the Wastewater Division had completed its 14th full year under the Consent Decree, spending \$536.9 million on capital investments to meet Consent Decree requirements.

Knoxville Utilities Board Wastewater Division
Required Supplementary Information – Schedule of Changes in Net Pension
Liability and Related Ratios
June 30, 2018
(Unaudited)

	*Year ended December 31			
	2017	2016	2015	2014
Total pension liability				
Service cost	\$ 4,607,486	\$ 4,226,985	\$ 4,157,062	\$ 4,092,808
Interest	15,015,282	14,966,559	14,812,784	14,698,657
Differences between expected and actual experience	(1,087,161)	(2,233,762)	(1,890,334)	-
Changes of assumptions	(357,633)	(2,932,883)	-	-
Benefit payments, including refunds of member contributions	(14,969,979)	(14,138,511)	(15,350,926)	(15,533,167)
Net change in total pension liability	3,207,995	(111,612)	1,728,586	3,258,298
Total pension liability - beginning	204,390,738	204,502,350	202,773,764	199,515,466
Total pension liability - ending (a)	\$ 207,598,733	\$ 204,390,738	\$ 204,502,350	\$ 202,773,764
Plan fiduciary net position				
Contributions - employer	\$ 4,286,597	\$ 5,243,146	\$ 5,991,887	\$ 5,908,541
Contributions - participants	1,488,632	555,075	487,546	475,854
Net investment income	32,360,219	13,788,263	(95,430)	22,292,369
Other additions	82,239	45,848	30,879	29,733
Benefit payments, including refunds of member contributions	(14,895,979)	(14,044,511)	(15,274,926)	(15,405,167)
Administrative expense	(385,282)	(441,332)	(397,160)	(378,085)
Death benefits	(74,000)	(94,000)	(76,000)	(128,000)
Net change in plan fiduciary net position**	22,862,426	5,052,489	(9,333,204)	12,795,245
Plan fiduciary net position - beginning**	204,514,679	199,462,190	208,795,394	196,000,149
Plan fiduciary net position - ending (b)**	\$ 227,377,105	\$ 204,514,679	\$ 199,462,190	\$ 208,795,394
Plan's net pension liability - ending (a) - (b)	\$ (19,778,372)	\$ (123,941)	\$ 5,040,160	\$ (6,021,630)
Plan fiduciary net position as a percentage of the total pension liability	109.53%	100.06%	97.54%	102.97%
Covered payroll	\$ 43,309,374	\$ 44,437,747	\$ 44,446,743	\$ 44,076,351
Plan's net pension liability as a percentage of covered payroll	(45.67%)	(0.28%)	11.34%	(13.66%)

Notes to Schedule:

* Information not reflected prior to 2014 due to changes in actuary methodologies required under GASB 67, which was implemented in 2014.

** Excludes amounts related to 401(k) matching contributions.

See accompanying Report of Independent Auditors on Supplemental Information.

Knoxville Utilities Board Wastewater Division
Required Supplementary Information – Schedule of Employer Pension
Contributions
June 30, 2018
(Unaudited)

	*Year ended December 31			
	2017	2016	2015	2014
Actuarially determined contribution	\$ 4,286,597	\$ 5,243,146	\$ 5,991,887	\$ 5,908,541
Contribution in relation to the actuarially determined contribution	4,286,597	5,243,146	5,991,887	5,908,541
Contribution deficiency	\$ -	\$ -	\$ -	\$ -
Covered payroll	\$ 43,309,374	\$ 44,437,747	\$ 44,446,743	\$ 44,076,351
Contributions as a percentage of covered payroll	9.90%	11.80%	13.48%	13.41%

Notes to Schedule:

Valuation Dates: January 1, 2012 - 2016
Timing: Actuarially determined contributions for a plan year are based upon 50% of the amounts determined at the actuarial valuations for each of the two prior plan years.

Key methods and assumptions used to determine contribution rates:

Actuarial cost method: Entry age normal at January 1, 2012; Individual entry age of January 1, 2013 - 2016
Asset valuation method: 5-year smoothed market
Amortization method: Level dollar closed period with 25 years remaining as of January 1, 2016
Discount rate: 8% at January 1, 2012 - 2013, 7.5% at January 1, 2014 - 2016
Salary increases: From 2.58% to 7.92% for January 1, 2012 - 2013 and from 2.80% to 5.15% for January 1, 2014 - 2016, based on years of service
Mortality: Sex distinct RP-2000 Combined Mortality projected to 2018 using Scale AA for the January 1, 2012 - 2013 valuations. Sex distinct RP-2000 Combined Mortality projected to 2024 using Scale AA for the January 1, 2014 - 2016 valuations.
Inflation: 2.8 percent

* Schedule of Employer Contribution information is not reflected prior to 2014 due to changes in actuary methodologies required under GASB 67, which was implemented 2014.

See accompanying Report of Independent Auditors on Supplemental Information.

Knoxville Utilities Board Wastewater Division

Required Supplementary Information – Schedule of Changes in Net OPEB Liability and Related Ratios

June 30, 2018

(Unaudited)

	*Year ended June 30 2018
Total OPEB liability	
Service cost	\$ 202,603
Interest	3,295,240
Differences between expected and actual experience	1,324,769
Changes of assumptions	(397,180)
Benefit payments	(3,298,739)
Net change in total OPEB liability	1,126,693
Total OPEB liability - beginning	44,477,738
Total OPEB liability - ending (a)	\$ 45,604,431
Plan fiduciary net position	
Contributions - employer	\$ -
Net investment income	3,705,473
Benefit payments	(3,298,739)
Administrative expense	(51,668)
Net change in plan fiduciary net position	355,066
Plan fiduciary net position - beginning	49,000,433
Plan fiduciary net position - ending (b)	\$ 49,355,499
Net OPEB liability - ending (a) - (b)	\$ (3,751,068)
Plan fiduciary net position as a percentage of the total OPEB liability	108.23%
Covered employee payroll	\$ 23,677,080
Net OPEB liability as a percentage of covered employee payroll	(15.84%)

Notes to Schedule:

* Information not reflected prior to 2018 due to changes in actuary methodologies required under GASB 75, which was implemented in 2018.

See accompanying Report of Independent Auditors on Supplemental Information.

Knoxville Utilities Board Wastewater Division
Required Supplementary Information – Schedule of Employer OPEB Contributions
June 30, 2018
(Unaudited)

	*Year ended June 30
	2018
Actuarially determined contribution	\$ -
Contribution in relation to the annual required contribution	-
Contribution deficiency/(excess)	<u>\$ -</u>
Covered employee payroll	\$ 23,677,080
Contributions as a percentage of covered employee payroll	0.00%

Notes to Schedule:

Valuation Date:	January 1, 2016
Timing:	Actuarially determined contribution rates are calculated based on the actuarial valuation completed 18 months before the beginning of the fiscal year.

Key methods and assumptions used to determine contribution rates:

Actuarial cost method:	Entry age normal
Asset valuation method:	5-year smoothed market
Amortization method:	Level dollar, closed period with 20 years remaining as of January 1, 2016
Discount rate:	7.5%
Healthcare cost trend rate:	Pre-Medicare: 8.00% to 4.50 % grading down over 20 years Medicare: 7.00% to 4.50% grading down over 20 years Administrative expenses: 3.0% per year

* Schedule of Employer Contribution information is not reflected prior to 2018 due to changes in actuary methodologies required under GASB 75, which was implemented in 2018.

See accompanying Report of Independent Auditors on Supplemental Information.

Knoxville Utilities Board Wastewater Division
Required Supplementary Information – Qualified Governmental Excess Benefit
Arrangement
Schedule of Changes in Total Pension Liability and Related Ratios
June 30, 2018
(Unaudited)

	*Year ended December 31	
	2017	2016
Total pension liability		
Service cost	\$ 584	\$ -
Interest (includes interest on service cost)	7,535	-
Changes of benefit terms	-	185,077
Differences between expected and actual experience	13,684	-
Changes of assumptions	73,461	-
Benefit payments, including refunds of member contributions	-	-
Net change in total pension liability	<u>95,264</u>	<u>185,077</u>
Total pension liability - beginning	<u>185,077</u>	<u>-</u>
Total pension liability - ending	<u>\$ 280,341</u>	<u>\$ 185,077</u>
Covered payroll	\$ 43,309,374	\$ 44,437,747
Total pension liability as a percentage of covered payroll	0.65%	0.42%

Notes to Schedule:

* There are no assets accumulated in a trust that meet the criteria in paragraph 4 of GASB 73 to pay related benefits.

See accompanying Report of Independent Auditors on Supplemental Information.

Knoxville Utilities Board Wastewater Division
Supplemental Information - Schedule of Insurance in Force
June 30, 2018
(Unaudited)

Schedule 1

Insurance coverage is for KUB as a consolidated entity.

Crime

Covers losses resulting from employee dishonesty, robbery, burglary, and computer fraud. Limits of coverage - \$5,000,000; \$250,000 retention.

Directors' and Officers' Liability Insurance

Covers KUB personnel appropriately authorized to make decisions on behalf of KUB (including but not limited to Commissioners, President and CEO, Senior Vice Presidents, Vice Presidents, and Directors) for wrongful acts. Limits of coverage - \$20,000,000; \$1,000,000 corporate deductible, \$0 individual deductible.

Employment Practices Liability

Coverage for costs related to actual or alleged employment practices violations for amounts exceeding specified amount (\$500,000). Limits of coverage - \$10,000,000.

Fiduciary

Covers losses resulting from wrongful acts related to KUB's Pension, 401(k), OPEB Trust funds, and Medical Plan. Limits of coverage - \$10,000,000; \$150,000 deductible.

Pollution Legal Liability

New conditions coverage for losses exceeding specified amount per occurrence (\$1,000,000). Limits of coverage - \$20,000,000.

Property Insurance

This coverage provides protection of KUB's property for fire, extended coverage, vandalism and malicious mischief, and coverage on boilers and machinery. Also included are flood and earthquake damage and mechanical failure. Limits of coverage - \$250,000,000 per occurrence (subject to certain sublimits); \$2,500,000 deductible per occurrence.

Travel Accident

Covers losses related to employees' business travel. Limits of coverage - \$1,500,000 aggregate.

Excess Insurance for General Liability

As a government entity, KUB's liability is limited under the Tennessee Governmental Tort Liability Act (TCA §29-20-403). KUB is self-insured for up to the first \$700,000 of any accident and has insurance of \$1,000,000 above this retention.

Excess Insurance for Workers' Compensation

Covers all losses exceeding specified amount per occurrence (\$1,000,000). Limits of coverage - Statutory; stop loss coverage applies for aggregate losses over \$5,000,000.

Employee Health Plan Stop Loss Coverage

KUB's employee health plan is self-funded. KUB has purchased stop loss insurance, which covers KUB's exposure to annual expenses in excess of \$500,000 per individual participant.

See accompanying Report of Independent Auditors on Supplemental Information.

Knoxville Utilities Board Wastewater Division
Supplemental Information – Schedule of Debt Maturities by Fiscal Year
June 30, 2018
(Unaudited)

Schedule 2
Continued on Next Page

FY	2010			2010C			2012A		2012B		2013A		2014A	
	Principal	Interest	Rebate*	Principal	Interest	Rebate*	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest
18-19		1,910,000	668,500	1,550,000	3,525,625	1,233,968	970,000	498,775	1,050,000	1,891,875	660,000	3,513,300	475,000	1,058,119
19-20		1,910,000	668,500	1,600,000	3,460,990	1,211,346	950,000	467,250	1,100,000	1,878,750	685,000	3,486,900	500,000	1,039,119
20-21		1,910,000	668,500	1,650,000	3,394,270	1,187,994	1,085,000	434,000	1,150,000	1,862,250	710,000	3,459,500	525,000	1,019,119
21-22		1,910,000	668,500	1,700,000	3,325,465	1,163,912	1,175,000	390,600	1,200,000	1,804,750	740,000	3,431,100	550,000	998,119
22-23		1,910,000	668,500	1,750,000	3,246,925	1,136,424	1,165,000	343,600	1,250,000	1,744,750	770,000	3,401,500	575,000	981,619
23-24		1,910,000	668,500	1,850,000	3,162,575	1,106,902	1,250,000	297,000	1,300,000	1,694,750	4,600,000	3,370,700	600,000	964,369
24-25		1,910,000	668,500	1,950,000	3,065,450	1,072,908	1,140,000	247,000	1,375,000	1,642,750	4,900,000	3,232,700	625,000	946,369
25-26		1,910,000	668,500	2,375,000	2,961,125	1,036,394	1,190,000	201,400	1,425,000	1,587,750	5,040,000	3,085,700	650,000	927,619
26-27		1,910,000	668,500	2,500,000	2,830,738	990,758	1,235,000	153,800	1,500,000	1,530,750	5,200,000	2,934,500	700,000	908,119
27-28		1,910,000	668,500	2,600,000	2,688,488	940,970	1,280,000	104,400	1,575,000	1,470,750	6,305,000	2,778,500	725,000	880,119
28-29		1,910,000	668,500	2,725,000	2,536,388	887,736	1,330,000	53,200	1,625,000	1,423,500	6,535,000	2,573,588	750,000	851,119
29-30		1,910,000	668,500	2,850,000	2,376,975	831,942			1,700,000	1,374,750	8,315,000	2,377,538	775,000	821,119
30-31		1,910,000	668,500	2,975,000	2,210,250	773,588			1,775,000	1,323,750	8,550,000	2,128,088	825,000	790,119
31-32		1,910,000	668,500	3,100,000	2,031,750	711,112			1,875,000	1,270,500	8,840,000	1,871,588	850,000	757,119
32-33		1,910,000	668,500	3,250,000	1,845,750	646,012			1,950,000	1,214,250	9,120,000	1,606,388	900,000	723,119
33-34		1,910,000	668,500	3,375,000	1,650,750	577,762			2,025,000	1,155,750	9,390,000	1,332,788	925,000	687,119
34-35		1,910,000	668,500	3,550,000	1,448,250	506,882			2,125,000	1,095,000	9,705,000	1,015,875	975,000	650,119
35-36		1,910,000	668,500	3,700,000	1,235,250	432,338			2,225,000	1,031,250	10,025,000	688,331	1,025,000	611,119
36-37		1,910,000	668,500	3,875,000	1,009,550	353,342			2,325,000	964,500	10,370,000	349,988	1,075,000	570,119
37-38		1,910,000	668,500	4,050,000	773,175	270,612			2,425,000	894,750			500,000	527,119
38-39		1,910,000	668,500	4,225,000	526,125	184,144			2,550,000	822,000			500,000	507,119
39-40		1,910,000	668,500	4,400,000	268,400	93,940			2,650,000	745,500			500,000	488,994
40-41		1,910,000	668,500						2,775,000	666,000			1,175,000	470,869
41-42		1,910,000	668,500						2,900,000	582,750			1,225,000	428,275
42-43	10,000,000	1,910,000	668,500						3,025,000	495,750			1,300,000	382,950
43-44	10,000,000	1,260,000	441,000						3,150,000	405,000			1,350,000	334,850
44-45	10,000,000	630,000	220,500						3,300,000	310,500			1,400,000	284,900
45-46									3,450,000	211,500			1,475,000	233,100
46-47									3,600,000	108,000			1,550,000	178,525
47-48													1,600,000	121,175
48-49													1,675,000	61,975
49-50														
Total	\$ 30,000,000	\$ 49,640,000	\$ 17,374,000	\$ 61,600,000	\$ 49,574,264	\$ 17,350,986	\$ 12,770,000	\$ 3,191,025	\$ 60,375,000	\$ 33,204,125	\$ 110,460,000	\$ 46,638,572	\$ 28,275,000	\$ 20,203,612

*Series 2010 and 2010c bonds were issued as federally taxable Build America Bonds. KUB will receive a 35 percent interest rebate payment from the United States Government for each interest payment. Effective October 1, 2017 these bonds became subject to a 6.6% reduction in rebate payment amounts due to the United States Government sequestration. The sequestration is effective until intervening Congressional action, at which time the sequestration rate is subject to change.

See accompanying Report of Independent Auditors on Supplemental Information.

Knoxville Utilities Board Wastewater Division
Supplemental Information – Schedule of Debt Maturities by Fiscal Year
June 30, 2018
(Unaudited)

Schedule 2
Continued from Previous Page

FY	2015A		2015B		2016		2017A		2017B		TOTALS		Grand Total (P + I)	Grand Total (Less Rebates)
	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest	Principal	Interest		
18-19	5,010,000	4,967,762	500,000	1,104,688	450,000	531,031	1,460,000	490,800	490,000	821,462	12,615,000	20,313,437	32,928,437	31,025,969
19-20	5,305,000	4,717,262	525,000	1,079,688	475,000	522,031	1,525,000	417,800	515,000	796,963	13,180,000	19,776,753	32,956,753	31,076,907
20-21	5,460,000	4,452,012	525,000	1,063,938	475,000	512,531	1,605,000	341,550	540,000	771,212	13,725,000	19,220,382	32,945,382	31,088,888
21-22	5,675,000	4,179,012	550,000	1,042,938	500,000	488,781	1,685,000	261,300	570,000	744,213	14,345,000	18,576,278	32,921,278	31,088,866
22-23	6,005,000	3,895,262	575,000	1,020,936	525,000	463,781	1,775,000	177,050	600,000	715,712	14,990,000	17,901,135	32,891,135	31,086,211
23-24	3,720,000	3,595,012	600,000	997,938	550,000	437,531	595,000	88,300	630,000	685,713	15,695,000	17,203,888	32,898,888	31,123,486
24-25	3,785,000	3,483,412	625,000	973,938	575,000	421,031	615,000	70,450	660,000	654,212	16,250,000	16,647,312	32,897,312	31,155,904
25-26	1,425,000	3,369,864	650,000	955,188	575,000	409,531	640,000	52,000	690,000	621,213	14,660,000	16,081,390	30,741,390	29,036,496
26-27	1,490,000	3,323,550	675,000	935,688	600,000	398,031	660,000	26,400	715,000	600,512	15,275,000	15,552,088	30,827,088	29,167,830
27-28	1,405,000	3,271,400	700,000	915,438	600,000	386,032			725,000	586,213	15,915,000	14,991,340	30,906,340	29,296,870
28-29	1,450,000	3,222,226	725,000	887,438	625,000	374,032			745,000	570,806	16,510,000	14,402,297	30,912,297	29,356,061
29-30	1,455,000	3,178,726	775,000	858,438	625,000	361,532			760,000	553,112	17,255,000	13,812,190	31,067,190	29,566,748
30-31	1,515,000	3,135,076	800,000	827,436	650,000	348,250			785,000	530,313	17,875,000	13,203,282	31,078,282	29,636,194
31-32	1,520,000	3,089,626	825,000	795,436	675,000	333,625			805,000	506,762	18,490,000	12,566,406	31,056,406	29,676,794
32-33	1,580,000	3,042,125	850,000	762,436	675,000	318,438			830,000	482,613	19,155,000	11,905,119	31,060,119	29,745,607
33-34	1,635,000	2,992,750	900,000	733,750	700,000	302,406			855,000	457,712	19,805,000	11,223,025	31,028,025	29,781,763
34-35	1,690,000	2,939,612	925,000	703,375	700,000	284,906			880,000	432,063	20,550,000	10,479,200	31,029,200	29,853,818
35-36	1,750,000	2,884,688	975,000	671,000	725,000	267,406			910,000	405,662	21,335,000	9,704,706	31,039,706	29,938,868
36-37	1,825,000	2,827,812	1,000,000	632,000	750,000	249,282			935,000	378,363	22,155,000	8,891,614	31,046,614	30,024,772
37-38	13,420,000	2,768,500	500,000	592,000	775,000	229,594			965,000	350,312	22,635,000	8,045,450	30,680,450	29,741,338
38-39	13,895,000	2,298,800	500,000	572,000	775,000	209,250			995,000	320,156	23,440,000	7,165,450	30,605,450	29,752,806
39-40	14,480,000	1,743,000	500,000	552,000	800,000	186,000			1,025,000	289,063	24,355,000	6,182,957	30,537,957	29,775,517
40-41	15,130,000	1,236,200	1,100,000	532,000	825,000	162,000			1,055,000	257,032	22,060,000	5,234,101	27,294,101	26,625,601
41-42	15,775,000	631,000	1,150,000	488,000	850,000	137,250			1,090,000	224,062	22,990,000	4,401,337	27,391,337	26,722,837
42-43			1,200,000	442,000	875,000	111,750			1,125,000	190,000	17,525,000	3,532,450	21,057,450	20,388,950
43-44			1,250,000	394,000	900,000	85,500			1,160,000	154,844	17,810,000	2,634,194	20,444,194	20,003,194
44-45			1,300,000	344,000	950,000	58,500			1,195,000	118,594	18,145,000	1,746,494	19,891,494	19,670,994
45-46			1,350,000	292,000	1,000,000	30,000			1,230,000	81,250	8,505,000	847,850	9,352,850	9,352,850
46-47			1,400,000	238,000					1,270,000	41,275	7,820,000	565,800	8,385,800	8,385,800
47-48			1,450,000	182,000							3,050,000	303,175	3,353,175	3,353,175
48-49			1,525,000	124,000							3,200,000	185,975	3,385,975	3,385,975
49-50			1,575,000	63,000							1,575,000	63,000	1,638,000	1,638,000
Total	\$ 126,400,000	\$ 75,244,689	\$ 28,500,000	\$ 21,776,687	\$ 19,200,000	\$ 8,620,032	\$ 10,560,000	\$ 1,925,650	\$ 24,750,000	\$ 13,341,419	\$ 512,890,000	\$ 323,360,075	\$ 836,250,075	\$ 801,525,089

*Series 2010 and 2010c bonds were issued as federally taxable Build America Bonds. KUB will receive a 35 percent interest rebate payment from the United States Government for each interest payment. Effective October 1, 2017 these bonds became subject to a 6.6% reduction in rebate payment amounts due to the United States Government sequestration. The sequestration is effective until intervening Congressional action, at which time the sequestration rate is subject to change.

See accompanying Report of Independent Auditors on Supplemental Information.

Knoxville Utilities Board Wastewater Division
Supplemental Information – Schedule of Current Rates in Force
June 30, 2018
(Unaudited)

Schedule 3

Rate Class	Base Charge	Number of Customers
Residential Inside City rate	For wastewater service furnished to premises entirely within the corporate limits of the City of Knoxville:	55,368
Commodity Charge		
First	2 100 Cubic Feet Per Month at \$1.05 Per 100 Cubic Feet	
Over	2 100 Cubic Feet Per Month at \$8.70 Per 100 Cubic Feet	
Additional Monthly Customer Charge		
	5/8" meter \$ 31.30	
	1" meter 46.30	
	1 1/2" meter 58.30	
	2" meter 78.30	
Non-Residential Inside City rate	For wastewater service furnished to premises entirely within the corporate limits of the City of Knoxville:	7,543
Commodity Charge		
First	2 100 Cubic Feet Per Month at \$0.90 Per 100 Cubic Feet	
Next	8 100 Cubic Feet Per Month at \$11.65 Per 100 Cubic Feet	
Next	90 100 Cubic Feet Per Month at \$10.40 Per 100 Cubic Feet	
Next	300 100 Cubic Feet Per Month at \$8.95 Per 100 Cubic Feet	
Next	4,600 100 Cubic Feet Per Month at \$7.25 Per 100 Cubic Feet	
Next	5,000 100 Cubic Feet Per Month at \$4.30 Per 100 Cubic Feet	
Additional Monthly Customer Charge		
	5/8" meter \$ 31.30	
	1" meter 46.30	
	1 1/2" meter 58.30	
	2" meter 78.30	
	3" meter 145.00	
	4" meter 237.00	
	6" meter 505.00	
	8" meter 878.00	
	10" meter 1,331.00	
	12" meter 1,960.00	

See accompanying Report of Independent Auditors on Supplemental Information.

Knoxville Utilities Board Wastewater Division
Supplemental Information – Schedule of Current Rates in Force
June 30, 2018
(Unaudited)

Schedule 3

Rate Class	Base Charge	Number of Customers
Residential Outside City rate	For wastewater service furnished to premises entirely or partly outside the corporate limits of the City of Knoxville: Commodity Charge First 2 100 Cubic Feet Per Month at \$1.20 Per 100 Cubic Feet Over 2 100 Cubic Feet Per Month at \$9.30 Per 100 Cubic Feet Additional Monthly Customer Charge 5/8" meter \$ 35.30 1" meter 49.30 1 1/2" meter 66.30 2" meter 86.30	8,032
Non-Residential Outside City rate	For wastewater service furnished to premises entirely or partly outside the corporate limits of the City of Knoxville: Commodity Charge First 2 100 Cubic Feet Per Month at \$1.05 Per 100 Cubic Feet Next 8 100 Cubic Feet Per Month at \$12.85 Per 100 Cubic Feet Next 90 100 Cubic Feet Per Month at \$11.40 Per 100 Cubic Feet Next 300 100 Cubic Feet Per Month at \$9.75 Per 100 Cubic Feet Next 4,600 100 Cubic Feet Per Month at \$8.15 Per 100 Cubic Feet Next 5,000 100 Cubic Feet Per Month at \$4.80 Per 100 Cubic Feet Additional Monthly Customer Charge 5/8" meter \$ 35.30 1" meter 49.30 1 1/2" meter 66.30 2" meter 86.30 3" meter 164.00 4" meter 262.00 6" meter 555.00 8" meter 966.00 10" meter 1,459.00 12" meter 2,153.00	299

See accompanying Report of Independent Auditors on Supplemental Information.



Report of Independent Auditors on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*

Board of Commissioners
Wastewater Division of the Knoxville Utilities Board
Knoxville, Tennessee

We have audited, in accordance with the 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, the financial statements of the Wastewater Division (the Division) of the Knoxville Utilities Board, a component unit of the City of Knoxville, Tennessee, as of and for the year ended June 30, 2018, and the related notes to the financial statements, which collectively comprise the Division's basic financial statements, and have issued our report thereon dated October 25, 2018.

Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered the Division's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Division's internal control. Accordingly, we do not express an opinion on the effectiveness of the Division's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees in the normal course of performing their assigned functions, to prevent, or detect and correct misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of the Division's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over financial reporting that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control over financial reporting that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.



Board of Commissioners
Wastewater Division of the Knoxville Utilities Board
Knoxville, Tennessee

Compliance and Other Matters

As part of obtaining reasonable assurance about whether the Division's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of the Division's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering the Division's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Coulter & Justus, P.C.

Knoxville, Tennessee
October 25, 2018

GENERAL INFORMATION

THE CITY OF KNOXVILLE

THE CITY

The City of Knoxville (the “City”) was founded in 1791 and incorporated in 1815. It is governed by a Mayor-Council form of government. The Mayor is the chief executive and administrative officer and is elected by direct vote of the people to a four-year term. The Mayor is responsible for the day-to-day operations of the City and appoints and supervises the heads of all major City departments. The City Council is composed of six district and three at-large members, each elected for a four-year overlapping term. As the City's legislative body, the Council is responsible for acting on ordinances and resolutions which govern the City as well as for the confirmation of members to most boards and commissions. A municipal judge is elected by direct vote to a four-year term and is responsible for the enforcement of certain City ordinances and the administration of the City court system.

On a continuing basis, the City provides a full range of municipal services contemplated by its Charter and various state statutes. Governmental functions include police and fire protection, sanitation services, inspections, engineering, street maintenance, parks and recreation, economic development, and general administrative support systems. The City is also engaged in several proprietary activities and owns and operates (under a separate authority) two municipal airports, utility systems (electric, gas, water and wastewater), an auditorium/coliseum, a convention center, an exhibition center, a public transportation system and several parking facilities.

Knoxville, the county seat, is the largest incorporated municipality in Knox County (the “County”). The City is located on the Tennessee River near the geographic center of East Tennessee and has a land area of approximately 98 square miles within its corporate limits. The 2010 U.S. Census figures show the population of Knox County as being 432,226.

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KNOXVILLE UTILITIES BOARD

HISTORY AND ORGANIZATION

The Knoxville Utilities Board (the “Board” or “KUB”) (under its then name of Knoxville Electric Power and Water Board) was organized on March 14, 1939. The present name of Knoxville Utilities Board was adopted in 1947. As originally established, the Board consisted of five members with terms of ten years. A Charter amendment, adopted in compliance with the home rule provisions of the Tennessee Constitution, including approval in a city-wide referendum held November 5, 1974, changed some of the provisions concerning the membership of the Board. The Board was enlarged to seven members. The term for each member was reduced to seven years with the terms being so arranged that the appointment of one member will be made each year. Members of the Board are limited to two seven-year terms.

The selection procedure for a member is initiated by the Board submitting to the Mayor a list of at least five nominees from which list the Mayor selects one nominee to present to the City Council for confirmation or rejection. In case the City Council rejects a nominee, the nominating procedure is repeated until an appointment is made.

The Board operates the City's Water Division (purchased in 1909), the City's Electric Division (purchased in 1939), the City's Gas Division (purchased in 1945), and the City's Wastewater Division (transferred to the Board by referendum in 1987). The joint operation of these four city-owned utilities provides cost savings to each system by reason of joint billing and other operating economies.

KUB’s organizational structure has three major functional areas including an Engineering and Operations Division, Finance Division and Administrative Division.

Except as specifically limited by the provisions of the City Charter relating to the Board, the Board is authorized to exercise all powers of the City to construct, acquire, expand, operate, manage, and control the City's electric, gas, water and wastewater systems free from the jurisdiction, direction and control of the Mayor, City Council and its officers.

THE BOARD OF COMMISSIONERS

Members of the Board of Commissioners are:

KATHY HAMILTON, CPA, Chair, Commissioner.

TYVI SMALL, Vice Chair, Commissioner. Executive Director of Talent Management, Diversity and Community Relations, University of Tennessee.

JERRY W. ASKEW, Ph.D., Commissioner. President and CEO, Alliance for Better Nonprofits.

CELESTE HERBERT, Commissioner. Attorney, Herbert, Meadows and Wall, PLLC.

SARA HEDSTROM PINNELL, Commissioner. President, Hedstrom Design.

ADRIENNE SIMPSON-BROWN, Commissioner. Deputy Chief and United States Probation Officer, Eastern District of Tennessee.

JOHN WORDEN, Commissioner. Partner, Worden, Rechenbach & Brooke.

OFFICERS

GABRIEL J. BOLAS II, President and Chief Executive Officer, was appointed to this position in 2018. Mr. Bolas has been with KUB since 1995. He has a B.S. in Electric Engineering, as well as a Masters in Industrial Engineering from the University of Tennessee.

MARK A. WALKER, Senior Vice President and Chief Financial Officer, was appointed to this position in 2011 and serves as the fifth CFO since KUB was formed. Mr. Walker currently serves as Secretary of the Board of Commissioners. He has been with KUB since 1993. Mr. Walker received a B.S. in Finance from the University of Tennessee's College of Business and also received an M.B.A. in Economics from the University of Tennessee.

SUSAN F. EDWARDS, Senior Vice President and Chief Administrative Officer, was appointed to the position in 2013. She has been with KUB since 1997. She has a B.S. in Business Administration from the University of Tennessee.

H. EDWARD BLACK, Senior Vice President and Chief Technology Officer, was appointed to this position in 2003. Mr. Black has been with KUB since 1979. He holds a B.S. in Agriculture and B.A. in Microbiology, as well as an M.B.A. in Management from the University of Tennessee.

DERWIN G. HAGOOD, Senior Vice President and Chief Operating Officer, was appointed to this position in 2017. Mr. Hagood has been with KUB since 1985. He has a B.S. in Civil Engineering from the University of Tennessee.

JOHN W. WILLIAMS III, Vice President of Construction, was appointed to this position in 2018. Mr. Williams has been with KUB since 1998. He has a B.S. in Business Administration from the University of Tennessee.

INSURANCE

Crime Liability. Coverage for losses resulting from employee dishonesty, robbery, burglary and computer fraud including fraudulently induced wire transfers. Limits of coverage - \$5,000,000; \$250,000 retention.

Directors' and Officers' Liability. Covers KUB personnel appropriately authorized to make decisions on behalf of KUB (including but not limited to Commissioners, President & CEO, Senior Vice Presidents, and Vice Presidents and Directors) for wrongful acts. Limits of coverage -

\$20,000,000; \$1,000,000 corporate deductible, \$0 individual deductible.

Employee Health Plan Stop Loss Coverage. KUB's employee health plan is self-funded. KUB has purchased stop loss insurance, which covers KUB's exposure to annual expenses in excess of \$500,000 per individual participant.

Employment Practices Liability. Coverage for costs related to actual or alleged employment practices violations for amounts exceeding specified amount (\$500,000). Limits of coverage - \$10,000,000.

Excess Insurance for General Liability. As a governmental entity, KUB's liability is limited under the Tennessee Governmental Tort Liability Act (TCA §29-20-403). KUB is self-insured for the first \$700,000 of any accident and has insurance of \$1,000,000 above this retention.

Excess Insurance for Workers' Compensation. Covers all losses exceeding specified amount per occurrence (\$1,000,000). Limits of coverage - Statutory; stop loss coverage applies for aggregate losses over \$5,000,000.

Fiduciary. Coverage for losses resulting from wrongful acts related to KUB's Pension, 401(k), and OPEB Trust funds. Limits of coverage - \$10,000,000; \$150,000 deductible.

Pollution Legal Liability. New conditions coverage for losses exceeding specified amount per occurrence (\$1,000,000). Limits of coverage - \$20,000,000.

Property Insurance. This coverage provides protection of KUB's property for fire, extended coverage, vandalism and malicious mischief and coverage on boilers and machinery. Also included are flood and earthquake damage and mechanical failure. Limits of coverage - \$250,000,000 per occurrence (subject to certain sublimits); \$2,500,000 deductible per occurrence.

Travel Accident. Coverage for losses related to employees' business travel. Limits of coverage - \$1,500,000 aggregate.

RETIREMENT PLAN

For more information concerning KUB's retirement and disability plans, please refer to the "Notes to the Financial Statements" attached hereto.

SERVICE AREA

KUB provides electric, water, natural gas and wastewater services for all of Knoxville, and certain utilities in most of Knox County, a substantial area of Union County and a limited area of Grainger, Jefferson, Blount, Anderson, Loudon and Sevier Counties. Knox County has a land area of about 508 square miles of which approximately 98 square miles are within the corporate limits of Knoxville. KUB is the distributor of electric power supplied by the Tennessee Valley Authority (the "TVA"), for natural gas energy purchased from various suppliers, and for water which is taken from the Tennessee River.

WATER DIVISION

In 1939, the City's Electric Power and Water Board, now KUB, was established and granted responsibility for the operation of the city-owned Water and Electric Divisions. The Water Division consists of facilities for the treatment, storage and distribution of water obtained from the Tennessee River. The Water Division distributes water throughout the City of Knoxville, a portion of East Knox County, and other small portions of Knox, Jefferson and Sevier Counties.

During year ended June 30, 2018, the operating revenues of the Water Division totaled \$54,365,215. As of June 30, 2018, KUB had 79,923 water system customers. The Division's outstanding long-term debt, as of June 30, 2018 including the current portion, totaled \$179,165,000.

WASTEWATER DIVISION

On November 4, 1986, voters in the City elected to transfer operation of the City's Wastewater Division to KUB, effective July 1, 1987. While the Wastewater Division is a self-sustained financial entity, the operations of both the Water and Wastewater Divisions have been merged to achieve operating efficiencies. The Wastewater Division provides collection and treatment throughout the City and portions of East Knox County.

For the fiscal year ended June 30, 2018, operating revenues for the Wastewater Division totaled \$94,715,764. As of June 30, 2018, KUB served 71,242 wastewater system customers. As of June 30, 2018, including the current portion, the outstanding long-term debt of the Wastewater Division totaled \$512,890,000.

FEDERAL CONSENT DECREE

In February 2005, a Consent Decree was entered into federal court regarding the operation of KUB's wastewater system. Under the terms of the Consent Decree, the remediation of identified sanitary sewer overflows (SSOs) on KUB's wastewater system had to be completed by June 30, 2016. KUB completed all the requirements of the Consent Decree for the collection system two years in advance of the deadline.

The Consent Decree also required KUB to perform an evaluation of the wet weather performance and capacity of its wastewater treatment plants. In July 2007, KUB submitted a Composite Correction Plan (CCP) for its wastewater treatment plants to EPA for review. The development and filing of the CCP was a requirement of the federal order of February 2005. The CCP includes recommended improvements to KUB's Kuwahee and Fourth Creek treatment plants to address wet weather capacity issues noted in prior assessments. The EPA approved the CCP in January 2009 including a recommended schedule of plant improvements that extends beyond the expiration date of the original Consent Decree. An amendment to the Consent Decree incorporating and establishing this schedule was agreed to by all parties and was entered on June 23, 2009. The purpose of the Amendment is to allow KUB to complete a portion of work outlined in the CCP after the Consent Decree deadline of June 30, 2016. The CCP provides for a biologically enhanced high-rate clarification (the BEHRC) secondary treatment system to be installed at the Fourth Creek treatment plant by June 30, 2018 and at the Kuwahee treatment plant by June 30, 2021. KUB successfully

completed the installation of the BEHRC system at the Fourth Creek treatment plant ahead of schedule in April 2018. Work is currently ongoing at the Kuwahee treatment plant and remains on schedule for completion before the deadline of June 30, 2021. The total cost of such improvements is estimated to be approximately \$58 million.

KUB's funding plan for the Consent Decree includes long-term bonds and a series of rate increases phased in over the term of the order. Bond proceeds fund all types of wastewater capital projects, the majority of which are related to the Consent Decree. As of June 30, 2018, the Wastewater Division had issued \$530 million in bonds to fund system capital improvements since the inception of the Consent Decree. The Board approved two 50 percent rate increases, which went into effect in April 2005 and January 2007. The Board also approved an 8 percent rate increase, which was effective in September 2008, two 12 percent rate increases, which were effective in April 2011 and October 2012, three 6 percent rate increases effective October 2014, October 2015 and October 2016 and three 5 percent rate increases effective July 2017, July 2018, and July 2019. KUB anticipates additional bond issues and rate increases over the next decade to help fund wastewater capital improvements.

KUB successfully completed the first cycle of Maintenance Operation Management (MOM) requirements one year before the deadline by inspecting manholes and gravity mains, smoke testing gravity mains, performing required inspections of pump stations and the related force mains, and completing all Corrective Action Plan/Engineering Report (CAP/ER) projects. KUB initiated the second MOM cycle that continues to focus on the prevention of SSOs. As part of the Century II initiative, formally known as the PACE10 program, KUB has installed storage tanks providing 34 million gallons of wastewater storage to control wet weather overflows and rehabilitated or replaced approximately 368.8 miles of collection system pipe. KUB also continues to maintain a proactive operations and maintenance plan for the wastewater collection system including inspection, grease control, and private lateral enforcement. The result of the Pace10/Century II initiative has been an 83 percent reduction in SSOs.

As of June 30, 2018, the Wastewater Division had completed its 14th full year under the Consent Decree, spending \$536.9 million on capital investments to meet Consent Decree requirements.

CENTURY II INFRASTRUCTURE PROGRAM

Century II is KUB's proactive long-range program to improve and maintain the electric, natural gas, water and wastewater systems for its customers. It includes maintenance and asset replacement strategies for each system and establishes sustainable replacement cycles. Century II moves KUB into its second century of service by improving each system through sound planning, resource allocation, and continued, but accelerated, investment.

KUB's Century II programs were resumed in 2011, after a break due to the economic recession. At that time, the KUB Board of Commissioners endorsed ten-year funding plans for the electric and water systems, which include a combination of rate increases and debt issues to fully fund the Century II programs. The Board adopted three years of electric and water rate increases to help fund those plans. All three of those rate increases, adopted in 2011, have gone into effect.

In 2013, the Board extended the same long-term funding approach for Century II to include the natural gas and wastewater systems, although the Wastewater Division had maintained a ten-year funding plan since the inception of the federal Consent Decree in 2005. The Board formally endorsed and adopted by resolution ten-year funding plans for the natural gas and wastewater systems, which included a combination of rate increases and debt issues.

In April 2014, KUB management provided the Board an updated assessment of the overall condition of each utility system, including a recommendation for annual rate increases for each division for the next three fiscal years. In June 2014, the Board approved the three annual rate increases for all KUB Divisions, of which all three rate increases have gone into effect.

In fiscal year 2015, KUB concluded the smart grid pilot project, of which a portion of the project was funded by a United States Department of Energy Smart Grid Investment Grant (SGIG). This grant was received by KUB in 2009 as part of the American Reinvestment and Recovery Act (ARRA). Based upon the success of that pilot, KUB formed a plan to move forward with a Century II Grid Modernization initiative, which includes advanced metering for all KUB customers, a telecommunication system linking critical KUB infrastructure, and an increased investment in automation technology to help operate KUB's energy and water distribution systems. Over the course of ten years, KUB plans to spend \$124.4 million in this effort. The deployment is funded in large part by debt issues and system revenues. As of June 30, 2018, KUB completed the second year of the advanced meter deployment. KUB replaced approximately 40 percent of its electric meters, installed network communication devices on 33 percent of its gas meters, and replaced 46 percent of its water meters, spending approximately \$41.9 million on the Grid Modernization deployment.

In June 2017, the Board adopted the next three annual rate increases for all KUB Divisions. The first two of the three approved water rate increases went into effect July 2017 and July 2018, generating \$3.1 million of additional annual Water Division revenue each. The remaining rate increase is effective in July 2019 and is expected to provide an additional \$3.3 million in annual revenue to help fund the Water Division. The first two of the three approved wastewater rate increases went into effect in July 2017 and July 2018, generating \$4.3 million and \$4.2 million in additional annual revenue, respectively. The remaining rate increase is effective in July 2019 and is expected to provide an additional \$4.5 million in annual revenue to assist with the funding of the Wastewater Division.

In fiscal year 2017, KUB completed the transition to a new disinfection system at the Mark B. Whitaker (MBW) Water Treatment plant.

KUB is currently in the process of implementing a Water Plant Redundancy initiative to ensure that high quality, reliable water service will be provided to customers over the long term. KUB maintains a single water treatment plant for its system. In lieu of building a second treatment facility to ensure capacity will be available to meet the needs of current and future water customers, KUB will invest approximately \$149 million in various redundant facilities at the site of its existing Mark B. Whitaker Water Treatment Plant over a 14-year period that began in fiscal year 2017.

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For the fiscal year, KUB stayed on track with its overall Century II capital budget and production goals. In the water system, 6.4 miles of galvanized water main and 6.6 miles of cast iron water main were replaced. In the wastewater system, 16 miles of main were rehabilitated or replaced.

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KNOX COUNTY AND CITY OF KNOXVILLE

LOCATION

Knox County (the “County”) is located in the northeastern portion of the State of Tennessee. Founded in 1791 where the French Broad and Holston Rivers converge to form the Tennessee River, Knoxville (the “City”) is the largest city in East Tennessee and ranks third largest in the State. Knoxville is also the County Seat. The County is located in a broad valley between the Cumberland Mountains to the northwest and the Great Smoky Mountains to the southeast.

To the north, the County is bordered by Union and Grainger Counties. Jefferson and Sevier Counties make up the County's eastern border, while the County's southern border is provided by Blount and Loudon Counties. To the immediate west of the County lies Anderson County. There are about 98 square miles in the City of Knoxville and about 508 square miles in all of Knox County.

GENERAL

In 2004, Knoxville was designated a Metropolitan Statistical Area (the “MSA”) that had a population of 837,571 according to the 2010 US Census. The MSA includes Knox (Knoxville and Farragut), Anderson (Oak Ridge and Clinton), Blount (Maryville and Alcoa), Campbell (LaFollette), Grainger (Rutledge), Loudon (Loudon), Morgan (Wartburg), Roane (Harriman) and Union (Maynardville) Counties.

The City is also part of the Knoxville-Sevierville-Harriman Combined Statistical Area (the “CSA”). According to the 2010 Census, the CSA had a population of 1,056,442. The CSA includes Roane, Anderson, Blount, Knox, Loudon, Union, Grainger, Hamblen, Jefferson, Campbell, Cocke and Sevier Counties. The City of Knoxville is the largest city in the CSA with a population of 178,874 according to the 2010 Census. The 2010 Census reported Knox County (including the City) with a 432,226 population.

The following table shows past and current population figures for the City and County:

	Population Growth					
	<u>1970</u>	<u>1980</u>	<u>1990</u>	<u>2000</u>	<u>2010</u>	<u>2017*</u>
Knoxville	174,687	175,045	165,121	173,890	178,874	187,347
Knox County	276,293	319,694	335,749	382,032	432,226	461,860

The only other municipality within the County, the Town of Farragut, has an estimated 2017 population of approximately 22,729 persons.

* 2017 Estimates from U.S. Census Bureau

Source: U.S. Census Bureau.

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SOCIOECONOMIC DATA

The following socioeconomic factors indicate the standard of living in the County, as compared to that of the Nation and State:

Social and Economic Characteristics

	<u>National</u>	<u>Tennessee</u>	<u>Knox County</u>	<u>Knoxville</u>	<u>Farragut</u>
Median Value Owner Occupied Housing	\$193,500	\$151,700	\$169,400	\$124,500	\$343,200
% High School Graduates or Higher Persons 25 Years Old and Older	87.3%	86.5%	90.9%	88.2%	98.1%
% Persons with Income Below Poverty Level	12.30%	15.00%	13.9%	26.5%	4.3%
Median Household Income	\$57,652	\$48,708	\$52,458	\$36,331	\$108,171

Source: U.S. Census Bureau State & County QuickFacts - 2017.

In 2015, Forbes listed Knoxville as the second most affordable city in America, based on housing prices, living costs, and consumer price index. The American Chamber of Commerce Researchers Association also ranks Knoxville as one of the most affordable southeast urban areas, with a 2017 cost-of-living score of 82.2, much lower than the national average of 100.

TRANSPORTATION

The area has transportation facilities by rail, air, river and highway. Both the Norfolk Southern and CSX Railroads have terminals and stops in the County, with lines radiating in nine directions. Pellissippi Parkway (I-140) provides a direct link to Oak Ridge from I-40 and I-75 in Knox County. Major highways serving the County include U.S. Highway 44, 129, 321, 411 and 441 as well as State Routes 33, 75 and 95.

McGhee Tyson Airport. The McGhee Tyson Airport is the principal commercial airport in East Tennessee, serving the commercial airline industry, air cargo, military aviation and general aviation. With parallel 9,000 feet runways, McGhee Tyson Airport can accommodate any size aircraft. The Airport is located within the city limits of Alcoa 12 miles south of downtown Knoxville. The airport occupies more than 2,000 acres of land with space for additional air cargo facilities or economic development. This facility is owned and managed by the Metropolitan Knoxville Airport Authority.

According to a 2012 study by the University of Tennessee's Center for Transportation Research, the airport contributes over \$616 million to the local economy (including Anderson, Blount, Knox, Loudon and Sevier Counties) every year. The report examined the employment, business and tax impacts of the airport, including the Downtown Island Airport.

The Metropolitan Knoxville Airport Authority (MKAA) was established in 1978 as an independent nonprofit agency to own and operate McGhee Tyson Airport and Downtown Island Airport. The Authority's nine-member Board of Commissioners is appointed by the Mayor of Knoxville and confirmed by City Council. This board determines the policies for the current Airport Authority staff of 150 employees in six departments. The board appoints a President who serves as the chief administrator and executive officer. All of the revenues are generated by user fees and rental income so no taxpayer dollars are used to support airport operations.

Two air cargo services provide daily service. In addition, six passenger airlines carry air cargo on most flights. More than 40,359 tons of airfreight annually pass through its cargo facilities. Federal Express and United Parcel Service are the main couriers.

McGhee Tyson Airport has several major airlines serving 22 non-stop destinations including Atlanta, Chicago, Dallas/Ft. Worth, Denver, New York, Orlando and Washington D.C. With more than 120 arrivals and departures each day and more than 4,000 seats available, McGhee Tyson Airport is one of the most convenient and accessible regional airports in the nation.

The airport is served by two low-fare carriers: Allegiant Air and Frontier Airlines. Allegiant Travel Company is focused on linking travelers in small cities to world-class leisure destinations such as Destin/Ft. Walton Beach, Florida; Ft. Lauderdale, Florida; Las Vegas, Nevada; Orlando, Florida; Punta Gorda, Florida; Tampa/St. Petersburg, Florida; and Washington, D.C. Through its subsidiary, Allegiant Air, the Company operates a low-cost, high-efficiency, all-jet passenger airline offering air travel both on a stand-alone basis and bundled with hotel rooms, rental cars and other travel related services. Frontier Airlines started flight in the summer of 2011 from Knoxville to its hub in Denver, Colorado.

McGhee Tyson is served by major and regional carriers including:

Major Airlines:

Allegiant Air
Delta Airlines

Frontier Airlines
United

Regional Carriers:

American Eagle

United Express

Source: Metropolitan Knoxville Airport Authority.

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These airlines connect passengers with service to several hub airports across the nation on more than 120 flights daily.

McGhee Tyson Airport

<u>Total Year</u>	<u>Commercial Passengers</u>	<u>Total Air Cargo in Pounds</u>
2009	1,680,716	82,304,377
2010	1,688,882	93,393,658
2011	1,773,671	92,390,849
2012	1,747,145	91,514,071
2013	1,676,374	84,029,942
2014	1,738,133	74,115,672
2015	1,747,472	77,395,631
2016	1,827,989	84,831,987
2017	1,988,626	82,884,887
2018	2,221,137	81,363,507

Source: Metropolitan Knoxville Airport Authority.

McGhee Tyson Airport has undergone many improvements in the past few years. The most recent was in 2017 when the runway and taxiway system was upgraded for \$108 million.

Source: Metropolitan Knoxville Airport Authority.

TACAir is McGhee Tyson Airport's general aviation services provider. In addition to providing fuel and services to commercial carriers, they also accommodate the general aviation industry, which includes corporate aviation, charter flights, flight schools and people who fly as a hobby.

The Tennessee Air National Guard's 134th Air Refueling Group operates 10 aircraft at McGhee Tyson Airport. The Guard's KC-135E tankers provide refueling to the country's military aircraft. In addition, the Army Aviation Support Facility, the 110th and 119th Tactical Control Squadrons and the 228th Combat Communications Squadron operate on the base.

Downtown Island Home Airport. Knoxville's Downtown Island Home Airport, located five minutes from downtown, serves as another home base for smaller and privately owned airplanes. The Island Home Airport is a 150-acre general aviation facility with a 3,500-foot runway. It is home to nearly 140 private and corporate aircraft, with 24 hours a day service available.

Waterways. Fifteen miles away is the head of the Tennessee River navigation channel in Knoxville. This river is part of the Interconnected Inland Water System that links Knoxville with 21 states, the Mississippi River and the Great Lakes. Linkages may be made to the entire inland waterway system, allowing shipments to be made by water to Houston, Tampa, Pittsburgh, Minneapolis and Little Rock.

Six active river terminals handle barge shipments throughout the area. The Tennessee-Tombigbee Waterway links East Tennessee with 13 other states and the Gulf of Mexico. This 234-

mile canal connects 16,000 miles of waterways throughout Tennessee, Mississippi and Alabama leading to the Port of Mobile and the Gulf of Mexico. This Waterway shortens the shipping between Tennessee and the Gulf of Mexico by 882 miles and enables East Tennessee products to arrive at their Gulf destination from eight to nine days earlier. The development of the Tennessee-Tombigbee Waterway has been a catalyst for the development of industry and agriculture throughout the area. Barge shipping has always been a popular alternative to rail in East Tennessee because of the existence of the Inland Water System.

Knoxville has a Foreign Trade Zone and is an inland Port of Entry with a U.S. Customs Office. In 1988, Knoxville was given its Foreign Trade Zone designation by the U.S. Department of Commerce. This designation allows manufacturers to ship foreign raw materials and components to parts of Knoxville and store them duty free in Knoxville until used. In May 1991, the Foreign Trade Zone was activated.

EDUCATION

Knox County School System. The County operates 88 schools. Included are five magnet schools offering enhanced arts and science curriculum and a Science, Technology, Engineering, and Mathematics (STEM) Academy. In fall 2018, total public school enrollment was 60,752, while the system employed 3,927 teachers. In addition to public education, there are 51 private and parochial schools offering elementary and secondary instruction in Knox County.

Source: Tennessee Department of Education and Knox Metropolitan Planning Commission.

Post-secondary education is available at 11 public and private four-year institutions in Knox County and the surrounding area. The University of Tennessee's main campus is in Knoxville. Mississippi State Technical Community College and Roane State Community College offer two-year programs for technical and associate degrees along with four other vocational/technical institutions. There are four business colleges located in the area.

University of Tennessee, Knoxville (the “UT” or “UTK”). UTK is one of the oldest land-grant universities in the nation. There are over 230 buildings on a 600-acre campus. Blount College, UTK's forerunner, was established in Knoxville in 1794, two years before Tennessee became a state. With a fall 2018 enrollment of 28,894 students, UTK is the largest campus in the University of Tennessee System (the “System”). According to the U.S. News and World Report, UTK ranked 52nd among the nation's best public universities in 2019.

The System is a statewide institution governed by a 26-member Board of Trustees appointed by the governor of Tennessee. Institutions of the System are UTK, UT Health Science Center in Memphis, UT Chattanooga, UT Martin, UT Space Institute in Tullahoma, and UT Institute for Public Service in Knoxville. In addition to the primary campus, the Agricultural Campus houses the UT Institute of Agriculture, a statewide administrative unit that includes the College of Veterinary Medicine, the College of Agricultural Sciences and Natural Resources, the Agricultural Extension Service and the Agricultural Experiment Stations.

UTK is a major research institution, attracting more than \$130 million in externally sponsored programs annually. The Division of Aeromedical Services is one of the country's most

respected and comprehensive aeromedical programs. UTK is a co-manager with UT-Battelle, LLC of the nearby Oak Ridge National Lab (the “ORNL”). UT-Battelle, LLC was established in 2000 as a private not-for-profit company for the sole purpose of managing and operating the ORNL for the U.S. Department of Energy (the “DOE”). Formed as a 50-50 limited liability partnership between the UTK and Battelle Memorial Institute, UT-Battelle, LLC is the legal entity responsible for delivering the DOE’s research mission at ORNL. Faculty and students experience unparalleled research and learning opportunities at the DOE's largest science and energy lab.

UTK conducts externally-funded research totaling more than \$300 million annually, including some \$17 million annually in research sponsored by ORNL. Areas of joint research with ORNL include the Bioenergy Science Center’s work on cellulosic ethanol; the Center for Computational Sciences’ partnership with the National Science Foundation; and the Science Alliance, with divisions in biological, chemical, physical, and mathematical/computer science.

To meet the growing demand for pharmacists, a second UT College of Pharmacy building opened on the Knoxville campus in fall 2007 and enrolled an additional 225 students. The three-story building is adjacent to the Health Science Center’s Graduate School of Medicine. The UT College of Pharmacy will extend its reach across the state by adding Clinical Education Centers in Chattanooga, Jackson, Kingsport and Nashville.

The System and its statewide campuses bring in over \$2 billion in annual income to the State and support more than 50,000 jobs. UTK also generates an estimated \$237.6 million in state and local tax revenue per year. Students and visitors attending athletic events at each campus spent approximately \$348 million, accounting for \$147.3 million in income and 4,879 jobs.

Source: University of Tennessee, UT-Battelle and the News Sentinel.

Johnson University – Tennessee. Johnson University-Tennessee is a private, coeducational institution of higher learning offering associate, bachelor’s and master’s degrees about 12 miles from Knoxville. Founded in 1893, Johnson University-Tennessee is the second oldest continuing university in America. The purpose of the University is to educate students for specialized Christian ministries with emphasis on the preaching ministry. In the fall of 2018, total enrollment was 776 for the 350-acre campus.

Source: Johnson University.

Oak Ridge Associated Universities (the “ORAU”). ORAU is a consortium of 121 universities and a contractor for the DOE located in Oak Ridge, Tennessee. Founded in 1946, ORAU works with its member institutions that include UTK and its satellite campuses. The purposes are to help their students and faculty gain access to federal research facilities throughout the country; to keep its members informed about opportunities for fellowship, scholarship, and research appointments; and to organize research alliances among its members. Through the Oak Ridge Institute for Science and Education (the “ORISE”), the DOE facility that ORAU operates, undergraduates, graduates, postgraduates, and faculty enjoy access to a multitude of opportunities for study and research. A pioneer in technology transfer with historic contributions in nuclear medicine and health physics, ORAU today conducts specialized training in nuclear related areas of energy, health and the environment.

Source: Oak Ridge Associated Universities.

Pellissippi State Community College (the “PSCC”). Since its founding in 1974 as State Technical Institute at Knoxville, PSCC has expanded the teaching of technology, the use of technology in instruction, and the transfer of technology to local business and industry in support of regional economic development. Enrollment for fall 2018 was listed as 10,894. PSCC continues to support and develop career/technical associate’s degrees and institutional certificates, university parallel associate’s degree programs, and continuing education opportunities for the citizens of Knox, Blount, and surrounding counties. PSCC has been named one of the 200 fastest-growing community colleges in the nation, according to Community College Week. PSCC has released a 2018 report showing the school has pumped more than \$346 million annually into the Knoxville-area economy over the last 5 years.

Five campuses make up PSCC. The main campus is the Hardin Valley Campus in west Knoxville. The Division Street Campus and the Magnolia Avenue Campus, which opened in 2000, are also in Knoxville. A \$22 million campus was completed in late 2010 in Blount County. The Strawberry Plains campus began offering coursework in August 2012.

Source: Pellissippi State Community College and TN Higher Education Commission.

Roane State Community College (the “RSCC”). RSCC, which began operation in 1971 in Harriman, Tennessee, is a two-year higher education institution which serves a fifteen county area. Fall 2018 enrollment was 5,688 students. Designed for students who plan to transfer to senior institutions, RSCC academic transfer curricula include two years of instruction in the humanities, mathematics, natural sciences, and social sciences.

RSCC’s 138-acre main campus is centrally located in Roane County where a wide variety of programs are offered. RSCC has nine locations across East Tennessee – the Roane County flagship campus; an Oak Ridge campus; campuses in Campbell, Cumberland, Fentress, Loudon, Morgan and Scott Counties; and a center for health science education in west Knoxville.

Source: Roane State Community College.

South College. South College is a private institution that has been a part of Knoxville since 1882. With the main campus facility is located on Lonas Drive, South College has 5 campuses in Tennessee, Georgia and North Carolina. Throughout its history, South College has endeavored to meet the demands of the East Tennessee business community. South College offers a Master's of Health Science in Physician Assistant Studies and baccalaureate degree programs including Pharmaceutical Science (Pre-Pharmacy), Nursing, Health Science (Radiography/Nuclear Medicine), Elementary Education, Business Administration, and Legal Studies. Current associate degree programs include Radiography, Physical Therapist Assistant, Paralegal Studies, Business Administration, Accounting, and Medical Assisting. Nuclear Medicine and Post-Baccalaureate Program (Elementary Education K-6) are the certificate programs offered.

Source: South College.

Tennessee College of Applied Technology-Knoxville (the “TCAT-Knoxville”). TCAT-Knoxville is part of a statewide system of 27 vocational-technical schools. TCAT-Knoxville meets a Tennessee mandate that no resident is more than 50 miles from a vocational-technical shop. TCAT-Knoxville’s primary purpose is to meet the occupational and technical training needs of the citizens including employees of existing and prospective businesses and industries in the region. TCAT-Knoxville serves the central east region of the state including Knox and Blount Counties. TCAT-

Knoxville began operations in 1966, and the main campus is located in Knox County. Fall 2018 enrollment was 1,137 students.

Source: Tennessee College of Applied Technology-Knoxville.

Tusculum College Graduate and Professional Studies Program (the “Tusculum”). Tusculum maintains offices in Knoxville for its Graduate and Professional Studies Program, in addition to other class sites across East Tennessee. Located in Greeneville, Tusculum is a private college affiliated with the Presbyterian Church. Tusculum was founded in 1794, making it the oldest college in Tennessee and the twenty-eighth oldest college in the nation. Fall 2018 enrollment was 885. The wooded 140-acre Tusculum campus has eight buildings and the Tusculum Arch that are listed on the National Register of Historic Places. Tusculum is one of three colleges in the country to operate on a focused calendar, in which courses are scheduled one at a time.

Source: Tusculum College.

HEALTHCARE

Knoxville serves as a regional medical center for 27 counties in East Tennessee and Kentucky. The available technology, the specialized institutions, and a reputation for quality health care bring people into Knoxville from a 200-mile radius. There are 2,418 beds in nine acute care hospitals in the County, including three healthcare systems (Covenant Health Care, Tennova Health System and University of Tennessee).

Source: Knox Metropolitan Planning Commission and the News Sentinel.

Covenant Health

Covenant Health is a comprehensive health system established in 1996 by the consolidation of Fort Sanders Health System, Knoxville, Tennessee, and MMC HealthCare System, parent company of Methodist Medical Center of Oak Ridge, Tennessee. Covenant Health, headquartered in Knoxville, has ten acute-care hospitals plus inpatient and outpatient cancer care, behavioral and rehabilitation centers, home health, outpatient surgery and diagnostic centers, physician offices and more. More than 10,000 people are employed by Covenant Health and its member organizations, with nearly 1,500 affiliated physicians.

Covenant Health includes 30 member organizations, nine of which are acute care hospitals in East Tennessee: Fort Sanders Regional Medical Center and Parkwest Medical Center in Knoxville, Methodist Medical Center in Oak Ridge, Fort Loudon Medical Center in Lenoir City, LeConte Medical Center in Sevierville, Roane Medical Center in Harriman, Morristown-Hamblen Healthcare System in Morristown, Cumberland Medical Center in Crossville and Claiborne Medical Center in Tazewell. It also includes Peninsula Hospital, a psychiatric hospital in East Tennessee's Blount County. Covenant Health also operates numerous other healthcare facilities for outpatient clinics, cancer centers, breast centers, behavioral health, rehabilitation, home health and weight management facilities.

Over the last few years, the largest hospital operator in the area has built new or expanded facilities in Sevier, Loudon, Anderson, Cumberland and Knox counties. It recently finished construction for a \$150 million expansion project at Fort Sanders Regional Medical Center in Knoxville as well as for a new \$50 million hospital in Roane County.

Fort Sanders Regional Medical Center (the “Fort Sanders”). Part of Covenant Health, Fort Sanders is a 541-bed full-service acute care hospital with about 589 doctors located in the Fort Sanders community of downtown Knoxville. The hospital was built in 1919 and has about 1,704 employees, and had 16,585 admissions in 2016. In 2013, Fort Sanders received national recognition as a comprehensive stroke center; they are the second Tennessee hospital to receive this award. This certification from the Joint Commission on Accreditation of Healthcare Organizations means that the medical center is recognized as having the infrastructure, staff and training to receive and treat complex cases. Fort Sanders is a regional referral center for neurosurgery, neurological disorders, orthopedics, oncology, cardiology, obstetrics and rehabilitation medicine. Fort Sanders offers a variety of specialized services such as a 24-hour Chest Pain Center, one-day surgery, electrodiagnostics, a Sleep Disorders Center, a Diabetes Center, prenatal education, and sports medicine. A \$150 million expansion was completed for the facility in 2010.

Parkwest Medical Center (the “Parkwest”). Part of Covenant Health, Parkwest is the region's only Top 100 Heart Hospital (which the hospital has been named eight times). Parkwest has 462 beds with over 600 doctors on staff. The total employment is about 1,968, and there were 17,240 admissions in 2016. The campus includes one of the area's first all-digital catheterization laboratories and a comprehensive breast center with a multidisciplinary approach to women's health. Peninsula Behavioral Health is a division of Parkwest Medical. See “RECENT DEVELOPMENTS” for more information on a three year renovation that began in 2018.

Tennova Healthcare

Tennova Healthcare is a for-profit healthcare system and has several acute care hospitals in Knoxville and the surrounding area. Florida-based Health Management Associates Inc. bought Mercy Health Partners in 2011 and changed the name to Tennova Healthcare. Tennova Healthcare and Health Management Associates were acquired by Community Health Systems, Inc. (the “CHS”), based in Brentwood, TN. CHS is one of the nation's leading operators of general acute care hospitals based in Brentwood, TN. The organization’s affiliates own, operate or lease 106 hospitals in 18 states with approximately 17,000 licensed beds. There are ten CHS hospitals in Tennessee.

Tennova Healthcare facilities include the following: Turkey Creek Medical Center (Knox County), Jefferson Memorial Hospital (Jefferson County), Newport Medical Center (Cocke County), and LaFollette Medical Center (Campbell County). Dyersburg Regional Medical Center (Dyer County), Regional Hospital of Jackson (Madison County) and Volunteer Community Hospital (Weakley County) were sold by Tennova to West Tennessee Healthcare in 2018.

North Knoxville Medical Center. Part of Tennova Healthcare, North Knoxville Medical Center opened in the fall of 2007 in north Knox County. The full-service facility has 108 beds. In early 2018 it was announced that North Knoxville Medical Center will expand its cancer care services and undergo renovation to add cardiac catheterization laboratories and operating rooms so it can begin taking cardiac care and orthopedic, general and vascular surgeries originally performed at Physicians Regional. It is expected to be completed by 2020.

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Turkey Creek Medical Center (the “Turkey Creek”). Part of Tennova Healthcare, Turkey Creek Medical Center has 101 beds in west Knoxville. Turkey Creek has a 24-hour, full-service, all-digital campus, with a completely staffed emergency department that cares for men, women and children of all ages. Every patient room is a private room. An intensive care unit, state-of-the-art surgical suites, imaging services, rehabilitation services and specialized staff and physicians bring groundbreaking, comprehensive treatment. In early 2018 it was announced that Turkey Creek will convert its existing obstetrical beds to general medical/surgical beds and will add operating rooms and intensive care unit beds to accommodate more general and cardiovascular surgeries originally performed at Physicians Regional. It is expected to be completed by 2020.

East Tennessee Children’s Hospital (the “Children’s”)

Located in Knoxville, Children’s is a private, independent, not-for-profit pediatric medical center. There are 152 beds with 412 doctors on staff, representing 32 pediatric subspecialties. A total of 1,802 people are employed at the hospital, and there were 5,759 admissions in 2016. Children’s originally opened in 1937 and is the only Comprehensive Regional Pediatric Center in East Tennessee certified by the state. Pediatric services offered include ICUs, emergency services, outpatient clinics for oncology, hematology, diabetes, cystic fibrosis and a rehabilitation center. (See “RECENT DEVELOPMENTS” for more information.)

University Health System, Inc. (the “UHS”)

UHS is a regional health system that is comprised of the UT Medical Center, the UT Heart Hospital, UT Health Network and various partnerships and joint ventures with physicians and healthcare companies. UHS is affiliated with the University of Tennessee Graduate School of Medicine and numerous regional hospitals and physician organizations. UHS supports and collaborates with the UT Graduate School of Medicine and other academic endeavors as part of its commitment to excellence in education and research.

University of Tennessee Medical Center (the “UT Medical Center”). The UT Medical Center in Knoxville is an acute care teaching hospital with 640 beds and more than 550 doctors. The UT Medical Center employs 5,144 people and had 29,350 admissions for 2016. Designated as the region’s Level I adult and pediatric Trauma Center by the State of Tennessee, UT Medical Center provides the highest level of programs and emergency services. Critically ill patients are transported to UT Medical Center via one of LIFESTAR’S two helicopters.

Special care units such as cardiac care, open heart, medical intensive care, neuro-respiratory, and trauma surgical intensive care are available for patients who require maximum medical attention. A Level IV Intensive Care Nursery, a Pediatric Intensive Care Unit, a newborn nursery and many other programs comprising Children’s Health Services enable UT Medical Center to provide the region’s most comprehensive medical services for infants and children. UT Medical Center also serves as the Regional Perinatal Center. The UT Heart Hospital was opened in 2010. The Cancer Institute finished construction in 2012.

Source: Covenant Health, Tennova Healthcare, East TN Children’s Hospital, University Health System and the News Sentinel.

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SCIENCE AND ENERGY

History

The City of Oak Ridge has a unique history. This area was selected by the United States government in 1942 as the location for its production plants for uranium 235, a component of the first atomic bomb. The original town site was built during World War II to house and furnish necessary facilities for the employees of the uranium plants. This project (known as the "Manhattan Project") was transferred to the Atomic Energy Commission in 1947, and the community was operated by contractors under the control of the Atomic Energy Commission. In 1955, the Atomic Energy Commission sold the homes and land to the residents. In 1959, the residents voted in favor of incorporation under a modified city manager-council form of government.

Since the 1940's, the nuclear industry has been the largest employer for the City of Oak Ridge and Roane and Anderson Counties when a weapons fabrication division was built by the U.S. Corps of Engineers. As part of the secret World War II "Manhattan Project", the early task of the plant was the separation of fissionable uranium-235 from the more stable uranium-238 by an electro-magnetic process to be utilized in the world's first atomic bomb. Some 80,000 workers were hired for emergency construction of the laboratories and offices on the 56,000-acre site. At the peak of production during the war, 23,000 employees kept the separation units working at a cost of \$500 million for the entire project.

Today, the DOE occupies approximately 33,000 acres and almost 1,200 buildings within the Oak Ridge city limits, and employs over 13,000 in engineering, skilled and semi-skilled crafts, technical and administrative support. Since October 1999, DOE has contracted with the University of Tennessee and Battelle to manage the ORNL. UT-Battelle began management of the lab on June 1, 2000. Consolidated Nuclear Security, a Bechtel-led contractor team, took over management of the Y-12 nuclear weapons plant effective July 1, 2014 (BWXT, Inc. was the appointed contractor for the Y-12 Plant). DOE awarded its environmental cleanup contract to Bechtel Jacobs from 1997 to 2011. URS-CH2M Oak Ridge took over the cleanup contract in 2011.

Research

The extensive energy research and development conducted by private and public agencies make Oak Ridge one of the world's great research centers. The presence of the University of Tennessee, the ORNL, Oak Ridge Associated Universities and the Tennessee Valley Authority (the "TVA") makes Oak Ridge a prime location for research facilities, as well as technology-based and conventional manufacturing industries. Science is a worldwide business, and the facilities at DOE in Oak Ridge have attracted a large number of technical people and their families. ORNL campus also houses visiting scientists and researchers that come to work at the world-class facility in an \$8.9 million Guest House (built in 2010) with 47 units.

BioEnergy Sciences Center (the "BESC"). BESC is one of only three sites in the country operated by one of the DOE's new bioenergy research centers. It opened in ORNL in 2007. BESC works to accelerate research in the development of cellulosic ethanol and other biofuels, and make biofuel production cost competitive on a national scale. The new site received \$135 million in federal funding. The University of Tennessee serves as one of the academic partners, providing specialized instrumentation, plant breeding technologies and new microbe discovery. Energy crops

like switchgrass, which can be grown on marginal crop land, can produce affordable, domestic renewable fuel without raising food or feed costs. The BESC is dedicated to studying how to economically break down the cellulose in those sources to convert it into usable sugars for ethanol production.

Oak Ridge National Lab. ORNL is a multi-program science and technology laboratory managed for the DOE by UT-Battelle, LLC. Scientists and engineers at ORNL conduct basic and applied research and development to create scientific knowledge and technological solutions that strengthen the nation's leadership in key areas of science; increase the availability of clean, abundant energy; restore and protect the environment; and contribute to national security. ORNL also performs other work for DOE, including isotope production, information management, and technical program management, and provides research and technical assistance to other organizations. The laboratory is a program of DOE's Oak Ridge Field Office.

ORNL also boasts having the Spallation Neutron Source accelerator project (described below) and several supercomputers for scientific purposes. These unique projects bring about 3,000 scientists to visit each year for varying periods of time, and numerous small industries to be spun off from the experiments and findings. Each job created is expected to have an impact on housing, retail banking, automobile and transportation, hotels, restaurants, hospitals, and business services.

The world's most powerful neutron science project is the *Spallation Neutron Source* (the "SNS") at ORNL. The giant research complex, spread across 75 acres on Chestnut Ridge a couple of miles from the main ORNL campus, is the world's top source of neutrons for experiments. The SNS is an accelerator-based neutron source built in Roane County by DOE. The SNS provides the most intense pulsed neutron beams in the world for scientific research and industrial development. At a total cost of \$1.4 billion, construction began in 1999 and was completed in 2006. In 2009, SNS reached full power when it set the world record in producing beam power three times more powerful than the previous world record. More neutrons are produced with a higher beam power.

Neutron-scattering research has a lot to do with everyday lives. For example, things like jets; credit cards; pocket calculators; compact discs, computer disks, and magnetic recording tapes; shatter-proof windshields; adjustable seats; and satellite weather information for forecasts have all been improved by neutron-scattering research. Neutron research also helps researchers improve materials used in high-temperature superconductors, powerful lightweight magnets, aluminum bridge decks, and stronger, lighter plastic products. The medical field will also be impacted with new drugs and medicines expected from experiments at the SNS.

ORNL is also completing a series of upgrades at the *High Flux Isotope Reactor*. This ORNL facility is sometimes referred to as the lab's "other" billion-dollar machine. It is the world's most powerful research reactor, and it is used to perform experiments similar to - but different from - those to be done at the Spallation Neutron Source.

ORNL's *Supercomputers* are housed in a 170,000-square-foot facility that includes 449 staff and 40,000 square feet of space for computer systems and data storage. The facility will house or has housed five supercomputers - the "Summit", currently ranked the fastest supercomputer in the world as of June 2018, the new exascale computer "Frontier" that has yet to be completed, the "Titan", the

“Kraken”, and the now dismantled “Jaguar”. “Summit”, built by IBM, is the third computer at Oak Ridge to be ranked number one. The “Titan” was the world’s fastest at its November 2012 debut, and the “Jaguar” while in operation held the title twice in November 2009 and June 2010. The machines work on breakthrough discoveries in biology, fusion energy, climate prediction, nanoscience and many other fields that will fundamentally change both science and its impact across society.

The “Summit” supercomputer cost an estimated \$200 million to build and is used for a wide range of scientific applications including combustion science, climate change, energy storage and nuclear power. “Summit” also serves as an artificial intelligence and deep learning computer, capable of analyzing massive amounts of data and automating critical steps of the discovery process.

The “Summit” was operational in 2018 and is eight times faster than the “Titan”. “Summit” is able to make over 140 quadrillion calculations per second, measured as 140 petaflops. Due to all the energy and heat produced by the calculations, “Summit” produces more heat per square centimeter than tiles on the bottom of a spaceship re-entering Earth's atmosphere. Therefore, “Summit” is cooled by water pumped through plates that sit on top of the computer's chips. In all, “Summit” uses up to 15 megawatts, equivalent to the power 9,000 to 18,000 homes would consume, depending on the time of day. At peak, “Titan” uses about 9 megawatts.

The uncompleted “Frontier” exascale computer ORNL hopes to have built by 2021 will be 50 times faster than the “Summit”. This exascale computer will replace the “Titan”.

The National Oceanic and Atmospheric Administration (the “NOAA”) sponsors the “Titan”, funded with Recovery Act money. NOAA awarded Cray and ORNL a \$47 million contract to provide the supercomputer “Titan” to work on climate research. The Cray supercomputer, the “Titan”, was online in late 2012 after several years of development to replace the “Jaguar” supercomputer at ORNL. When the “Titan” was listed as the world’s fastest computer in late 2012 it marked the fourth time a computer from ORNL has achieved that distinction since 1953. The “Titan’s” purpose is to support research in energy, climate change, efficient engines and materials science. “Titan” is capable of a peak performance of about 27-petaflops. That speed is about 10 times the capability of the first “Jaguar”, which at one time was the world's fastest computer. The total cost of the “Titan” was estimated to be about \$100 million, but about \$20 million was saved by reusing much of the “Jaguar” structure.

The DOE and the National Science Foundation (the “NSF”) sponsor the supercomputer “Kraken” which came online in 2009. The NSF awarded the University of Tennessee (the “UT”), ORNL and other institutions a \$65 million grant to build “Kraken” to work on a range of scientific challenges, such as climate change and new medicines. UT’s “Kraken” is housed with the ORNL’s “Titan”.

Through interagency agreements, DOE's Oak Ridge facilities have launched a highly successful "work for others" program. Local firms contract with numerous federal agencies to provide services and products. The value of these contracts have grown from approximately \$50 million in 1983 to \$270 million in recent years.

Tennessee Valley Authority (the “TVA”). TVA provides support, technology, expertise, and financial resources to existing businesses and industries in its service area, including Knox County, to help them grow and be more efficient and profitable. These resources include technical assistance, low-interest loans, and other tools needed by businesses for successful operation.

University of Tennessee. The University of Tennessee's flagship campus in Knoxville is home to a wide array of vigorous programs doing research on issues vital to the community, the state, the nation, and the world. The university has collaborative relationships with public and private agencies including ORNL, Battelle Memorial Institute (forming UT-Battelle), St. Jude Children's Research Hospital, the Memphis Bioworks Foundation, and the Boston-Baskin Cancer group (forming UT Cancer Institute).

National Institute for Mathematical and Biological Synthesis (NIMBioS) is a first-of-its-kind institute dedicated to combining mathematics and biology to solve problems in both scientific fields. The center was funded by a 2008 \$16 million award from the National Science Foundation and is located at the University of Tennessee. A unique aspect of NIMBioS will be its partnership with the Great Smoky Mountains National Park. The park and its Twin Creeks Science Center play a key role in the institute's work, with the park serving as a testing ground for many of the ideas that come from NIMBioS. Partners in NIMBioS include the US Department of Agriculture and the US Department of Homeland Security, IBM and ESRI, a developer of software and technology related to geographic information systems. It draws over 600 researchers each year to Knoxville.

Source: City of Oak Ridge, ORNL, Y-12 National Security Complex and the Knoxville News Sentinel.

Nuclear

Integrated Facilities Disposition Program. The DOE has approved a massive \$18 billion Oak Ridge cleanup campaign. The cleanup program would demolish more than 400 contaminated building at ORNL and the Y-12 nuclear weapons plant. The program would also focus on mitigating polluted ground water at the sites and other actions to reduce environmental damage. The work began in 2011 and could take up to 45 years to complete.

In 2015, \$424 million was set aside for the environmental cleanup activities in Oak Ridge.

The 2009 stimulus act passed by Congress gave the DOE Oak Ridge's office \$1.9 billion for environmental cleanup projects. The stimulus money sent directly for projects in Oak Ridge, \$1.2 billion, saved or created about 3,863 new jobs through sub-contracting construction-type jobs as well as technical and specialty positions associated with handling radioactive materials and evaluating environmental risks. The clean-up money was divided among four sites: \$239 million to ORNL, \$292 million to Y-12, \$144 million to East Tennessee Technology Park and \$80 million to the Transuranic Waste Processing Center. At Y-12 alone, seven cleanup projects created 2,000 jobs, demolished about 150,000 square feet of old buildings and got rid of about 74,000 cubic meters of waste.

A former gaseous diffusion building was torn down by the DOE as part of its program to convert the former K-25 site for use by private industry. The K-25 Building was part of a series of mammoth buildings to enrich uranium for weapons and fuel for nuclear power plants. The building went into operation in 1951 and was shut down in 1987. The building in size equated to 6 1/2 football fields under one roof. Demolition was completed at the end of 2007. The gigantic K-25

building, a mile-long U-shaped structure that processed the uranium in WWII, was demolished in 2010.

Y-12 National Security Complex. The Y-12 National Security Complex is another large federal plant in Oak Ridge. The ongoing functions of the Y-12 plant are to support the DOE's weapons design labs, recover U-235 from spent nuclear weapons and provide support to other government agencies.

Y-12 has been undergoing a major modernization program. Y-12 is a key facility in the U.S. Nuclear Weapons Complex and is responsible for ensuring the safety, reliability, and security of the nuclear weapons stockpile and serves as the nation's primary repository of highly enriched uranium. Y-12 houses the country's stockpile of bomb-grade uranium, builds uranium bomb parts and dismantles nuclear weapon systems as needed to support a much smaller nuclear arsenal. The National Nuclear Security Administration (the "NNSA") is planning to transform the nuclear weapons complex to be smaller, more efficient and more cost effective. The goal is by 2020 to have only two facilities where there used to be 700 buildings.

Contractors have already demolished dozens of World War II era buildings at Y-12, about a million square feet since 2001, to reduce the surveillance and maintenance costs, and to support the new programs. Some new office buildings already have been built, including the Jack Case Center that holds about a third of the workforce, or around 1,500 employees. This \$58 million, 420,000-square-foot office building was completed in the summer of 2007. A new 137,000-square-foot visitor's center and auditorium, for about \$18 million, was also completed in 2007.

Outfall 200, a water treatment plant designed to capture Y-12 mercury runoff, began site preparation in 2017 and cost \$1.4 million. A four-year construction period for the plant will begin in 2019 with a projected cost of \$92 million. Once operational, the treatment facility will have a treatment capacity of 3,000 gallons of water per minute and have a 2-million-gallon storage capacity.

The \$549 million *Highly Enriched Uranium Materials Facility* at Y-12, a storage complex for weapons-grade uranium, was completed in late 2008. This storage facility replaced multiple aging facilities and allows for storage of its uranium stocks in one central location that represents maximized physical security with minimal vulnerabilities and operating costs. It is designed to protect the large cache of U-235 against any type of terrorist assault. The facility is currently over 85% storage capacity of bomb-grade uranium.

The *Uranium Processing Facility* (the "UPF") Project, cornerstone of Y-12's new modernization strategy, will replace current enriched uranium and other processing operations. It will replace Y-12's main production center and cost \$6.5 billion. In 2018, the last approval from the DOE was given to build the final three buildings that will make up the UPF. The \$6.5 billion project will be the largest construction project the state has ever seen, and the project is expected to create more than 2,000 jobs during peak construction. The design phase began in 2006, construction began in 2009, and the facility should be in operation by 2025. Construction of the UPF will accelerate consolidation of aging facilities, bringing production operations currently housed in multiple buildings together, reducing the size of the plant's highest security area by 90 percent, improving the overall security posture, making the plant more secure and saving millions of dollars in annual operating costs. See "RECENT DEVELOPMENTS" for more information.

Source: City of Oak Ridge, ORNL, Y-12 National Security Complex and the Knoxville News Sentinel.

Solar and Renewable Energy

Tennessee was an early leader among southeastern states in developing its renewable energy resources. The southeastern region's first major wind farm, located on Buffalo Mountain near Oliver Springs, Tennessee, began operating as a 2-megawatt facility in 2000. Its generating capacity has since been expanded to 29 megawatts. Two utility-scale solar photovoltaic facilities in McNairy County, Tennessee, are the largest in the state and have a combined capacity of 40 megawatts.

In 2015, Knox County installed 5 megawatts of solar photovoltaic systems on the rooftops of several county buildings to provide more than \$29 million in energy savings to the county over the next three decades. (See “RECENT DEVELOPMENTS” for more information.)

Tennessee Valley Authority (the “TVA”). As of 2018, TVA has contracted or installed around 400 megawatts of solar generating capacity, has more than 1,200 megawatts of wind power, and over 50 megawatts from burning organic garbage. About 13 percent of TVA’s power comes from renewable sources, with 3 percent of that comes from wind and solar (it is projected to increase to 5 percent by 2025).

TVA operates eight solar power facilities in Tennessee, including a 97-kilowatt facility at Finley Stadium in Chattanooga, Tennessee. Tennessee is one of the top three hydroelectric power producers east of the Rocky Mountains due to the many TVA hydroelectric power plants located on the Tennessee and Cumberland River systems. Hydroelectric power, although variable, has been contributing about one-eighth of the state's net generation in recent years. Biomass, primarily from wood and wood waste, also contributes a small amount to the state's net generation. TVA also uses methane gas from the Memphis wastewater treatment plant to boost generating capacity at one coal-fired power plant, increasing the plant's capacity by 8 megawatts.

Tennessee Solar Institute. Located in Knoxville, the Tennessee Solar Institute is part of the Volunteer State Solar Initiative with UTK and ORNL. The objective of the initiative will be to find ways of reducing the cost of producing solar energy and ways to store energy until needed. Among other purposes, it brings together scientists, engineers and technical experts with business leaders, policymakers and industry workers to help speed the deployment of solar photovoltaic technology. It is designed to be a home for regional and state initiatives that foster the creation of new businesses.

Solar Manufacturing Plants. East Tennessee has several manufacturing plants. In East Knoxville, Efficient Energy built a 1.2 megawatt solar panel site with Natural Energy Group to be used for local research and education (see “RECENT DEVELOPMENTS”). In Roane County near the ORNL, a smaller array of 200-kilowatts was online in 2012 with plans to expand into the Brightfield One Project. In Bradley County, the \$2.5 billion Wacker Polysilicon plant created 650 jobs to produce silicon used for the solar energy industry. The plant was operational in early 2016. Also in Bradley County, a new \$30 million, 9.5-megawatts solar park is providing power to the Volkswagen Plant in Chattanooga.

In West Tennessee, Sharp Electronics in Shelby County (Memphis) has a large array consisting of nearly 4,160 solar panels for \$4.3 million that cover the plant’s roof to generate about

200 kilowatts of power. Sharp Electronics also has produced over 2 million solar panels since 2003 and has over 480 employees. The West Tennessee Solar Farm in Haywood County has two solar arrays that came online in 2012: a \$31 million, five megawatt generating facility uses more than 21,000 panels, and another solar array that generates 1 megawatts of energy.

Efficient Energy of Tennessee. Efficient Energy, in partnership with Natural Energy Group, built a solar panel site in East Knoxville in 2010. The site has more than one megawatt worth of solar panels on a five-acre lot. The 4,608 solar panels can produce nearly 1.2 megawatts of electricity, enough to power about 125 homes. The site is also a resource for local research and educational organizations, such as the Oak Ridge National Lab, Cleveland State Community College and Pellissippi State Community College.

Source: U.S. Department of Energy (Energy Information Administration), Memphis Commercial Appeal, the Knoxville News Sentinel and the University of Tennessee.

MANUFACTURING AND COMMERCE

Because of its central location in the eastern United States, the Knoxville area serves thousands of industrial and commercial customers in a concentrated eight-state area. It is within 500 miles of approximately one-third of the population of the United States. Located within the County and City are approximately 1,112 wholesale and distribution houses, 1,606 retail establishments and 8,247 service industries.

Brookings Institution in 2016 ranked the Knoxville Metro Area 54th nationally in prosperity, based on growth in jobs, wages and population. Among other Tennessee metro areas, Knoxville was second only to Nashville (10th ranked). In 2015, Forbes magazine listed Knoxville as the second most affordable city in America based on housing prices, living costs and the consumer price index.

Economic diversity characterizes Knoxville's landscape of commerce and industry, with companies like media giant Scripps Networks Interactive (HGTV, Food, Travel, DIY, Cooking, and GAC) and Sysco Corporation (largest food service marketer and distributor in North America) calling the area home. Also, there are national and global leaders Clayton Homes, Brunswick Corporation, Keurig Green Mountain, Bush Brothers, Pilot Flying J, and Ruby Tuesday.

The County has seven business parks and a Technology Corridor to meet a wide range of corporate facility needs. The Forks of The River Industrial Park has 1,615 acres. EastBridge Business Park has 800 acres. WestBridge Business Park has 250 acres. Pellissippi Corporate Center has 150 acres. Hardin Business Park is a light industrial park with 95 acres. CenterPoint Business Park is a commercial park with 60 acres. The 44-acre I-275 Business Park was sold to Sysco Corp.

A proposed 275-acre business park off Midway Road was approved in 2016 by the Metropolitan Planning Commission and the Knox County Commission. It is expected to be several years before any development occurs, but when complete, it could add about 2,200 new jobs to the area.

The County had about 13,077 businesses and the MSA had 20,731 businesses operating in 2017. The vacancy rate for these buildings was 16.4%. The County had 469 manufacturing facilities

in 2017 and the MSA had 874 for the same period.

Knoxville-Oak Ridge Innovation Valley Inc. is an investor-directed program for five counties designed to recruit, retain and expand business growth throughout the Innovation Valley region. The organization is focused on technology-led economic development, as well as education and workforce development. These two areas of focus represent key differentiators in this plan of work.

The Pavilion at Turkey Creek (the “Turkey Creek”). Turkey Creek is the largest single commercial development ever built in the metropolitan area of Knoxville. Designed for mixed use and beautifully landscaped, Turkey Creek boasts more than 300 acres of space zoned for retail shopping outlets, medical facilities, theaters, office space, banks, restaurants and hotels. The developers of Turkey Creek also created a 58-acre nature preserve and designed greenways throughout the site. Being only three miles from the junction of Interstate 75 and 40 to the west and 14 miles from downtown Knoxville makes the site a quick drive from the urban center, suburban Knoxville, and rural counties.

Source: Knox News Sentinel and Knox County Metro Planning Commission 2018.

LARGEST EMPLOYERS

The major areas of employment in Knox County are the services, retail trade and government. Comparatively, both the state and the nation show a heavier concentration in manufacturing than does Knox County.

The following is a list of the major sources of employment in the Knoxville MSA:

Ten Largest Employers in the County

<u>Name</u>	<u>County</u>	<u>Industry</u>	<u>Employment</u>
Covenant Health Alliance ¹	Knox	Health Care	10,419
Knox County Public Schools	Knox	Education	7,881
The University of TN, Knoxville	Knox	Education	6,689
University Health System	Knox	Health Care	5,316
Tennova Health System ²	Knox	Health Care	4,001
State of Tennessee	Knox	Regional Government	3,529
K-VA-T Food Stores (Food City)	Knox	Retail	3,328
Knox County	Knox	Government	3,204
Tennessee Valley Authority ³	Knox	Power	3,017
City of Knoxville	Knox	Government	2,637

¹ Includes Ft. Sanders Reg Med Center, Parkwest, Methodist Med Center & all other Covenant Hospitals in the area.

² Includes all Tennova Health System hospitals in the area.

³ Includes Corporate headquarters in Knoxville, Bull Run Steam Plant, Norris and Corryton with 1,271 TVA employees and 1,746 contract employees.

Source: Greater Knoxville Chamber of Commerce and the News Sentinel – 2018.

Major Employers in the Knoxville MSA

<u>Name</u>	<u>County</u>	<u>Industry</u>	<u>Employment</u>
Covenant Health Alliance ¹	Knox	Health Care	10,419
Knox County Public Schools	Knox	Education	7,881
Y-12 National Security Complex ²	Roane	National Security	7,000
The University of TN, Knoxville	Knox	Education	6,689
Wal-Mart Stores	MSA	Retail	5,881
University Health System	Knox	Health Care	5,316
Denso ⁴	Blount	Automotive Parts	4,439
Oak Ridge National Lab ²	Roane	National Security	4,387
Tennova Health System ³	Knox	Health Care	4,001
Dollywood Co. ⁵	Sevier	Amusement Park	4,000
State of Tennessee	Knox	Regional Government	3,529
K-VA-T Food Stores (Food City)	Knox	Retail	3,328
Knox County	Knox	Government	3,204
Tennessee Valley Authority ⁶	Knox	Power	3,017
Kroger Co	MSA	Retail	2,952
Sevier County Schools	Sevier	Education	2,750
City of Knoxville	Knox	Government	2,637
Tanger Five Oaks	Sevier	Retail Shopping	2,500
Clayton Homes	Blount	Mobile Homes	2,457
Blount Memorial Hospital	Blount	Healthcare	2,387
Team Health Inc.	Knox	Healthcare	2,260
Pilot / Flying J	Knox	Fuel and Travel Centers	1,893
East TN Children's Hospital	Knox	Health Care	1,859
Yum! Brands	MSA	Restaurants (KFC, Pizza Hut & Taco Bell)	1,853
Blount County Schools	Blount	Education	1,800
U.S. Postal Service	MSA	Mail Service	1,734
McGhee Tyson ANG Base	Blount	Air National Guard Unit	1,717
UCOR	Roane	Engineering	1,600
Cracker Barrel	MSA	Restaurant	1,598
Copper Cellar Corp	Knox	Restaurants (Calhoun's & etc)	1,576
CVS Caremark Inc.	MSA	Retail	1,560
Jewelry Television	Knox	Home-Shopping Cable Network	1,500
Newell Brands	Blount	Manufacturing	1,500
United Parcel Service	Knox	Transportation	1,450
Summit Medical Group	Knox	Health Care Providers	1,424
Lowe's Home Improvement	MSA	Retail	1,250
Elavon	Knox	Credit Card Processing Center	1,239

<u>Name</u>	<u>County</u>	<u>Industry</u>	<u>Employment</u>
Home Depot	MSA	Retail	1,228
SL Tennessee	Anderson	Auto Parts	1,150
Pellissippi State Tech. College	Knox	Education	1,143
Scripps Networks (HGTV)	Knox	Cable Networks	1,057
Anderson County Schools	Anderson	Education	1,050
Roane County Schools	Roane	Public School System	1,050
Target Co.	MSA	Retail	1,045
Walgreens Co.	MSA	Retail	1,018
Knoxville Utilities Board	Knox	Utilities	1,014
Arconic (formerly ALCOA) ⁷	Blount	Aluminum Ingot, Coiled Steel	1,000
Oak Ridge Associated Universities ²	Roane	National Security	1,000
Burleson Brands, Inc.	MSA	Restaurants (Aubrey's, etc)	975
University Physicians Association	Knox	Health Care Providers	952
Weigel Stores	MSA	Retail	950
Collier Restaurant Group	MSA	Restaurants	900
Southeast Food Co. (Wendy's Co.)	MSA	Restaurants	883
First Tennessee Bank	Knox	Banking	882
AT&T	MSA	Telecommunications	864
Darden Restaurants	MSA	Restaurants (LongHorn & Olive Garden)	855
Oak Ridge City Schools	Anderson	Education	850
Aisin Automotive	Anderson	Manufacturing	800
Eagle Bend Manufacturing	Anderson	Automotive	800
Quality Home Health	Knox	Healthcare	800

¹ Includes Ft. Sanders Reg Med Center, Parkwest, Methodist Med Center & all other Covenant Hospitals in the area.

² Joint venture of University of Tennessee and Battelle. The total employees for all of the ORNL / Y-12 facility is 11,387.

³ Includes all Tennova Health System hospitals in the area.

⁴ Headquarters based in Blount Co., but employment excludes some 874 employees working in McMinn Co.

⁵ Employment figure is based on Operating season; it drops to around 300 during the off-season.

⁶ Includes Corporate headquarters in Knoxville, Bull Run Steam Plant, Norris and Corryton.

⁷ Includes some employees working in Knox Co.

Source: Dept. of Economic Development, the News Sentinel & Anderson County Audit - 2018.

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EMPLOYMENT INFORMATION

For the month of May 2019, the unemployment rate for Knoxville stood at 2.9% with 97,370 persons employed out of a labor force of 100,250. For the month of May 2019, the unemployment rate for Knox County stood at 2.7% with 243,630 persons employed out of a labor force of 250,290.

The Knoxville MSA's unemployment for May 2019 was at 2.9% with 426,640 persons employed out of a labor force of 439,420. As of May 2019, the unemployment rate in the Knoxville-Sevierville-Harriman-LaFollette CSA stood at 2.9%, representing 547,970 persons employed out of a workforce of 564,600.

	Unemployment				
	Annual Average	Annual Average	Annual Average	Annual Average	Annual Average
	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>	<u>2018</u>
National	6.2%	5.3%	4.9%	4.4%	3.6%
Tennessee	6.6%	5.6%	4.7%	3.8%	3.5%
Knoxville	6.1%	5.2%	4.4%	3.4%	3.1%
Index vs. National	98	98	90	77	86
Index vs. State	92	93	94	89	89
Knox County	5.4%	4.7%	4.0%	3.2%	2.9%
Index vs. National	87	89	82	73	81
Index vs. State	82	84	85	84	83
Knoxville MSA	6.1%	5.2%	4.4%	3.6%	3.3%
Index vs. National	98	98	90	82	92
Index vs. State	92	93	94	95	94
Knoxville-Sevierville- Harriman CSA	6.4%	5.5%	4.6%	3.7%	3.4%
Index vs. National	103	104	94	84	94
Index vs. State	97	98	98	97	97

Source: Tennessee Department of Employment Security, CPS Labor Force Estimates Summary.

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A diversified economy is credited for the stability of local employment and wages. Non-Farm Employment by industry (excluding self-employed) for the Knoxville MSA in 2018:

<u>Industry</u>	<u>Employment Number</u>
Total Non-Farm Employment	397,200
Total Private	336,500
Total Public	60,700
Goods Producing	59,700
Mining, Logging, Construction	19,500
Manufacturing:	40,200
Durable Goods Manufacturing	29,400
Nondurable Goods Manufacturing	10,800
Service-Providing	337,500
Trade, Transportation, Utilities:	76,800
Wholesale Trade	16,700
Retail Trade	46,400
Transportation, Warehousing, Utilities	13,700
Information	5,700
Financial Activities	19,300
Professional and Business Services	64,400
Educational and Health Services	53,100
Leisure and Hospitality	42,500
Other Services	15,000
Government:	60,700
Federal	4,500
State	20,500
Local	34,800

Source: Tennessee Department of Labor and Workforce Development.

ECONOMIC DATA

The quality of life, low cost of living and excellent transportation facilities are among the factors that attract firms to the Knoxville area. Telecommunications is a field that is rapidly growing in the area. Several national firms - Hospitality Franchise Systems (Days Inn), Talbots, Whirlpool and Sears - have established telecommunication centers in Knoxville. The City has put significant emphasis on attracting companies to the area and on the expansion of existing facilities. Companies which have their corporate headquarters in Knoxville include Pilot Flying J, Clayton Homes, Scripps Networks, Anchor Advanced Products, Inc., Regal Cinemas and Bandit Lites.

Leisure Boat Manufacturing. Due to the Tennessee Valley Authority (the “TVA”) system of lakes and rivers, East Tennessee is an excellent place to test boats without worrying about hurricanes while being near the Interstate crossroads. Channelization of the Tennessee River to a 9-foot minimum navigable depth from its junction with the Ohio River at Paducah, Kentucky to the City gives the surrounding communities the benefits of year-round, low-cost water transportation and a port on the nation's 10,000-mile-inland waterway system. It takes a week to deliver the yachts too large for the interstate from the reservoir down the series of locks on the Tennessee River, along the Tennessee-Tombigbee Waterway, then on to the Gulf of Mexico and beyond. This system, formed largely by the Mississippi River and its tributaries, effectively links the River with the Great Lakes to the north and the Gulf of Mexico to the south.

Boat manufacturers in the area listed by county are below:

Knox County:	Bullet Boats, and Sailabration Houseboats
Monroe County:	Sea Ray Boats, Mastercraft Boats, Yamaha-TWI and Bryant Boats
Blount County:	Skier's Choice, Allison and Stroker Boats
Loudon County:	Malibu Boats
Cumberland County:	Leisure Kraft Pontoon
Campbell County:	Norris Craft Boat Company

Per Capita Personal Income

	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	<u>2017</u>
National	\$44,826	\$47,025	\$48,940	\$49,831	\$51,640
Tennessee	\$39,549	\$40,977	\$42,810	\$43,932	\$45,517
Knox County	\$41,765	\$43,747	\$45,744	\$46,577	\$48,160
Index vs. National	93	93	93	93	93
Index vs. State	106	107	107	106	106
Knoxville MSA	\$38,267	\$39,816	\$41,611	\$42,547	\$43,903
Index vs. National	85	85	85	85	85
Index vs. State	97	97	97	97	96
Knoxville-Sevierville-Harriman CSA	\$36,786	\$38,233	\$39,953	\$40,847	\$42,102
Index vs. National	82	81	82	82	82
Index vs. State	93	93	93	93	92

Source: U.S. Department of Commerce, Bureau of Economic Analysis.

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RECREATION AND TOURISM

Although industry is frequently considered the core of an economic base, secondary and tertiary activities also make important contributions to economic development. The convention and tourist business contribute to the City's economic base in the sense that income is drawn into the region resulting in employment and investment opportunities in tourist-related facilities.

This influx in tourist-related income provides stimulus to economic development in the area. In recognition of the important role tourism plays in the economy of the County, local authorities created Visit Knoxville. The organization's purpose is to encourage tourism and tourist-related activity.

Sports. Knox County has over 6,415 acres of park and recreation space, including 19 recreation centers, four senior citizen centers, four skateparks, seven dog parks, ten public golf courses, and approximately 183 miles of greenway and walking trails. Just three miles from downtown is 1,000 forested acres and 50 miles of multiuse trails known as Knoxville Urban Wilderness.

The Tennessee Smokies provide AA minor league baseball in neighboring Sevier County. The Knoxville Ice Bears provide professional hockey at the Coliseum October through March. National championship UTK sports teams, including the 2007 and 2008 NCAA National Champion Lady Vols, draw thousands of enthusiasts to games each year. The City is also home to the Women's Basketball Hall of Fame.

State and National Parks. The County is the principal gateway area to the Great Smoky Mountains National Park (the "GSMNP"), located 40 miles to the southeast. The beauty of the Great Smoky Mountains has always attracted visitors to this region. There are over 500,000 acres that make up the nation's most visited National Park, extending over the states of Tennessee and North Carolina. The Tennessee side of the GSMNP received 6.3 million visitors in 2016, more than twice the number of any other national park in the country. Major attractions in the Smokies are Gatlinburg (40 miles southeast of the City), a tourist town in the mountains with overnight accommodations for 60,000 people, and Pigeon Forge (20 miles southeast of the City), a tourist town at the foothills of the mountain with overnight accommodations for 40,000 people. Numerous restaurants, gift and craft shops, along with ski lodge, ski lifts and tramway, make Gatlinburg a year-round resort town. Pigeon Forge is known for being home to hundreds of retail outlets and Dollywood, a theme park named for the country music singer, Dolly Parton.

Other parks and recreational areas in the Greater Knoxville area include: Big South Fork National River and Recreational Area 100,000 acres; Frozen Head State Natural Area 11,562 acres; Norris Dam State Resort Park 4,000 acres; Big Ridge State Park 3,687 acres; Cumberland Mountain State Park 1,720 acres; Panther Creek State Park 1,400 acres; Cove Lake State Recreational Area 667 acres; Roan Mountain State Resort Park 600 acres; Fort Loudon State Historical Area 500 acres; Indian Mountain State Park 213 acres; Warriors' Path State Recreational Park 500 acres; Trail of the Lonesome Pine: State Scenic Trail 35 miles; and Cumberland Trail: Section II: Tennessee Scenic Trails System Act 31 miles.

Lakes and Wildlife. Seven TVA lakes surround Knoxville and provide year-round fishing and boating. There are no closed seasons on TVA waterways. Area lakes provide over 3,425 miles of shoreline and 266 square miles of water surface.

Alpine Skiing. Ober Gatlinburg Ski Resort in Sevier County and Cumberland Gardens Resort in nearby Cumberland County offer convenient facilities for winter skiing.

Conventions, Events and Festivals. Special seasonal events include the Dogwood Arts Festival in the spring and December's celebration, Christmas in the City. Knoxville supports an active tourism and convention trade with a 500,000-square-foot convention center located downtown at World's Fair Park. Other local facilities are a large civic coliseum/auditorium, two exhibition halls, and UTK's 22,000-seat Thompson Boling Arena.

Cultural Activities. The General James White Memorial Civic Auditorium and Coliseum Complex, the historic Tennessee Theatre and the Bijou Theater host a variety of performances, including the Knoxville Symphony Orchestra, touring Broadway productions, ice shows, circuses, concerts of all types and the professional hockey team, The Knoxville Ice Bears. Local radio station WDVX hosts a live radio broadcast weekdays downtown called "The Blue Plate Special" where nationally known artists and area performers appear free of charge.

The University of Tennessee Theaters continue to provide a wealth of entertainment and culture to Knoxvilleans. The Clarence Brown Theater, UTK's premier performance space, seats 600 in a proscenium theater. The Clarence Brown Theater Company is dedicated to the classics of the stage and produces three full scale and one or two touring productions each season. The Carousel Theater is UTK's smaller theater which holds 250-300 people.

The Knoxville Museum of Art and the Emporium Center for Arts and Culture feature changing exhibits throughout the year, while the area's libraries, historic sites, and museums, such as East Tennessee History Center, McClung Museum of Natural History and Culture, Museum of Appalachia, and Beck Cultural Center, celebrate regional heritage.

Other popular events in Knoxville are presented by the Knoxville Symphony Orchestra, Knoxville Opera, the Appalachian Ballet Company, Circle Modern Dance Company, Carpert Bag Theatre, Tennessee Stage Company, Tennessee Valley Players, Knoxville Choral Society, and the Tennessee Children's Dance Ensemble, the only professional dance troupe for children in the country.

Ijams Nature Center. Ijams Nature Center is a nonprofit environmental education and resource center located on 300 acres on the banks of the Tennessee River in South Knoxville. The area encompasses woods, meadows, sinkholes, a spring-fed pond, and informal perennial gardens connected by a series of trails. The park has been developed to display East Tennessee's ecological systems at work and provide a conservation area for wildlife indigenous to the park. A number of high-quality programs, events, and environmental information are available to schools, the media and the general public.

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Knoxville Zoological Gardens (the “Zoo Knoxville”). Zoo Knoxville is recognized as one of the top 20 zoos in America. It is located on 80 acres and has more than 1,000 species of animals. Zoo Knoxville has the largest “big cat” collection in the United States and is home to the first African Elephant birth in the United States. Zoo Knoxville is also home to the newly developed Gorilla Valley, where three baby gorillas were born during 2015 and 2016. The gorillas are the first of the endangered species to be born at the park and the first born in Tennessee in 30 years. Zoo Knoxville has a collection of red pandas and is the world leader in captive breeding of this rare breed. In addition, a critically endangered red wolf pup was born at the zoo in April 2016; the male pup is the first red wolf born at the zoo in 23 years.

Source: Knoxville News Sentinel and the Knox County Metro Planning Commission 2018.

RECENT DEVELOPMENTS

Following are some recent developments within the boundaries of the City and County and the Knoxville MSA that have had a direct economic impact on the area. The source for statistical information below is the Knoxville Area Chamber Partnership, the City of Knoxville, the Knoxville-Knox County Metropolitan Planning Commission, the Knoxville News Sentinel and The Daily Times.

EAST KNOX COUNTY

Fresenius Medical Care. The German company Fresenius Medical Care located its East Coast manufacturing facility in Knoxville in 2016. The company is a renal services provider. The \$140 million project brings a dialysis production plant to the city’s old Panasonic building and creates about 665 jobs.

Keurig Green Mountain. In early 2016, a group of investors led by JAB Holding Company acquired Keurig Green Mountain. In 2009, an \$8 million investment in the plant added coffee processing equipment and coffee silos. In 2014, Keurig Green Mountain built a \$4 million expansion of its Knox County operation to boost efficiency, without many jobs created. Keurig Green Mountain’s Knoxville operation employs about 950 people in 2015. Keurig Green Mountain is a privately held company and remains an independent entity run by its existing management team. The company started production in late 2008 at a new 334,000-square-foot facility in Forks of the River Industrial Park. The company invested about \$55 million dollars on the plant and had a staff of about 25.

Knox County Detention Center. The Detention Center in east Knoxville installed in 2015 over 300 solar panels, five solar storage tanks, 65 concrete pads and more than 6,000 feet of copper piping to make it one of the largest solar thermal systems for domestic use in the nation. Trane, Knox County and FLS Energy partnered to save Knox County \$60,000 annually in switching from natural gas to solar power as the primary way to heat water for the detention center’s 1,036 inmates. The project was funded by a \$1.88 million grant from the U.S. Department of Energy. The County also renovated and upgraded 40 facilities, 24 parks and 37 traffic intersections with the grant money. The total project is expected to save the County about \$6 million annually.

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Leisure Pools. Leisure Pools, which makes composite swimming pools, announced in 2013 that it was moving its headquarters to Knox County and creating about 240 jobs. The company acquired the old Sea Ray facility in the Forks of the River Industrial Park for about \$4.5 million. Many of the laid-off Sea Ray employees have transitioned to the new company since much of the same equipment and systems used by the boat company will be used by Leisure Pools.

Lifetime Products. The Utah-based plastics company broke ground in May 2016 on a \$115 million, 720,000-square-foot manufacturing facility at the Forks of the River Industrial Park. The plant is expected to generate 500 new jobs. This facility will produce the company's line of water sport products including kayaks and paddleboards, as well as their outdoor Play System line of products.

Melaleuca. Located in the Forks of the River Industrial Park, Melaleuca is expanding its operations and will hire up to 500 more workers in the next 10 years. A 222,000-square-foot distribution center was opened in mid-2010. Melaleuca produces nutritional supplements, cleaning supplies, personal care and other products and sells these through workers who operate as direct marketers. The company has been operating in Knoxville since 1993.

WEST KNOX COUNTY

ADT Corporation. An expansion to ADT's facilities and workforce in 2013 resulted in the addition of about 300 more workers. ADT provides electronic security for residential and small business customers in the U.S. and Canada. Its Knoxville center has about 300 workers and, following a recent upgrade, the facility is now ADT's IT Disaster Recovery Center.

Cellular Sales Verizon Wireless. Cellular Sales Verizon Wireless is a Knoxville-based company that operates authorized Verizon Wireless stores nationwide. In 2014, the company expanded its facility in West Knoxville, resulting in 250 new jobs. The company operates nearly 500 stores across the country. The Knoxville-based company is the nation's largest premium Verizon retailer.

Comcast. Comcast's call center hired 250 additional employees, part of the mass media company's move to enhance nationwide customer care. The jobs were filled before the end of 2017. The move allows Comcast to answer more calls in an efficient and timely manner. The expansion is part of a national Comcast hiring wave, with a projected 5,500 new jobs to be created across America within the next three years. The changes have greatly affected the Knoxville branch, a 96,000-square-foot facility that underwent a \$7 million dollar facelift in 2015.

East Tennessee Healthcare Center. Construction was completed in 2014 on a \$119 million proton therapy center in the East Tennessee Healthcare Center. ProNova, a division of Provision Health Alliance, installed three cyclotron parts for its compact proton therapy system. The two-room ProNova SC360 system uses patent-pending superconducting magnet technology to treat cancer patients. It will be the first in the world to treat patients in this manner. The system is smaller and more cost effective than traditional proton therapy systems. The system came online in December of 2014, has gained FDA Clearance, and began treating patients in 2017.

The development is situated on 120 acres in the 90,000-square-foot Dowell Springs Business Park, a central location to physicians, hospitals, and area residences. The project has an estimated \$1.5 million annual economic impact that will create 1,250 construction jobs and 100 full time employees. Proton therapy is a noninvasive and painless form of precision radiation treatment that has minimal to no side effects. It is expected to treat up to 1,500 patients per year. There are about 10 proton therapy centers operating in the country.

Initial construction of Dowell Springs Business Park was completed in 2009 and includes a \$35 million medical office development, consisting of two buildings which offer 175,000 square feet of clinical and office space. The Knoxville Comprehensive Breast Center and Tennessee Cancer Specialists are the anchor tenants of the office space. Plans for the grounds support the East Tennessee Healthcare Center's holistic approach to wellness and healthy living with "walking paths, waterfalls and beautiful mountain views."

Parkwest Medical Center. Parkwest Medical Center broke ground in 2018 on a \$99 million expansion and renovation that is expected to be completed by 2021. The project includes both adding on to the existing facility and new construction to give the hospital a "campus-like design", with more street-level parking. The two main phases of the project should be completed in June 2019 and January 2020.

Pilot Flying J Travel Centers. In 2017, Berkshire Hathaway purchased a minority share in the Knoxville-based Pilot Flying J, the largest operator of travel centers in North America with 750 locations and more than \$20 billion in revenues. Until 2023, Berkshire Hathaway will have 38.6 percent equity stake while the Haslam family will hold a majority interest with 50.1 percent ownership. After 2023, Berkshire Hathaway will become the majority shareholder with 41.1 percent stake with the Haslam family dropping to hold 20 percent ownership.

Scripps Networks. Discovery Communication bought Scripps Networks Interactive for \$14.6 billion in early 2018. Part of the sale will mean that its pre-recorded transmission functions will be moved from Knoxville to Virginia by the end of January 2019. The number of layoffs has yet to be announced. The Travel Channel (part of the Scripps Networks) moved its headquarters from Maryland to Knoxville in 2016. About 100 employees moved with the company. Scripps Network relocated its corporate headquarters in 2010 to the City from Cincinnati. The company's technical center - which includes satellite uplink operations, a control center for all its television networks and a wide range of other administrative, business and creative functions - is also based in the City. Scripps Network is the home of Home and Garden TV network and had revenues totaling \$3.6 billion in 2017.

TeamHealth. In 2016, Physician services company TeamHealth announced an expansion of its Knoxville headquarters due to anticipated growth over the next three to five years. The company will invest \$6.7 million to construct additional office space adjacent to its current headquarters in west Knoxville. The company also plans to add 250 jobs in Knox County.

Tennova Healthcare. Tennova Healthcare announced in early 2018 that all three of its Knoxville hospitals - Physicians Regional, Turkey Creek, and North Knoxville Medical Center - will undergo restructuring and moving of services between the facilities and to include some renovations.

The changes are expected to be completed in 2020. There are no expected layoffs to occur.

NORTH KNOX COUNTY

Physicians Regional Medical Center (the “Physicians Regional”). The Physicians Regional Medical Center was closed by Tennova Healthcare at the end of 2018. Tennova has announced plans to build a new medical center in West Knoxville.

WS Packaging Group, Inc. WS Packaging opened a new \$43 million expansion in 2014 of its current operations by opening a new location in the PBR building in northwest Knox County. The expansion increased operations and consolidated its Knoxville facilities. The expansion brought 231 new jobs.

SOUTH KNOX COUNTY

Regal Entertainment Group. In early 2018, Regal Entertainment Group was acquired by Cineworld Group. Cineworld Group is based out of London and is the United Kingdom's largest cinema operator. Regal said it is committed to keeping its HQ in Knoxville and maintaining a strong presence in the city after the merger, saying it would "remain business as usual."

Regal is currently headquartered in a nine-story office building on the former Baptist Hospital site on Knoxville's south waterfront.

South Knoxville Waterfront. Demolition of the former Baptist Hospital site was completed in 2015 to make way for the new project. The South Knoxville Waterfront project will include: a \$60 million Riverwalk at the Bridges apartment complex that will house up to 600 residents to be completed in late 2019; a \$40 million 303 flats student apartments completed in fall 2018, and Regal Entertainment completed a \$12 million makeover of the former medical office building in late 2017.

DOWNTOWN BUSINESS DISTRICT

Bassmaster Classic. In March of 2019, the GEICO Bassmaster Classic was held in downtown Knoxville on the Tennessee River. The Economic impact during the competition was \$32.2 million with 153,000 people in attendance. This exceeded the economic impact and attendance made in the prior year's Bassmaster Classic held in South Carolina.

The \$32.2 million breaks down into a direct economic impact of \$17.7 million and an indirect boost of \$14.5 million in business sales, according to a report by the Visit Knoxville Sports Commission. Roughly \$2.75 million was generated in state and local tax revenue, including taxes on sales, restaurant purchases and lodging, according to the release. Attendees from nearly every state and from countries as far as Australia, Italy and Japan paid for 29,232 nights in local hotels, according to Visit Knoxville. In addition to media that work for B.A.S.S., the event organizer, more than 250 credentialed media members from 28 states and six foreign countries attended the event. Of the 153,000 people who attended the Bassmaster Classic, a record 92,819 people attended the Bassmaster Classic Outdoors Expo at the Knoxville Convention Center and World's Fair Exhibition Hall, according to turnstile counts.

Community Health Alliance. The nonprofit insurer, Community Health Alliance, announced in November 2015 that it would cease offering insurance coverage in 2016, resulting in 148 layoffs at the end of 2015.

Converted Apartments. Several notable downtown buildings have been converted into apartment spaces. A former office property, the Medical Arts Building, was converted to 49 apartments with some retail spaces in 2014. It is located close to the courthouses and has an attached parking garage. The Tailor Lofts building on Gay Street was also converted into nine apartments plus a ground-floor restaurant.

East Tennessee Children's Hospital. The non-profit Children's Hospital completed a \$75 million expansion in November 2016. The expansion offers over 245,000 square feet of new space, including a 44-bed, private room Neonatal Intensive Care Unit, a new perioperative surgery center, two levels of parking and enhanced family areas, such as roof-top gardens. Additional renovations to 71,900 square feet of the original building were completed in Fall 2017.

Farragut Hotel. Dover Development Corporation received an incentive package from the Knoxville Industrial Development Board in 2015 to freeze the property taxes at their current rate before the property is redeveloped. Demolition began in late 2015 and plans call for four storefronts. Hyatt Place opened a hotel in the historic building in 2018.

Fort Sanders Apartments. A Georgia firm bought up property near the Fort Sanders Hospital for \$6.3 million to build 240 student apartments. Construction began in 2015 and rentals began in 2017.

Fort Sanders Regional Medical Center. Fort Sanders Regional Medical Center announced in 2018 plans for a \$115 million expansion to the hospital that includes new critical care and intermediate care beds and emergency department rooms over the next 12 to 24 months. In addition to new beds, the expansion will create easier access to the facility and improved parking.

Gulf & Ohio Railways. The Knoxville Locomotive Works operation of the Gulf & Ohio Railways, a Knoxville-based short line railroad, renovated its existing facility to begin producing locomotives based on its fuel-efficient prototype. This \$6 million expansion created 203 jobs for the company and was operational in 2014.

Local Motors. Local Motors will produce its newest car, the LM3D Swim, at a Knoxville factory that opened in early 2017. The Knoxville site is the company's first digitally enabled microfactory, meaning it can 3-D print finished pieces directly from digital designs with no tooling or casting. The LM3D Swim will be manufactured mostly through 3-D printing with some traditionally made automotive components. The Knoxville factory will launch with four or five 3-D printers and have the capacity to produce about 2,400 vehicles a year. The factory will also serve as a retail showroom. The car is expected to cost about \$53,000, depending on customization choices.

Marble Alley Lofts. Just off Gay Street, a developer began construction in 2014 on a 238-unit apartment complex. The project was in development since 2009. The first phase of construction,

completed in February 2016, includes an internal parking garage with the apartment building foundations built surrounding the garage. Additional retail and commercial space is planned for the second phase.

Solar Arrays on County-Owned Buildings. In 2015, the County installed 5 megawatts of solar photovoltaic systems on the rooftops of several County buildings. The \$12.5 million project is expected to provide more than \$29 million in energy savings to the county over the next three decades. Along with the Knox County Central building, a total of 11 schools and three other public buildings have solar panels. The solar array at the L&N Stem Academy is connected to a kiosk so that students can participate in monitoring the system.

Scapa Healthcare. Scapa Healthcare officials announced in 2018 that the company will expand its Knoxville operations. The global supplier and manufacturer of adhesive-based products will invest approximately \$40 million and create more than 85 new jobs in Knox County. Scapa Healthcare plans to consolidate its three buildings in Knoxville into a single location in Knox County. The company will construct a more than 150,000-square-foot facility in the Knoxville-area to expand operations and keep up with growing demand.

Scapa Healthcare is a global supplier of bonding solutions and a manufacturer of adhesive-based products for the healthcare and industrial markets. The company has a global footprint with production sites in Asia, Europe and the U.S.

Tennessee Valley Authority (the “TVA”). TVA was established as a wholly-owned corporate agency and instrumentality of the United States of America by the Tennessee Valley Authority Act of 1933 (the “TVA Act”), as amended. TVA Act’s objective is the development of the resources of the Tennessee Valley and adjacent areas in order to strengthen the regional and national economy and the national defense. Its specific purposes include: (1) flood control on the Tennessee River and its tributaries, and assistance to flood control on the lower Ohio and the Mississippi Rivers; (2) a modern navigable channel for the Tennessee River; (3) ample supply of power within an area of 80,000 square miles; (4) development and introduction of more efficient soil fertilizers; and (5) greater agricultural and industrial development and improved forestry in the region. TVA, a corporation owned by the U.S. government, provides electricity for utility and business customers in most of Tennessee and parts of Alabama, Mississippi, Kentucky, Georgia, North Carolina and Virginia — an area of 80,000 square miles with a population of 9 million. The utility operates 29 hydroelectric dams, 8 coal-fired power plants, three nuclear plants, 16 natural gas-fired power facilities, 14 solar energy sites, and one wind energy site and supplied 152 billion kilowatt-hours of electricity in fiscal year 2017.

In 2014, 750 employees voluntarily retired or resigned from TVA. Another 1,000 vacant positions were eliminated to result in the largest staff reduction that the federal utility has undergone in more than 20 years. The goal was to reduce \$500 million in annual expenses in 2015.

In April of 2011, TVA announced plans to retire 18 coal-fired units at three of its older fossil plants, effectively closing one of the plants. This action is in an unprecedented agreement with the Environmental Protection Agency, four states and three environmental groups to settle complaints that the federal utility violated the Clean Air Act. TVA's board of directors approved the shutdown

of two units at the John Sevier plant near Rogersville, TN, six at Widows Creek in North Alabama and all 10 units at the Johnsonville plant in Middle Tennessee. The permanent shutdowns, called retirements, took place in phases throughout 2017 and affected 300 to 400 workers. The combined idled and retired units will reduce TVA's coal-fired capacity by 2,700 megawatts out of the total 17,000 megawatts generated by the country's largest public utility. The utility also has to invest \$3 billion to \$5 billion on pollution controls and \$350 million on clean energy projects. Penalties include a \$1 million to the National Park Service and the National Forest Service and a civil penalty of \$10 million to various entities, including the states of Alabama, Kentucky and Tennessee.

In 2007, TVA restarted a nuclear reactor at Browns Ferry in North Alabama. It was the first time the reactor had been at full power in 22 years. TVA spent five years and about \$2 billion revamping the reactor. It was the first increase in the United States' nuclear generating capacity since 1996.

The Unit 2 reactor at Watts Bar Nuclear Plant in Rhea County, TN was granted an operating license in October of 2015, nearly 43 years after the original construction permit was awarded. The license allows TVA to load nuclear fuel into the new unit and begin testing of the equipment. Total estimated project cost reached \$4.7 billion, and the reactor began producing power for commercial consumption in 2016.

UNIVERSITY OF TENNESSEE

The University of Tennessee Knoxville Campus is undergoing a record \$1 billion makeover to transform the look and feel of the campus to improve facilities and infrastructure to become a Top 25 public research institution.

Cherokee Campus. The Cherokee Farm concept came into being in 2001 as a way to further research by UT and ORNL in computational sciences, climate and environment, advanced materials, biomedical sciences, and renewable energy. UT and ORNL started development of the campus with \$87 million in capital investments and incentives. This is part of a UT goal to join the ranks of the nation's top 25 public research universities. The former site of UT's 188-acre dairy operation was chosen and development of 77 acres of the property began in 2010. The farm is less than a mile from the Knoxville campus.

The first building, the \$47 million, 142,000-square-foot Joint Institute for Advanced Materials facility, opened in early 2016. The rest of the campus will include 16 building sites. These sites, ranging up to 2 acres, should allow a total of 1.6 million square feet of development. Moving research to the Cherokee campus would free up buildings on the main campus, which could be renovated and used for additional administration and instructional space.

The Joint Institute for Advanced Materials building will house seven high-powered microscopes that researchers from UT, ORNL and elsewhere will use in screening and analyzing materials. The work is oriented toward producing strong, lightweight materials for the automotive and aerospace industries. Researchers will also be able to make use of supercomputers "Kraken" at UTK and "Titan" at ORNL.

The first private tenant at Cherokee Farm was announced in May 2016. Civil and Environmental Consultants, Inc. (CEC) is recognized for providing innovative design solutions and integrated expertise in the primary practice areas of civil engineering, ecological sciences, environmental engineering and sciences, survey, waste management and water resources.

Classroom and Science Laboratory Facility. A 22,000-square-foot, \$5 million building will house a classroom and science laboratory facility. It is expected to be completed in 2018. It will house research laboratories, a vivarium, classrooms, and faculty offices. It will be between the Jessie Harris Building and the Hoskins Library.

Ken and Blaire Mossman Building. Situated on the former site of three historic houses in the Fort Sanders area, the building will house portions of microbiology, biochemistry, cellular and molecular biology, psychology and nutrition. The \$96 million project was completed in September 2018.

Science Laboratory Facility. In early 2015, construction began on the new Science Laboratory Facility, a \$114 million nine-story modern science class and laboratory facility at the Strong Hall dormitory site. It will feature 500-seat and 250-seat lecture halls, general purpose classrooms and house the Anthropology and Earth and Planetary Sciences departments. It was completed in Spring 2017.

Steam Plant Conversion. The coal-fired boilers have been removed and replaced with natural gas boilers at the steam plant on campus. The large smokestacks were removed. The conversion cost \$25 million and was completed in Summer 2016.

Stokely Athletic Center and Dorm Gibbs Hall. In 2014, demolition was completed on the closed and outdated buildings that were Stokely Athletic Center and Gibbs Hall. The Stokely Athletic Center, the home of the basketball team before the move to the Thompson-Boling Arena, was built in 1958 and was closed in 2012. The Dorm Gibbs Hall was built in 1963 with only the dining services remaining operational in recent years. First, a 1,000-space parking garage was built along Volunteer Boulevard, costing \$38 million. Second, UTK built a 600 bed co-ed resident hall with added services like dining. At a cost of \$94.3 million, construction was completed in January 2017. And third, an extension to the current Haslam football practice field is planned. According to UTK, a sole private donation funded the \$10 million project. The extension was completed in 2018.

Student Union. The new 391,000-square-foot, six-story, \$167 million Student Union project began construction in 2014 and will be completed in Spring 2019. It will replace the outdated University Center that was originally built in 1952. It will hold a 50,000-square-foot bookstore, ten dining establishments, a 10,000-square-foot auditorium and a 12,000-square-foot ballroom.

Support Services Complex. Completed in Spring 2016, the new Support Services Complex is a \$18.7 million complex that reuses a former industrial facility to house the 91,000-square-foot Department of Facilities headquarters and other units. It will feature offices, warehouses, workshops, labs and fleet parking.

Torchbearer Plaza / Circle Park. The \$1.2 million renovation project on the Torchbearer

statue at Circle Park was completed in September 2015. The project rebuilt and enlarged the plaza area while renovating the landscaping and lighting.

West Housing Redevelopment. The West Housing Redevelopment project is a multiphase, \$234 million project to replace the dining facilities and six residence halls (North Carrick, South Carrick, Reese, Humes, Morrill, and Andy Holt Apartments) with seven new halls and a community dining facility on the Presidential Court Complex. The first new residence hall to be built in 43 years, Fred Brown Residence Hall, opened for the 2014-2015 semester. The others are scheduled to be finished by 2019.

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**CONSOLIDATED SYSTEMS
REPORT OF INDEPENDENT AUDITORS AND FINANCIAL STATEMENTS**



Consolidated

Financial Statements and Supplemental Information

June 30, 2018 and 2017

KUB Board of Commissioners

Celeste Herbert - Chair
Dr. Jerry W. Askew - Vice Chair
John Worden
Kathy Hamilton
Sara Hedstrom Pinnell
Tyvi Small
Adrienne Simpson-Brown

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Chief Executive Officer

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Senior Vice President and
Chief Financial Officer

Susan Edwards
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Chief Administrative Officer

Gabe Bolas
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Julie Childers
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John Gresham
Vice President

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Vice President

Paul Randolph
Vice President

Knoxville Utilities Board

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June 30, 2018 and 2017

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Independent Auditors' Report

Board of Commissioners
Knoxville Utilities Board
Knoxville, Tennessee

We have audited the accompanying financial statements of the Knoxville Utilities Board (KUB), a component unit of the City of Knoxville, Tennessee, as of and for the years ended June 30, 2018 and 2017, and the related notes to the financial statements, which collectively comprise KUB's basic financial statements as listed in the index.

Management's Responsibility for the Financial Statements

KUB's 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 KUB'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 KUB'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 KUB as of June 30, 2018 and 2017, and the changes in financial position and cash flows for the years then ended in accordance with accounting principles generally accepted in the United States of America.

Change in Accounting Principle

As discussed in Note 13 to the financial statements, effective July 1, 2017, KUB adopted new accounting guidance, Governmental Accounting Standards Board Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. Our opinion is not modified with respect to that matter.

Board of Commissioners
Knoxville Utilities Board
Knoxville, Tennessee

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 27 and the required supplementary information on pages 70 through 74 be presented to supplement the basic financial statements. Such information, although not a part of the basic financial statements, is required by the Governmental Accounting Standards Board, who considers it to be an essential part of financial reporting for placing the basic financial statements in an appropriate operational, economic, or historical context. We have applied certain limited procedures to the required supplementary information in accordance with auditing standards generally accepted in the United States of America, which consisted of inquiries of management about the methods of preparing the information and comparing the information for consistency with management's responses to our inquiries, the basic financial statements, and other knowledge we obtained during our audit of the basic financial statements. We do not express an opinion or provide any assurance on the information because the limited procedures do not provide us with sufficient evidence to express an opinion or provide any assurance.

Other Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise KUB's basic financial statements. The Schedule of Expenditures of Federal Awards and State Financial Assistance, as required by the audit requirements of Title 2 U.S. Code of Federal Regulations (CFR) Part 200, Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards (Uniform Guidance), is presented for purposes of additional analysis and is not a required part of the basic financial statements.

The Schedule of Expenditures of Federal Awards and State Financial Assistance is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the basic financial statements or to the basic financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the Schedule of Expenditures of Federal Awards and State Financial Assistance is fairly stated in all material respects in relation to the basic financial statements as a whole.

The supplemental information on Schedule 3 has not been subjected to the auditing procedures applied in the audit of the basic financial statements and, accordingly, we do not express an opinion or provide any assurance on it.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated October 25, 2018, on our consideration of KUB'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 solely 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 effectiveness of 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 KUB's internal control over financial reporting and compliance.

Coulter & Justus, P.C.

Knoxville, Tennessee
October 25, 2018

Knoxville Utilities Board

Management's Discussion and Analysis

June 30, 2018 and 2017

Knoxville Utilities Board (KUB), comprised of the Electric Division, Gas Division, Water Division, and Wastewater Division (Divisions), is reported as a component unit enterprise fund in the financial statements of the City of Knoxville. KUB's responsibility is to oversee the purchase, production, distribution, and processing of electricity, natural gas, water, and wastewater services. A seven-member Board of Commissioners (Board) governs KUB. The Board has all powers to construct, acquire, expand, and operate the Divisions. It has full control and complete jurisdiction over the management and operation of the Divisions including setting rates. KUB's accounts are maintained in conformity with the Uniform System of Accounts of the Federal Energy Regulatory Commission (FERC), the Uniform System of Accounts of the National Association of Regulatory Utility Commissioners (NARUC), and the Governmental Accounting Standards Board (GASB), as applicable.

This discussion and analysis is designed to (a) assist the reader in focusing on significant financial issues, (b) provide an overview of KUB's financial activity, (c) identify major changes in KUB's financial position, and (d) identify any financial concerns.

The Management Discussion and Analysis (MD&A) focuses on the fiscal year ending June 30, 2018 activities, resulting changes and current known facts, and should be read in conjunction with KUB's consolidated financial statements.

Consolidated Highlights

System Highlights

As of June 30, 2018, KUB served 459,797 customers. KUB added 3,493 new customers in fiscal year 2018, representing growth of less than one percent.

KUB's electric system experienced a record peak in demand of 1,328 megawatt hours in February 2015. KUB's electric system had a strong year for reliability with only 1.77 hours of service interruption for the average customer in fiscal year 2018. The natural gas system's peak demand occurred January 2018 at 140,204 dekatherms. The previous natural gas system peak was 136,356 dekatherms in February 2015.

The first of three-annual rate increases for each Division previously adopted by the KUB Board went into effect in fiscal year 2018. These rate increases provide additional revenue to help fund each system's respective Century II infrastructure program.

KUB's electric system was impacted by a storm event in May 2017 that resulted in a cost of \$1.2 million to the system. KUB received \$0.9 million in reimbursements in fiscal year 2018 from the Federal Emergency Management Agency (FEMA) to offset the cost of the 2017 event.

KUB's energy sales in fiscal year 2018 were impacted by a colder winter in Knoxville. Natural gas sales increased approximately 20.8 percent from the prior year, while milder temperatures in the spring and summer months offset electric sales volumes from the cold winter.

KUB's Compressed Natural Gas (CNG) Public Fueling Station opened in fiscal year 2017 to promote clean burning fuel in the Knoxville area. It joined 13 other CNG stations in Tennessee cities.

KUB's electric system received a Diamond level designation by the American Public Power Association's (APPA) Reliable Public Power Provider (RP3) program, the highest level of recognition of the program.

KUB's natural gas system was named to the American Public Gas Association's (APGA) System Operational Achievement Recognition (SOAR) Program, reflecting KUB's focus on system integrity, continuous improvement, safety and employee development.

Knoxville Utilities Board

Management's Discussion and Analysis

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KUB's treatment plants continue to meet high standards of operation. KUB's Kuwahee, Eastbridge, Loves Creek, and Fourth Creek wastewater treatment plants were awarded Operational Excellence awards from the Tennessee Kentucky Water Environment Association for having one or less permit violations within the 2017 calendar year. The treatment plants additionally won awards at various levels based on performance from the National Association of Clean Water Agencies for peak performance. The Eastbridge wastewater treatment plant achieved a Platinum award for continued outstanding compliance performance over multiple years. Loves Creek wastewater treatment plant won a Gold Award for having zero violations in calendar year 2017. Kuwahee and Fourth Creek wastewater treatment plants won Silver Awards for having one violation in 2017.

KUB continued to maintain Platinum certification with the National Biosolids Partnership following a rigorous review process and independent audit that was conducted in December 2017. (Biosolids are nutrient-rich organic matter produced by wastewater treatment and is a registered fertilizer with the Tennessee Department of Agriculture).

Century II Infrastructure Program

Century II is KUB's proactive long-range program to improve and maintain the electric, natural gas, water and wastewater systems for its customers. It includes maintenance and asset replacement strategies for each system and establishes sustainable replacement cycles. Century II moves KUB into its second century of service by improving each system through sound planning, resource allocation, and continued, but accelerated, investment.

KUB's Century II programs were resumed in 2011, after a break due to the economic recession. At that time, the KUB Board endorsed ten-year funding plans for the electric and water systems, which included a combination of rate increases and debt issues to fully fund the Century II programs. The Board adopted three years of electric and water rate increases to help fund those plans. All three of those rate increases, adopted in 2011, have gone into effect.

In 2013, the Board extended the same long-term funding approach for Century II to include the natural gas and wastewater systems, although the Wastewater Division had maintained a ten-year funding plan since the inception of the federal Consent Decree in 2005. The Board formally endorsed and adopted by resolution ten-year funding plans for the natural gas and wastewater systems, which included a combination of rate increases and debt issues.

In April 2014, KUB management provided the Board an updated assessment of the overall condition of each utility system, including a recommendation for annual rate increases for each division for the next three fiscal years. In June 2014, the Board approved the three annual rate increases for all KUB Divisions, of which all three rate increases have gone into effect.

The natural gas system South Loop project was completed in October 2015, which included the installation of a new 8-mile transmission main in the southwest portion of KUB's service territory. The South Loop provides additional system capacity to meet the increased natural gas demands of the University of Tennessee, in addition to other potential growth opportunities in that portion of KUB's gas service territory.

In fiscal year 2015, KUB concluded the smart grid pilot project, of which a portion of the project was funded by a United States Department of Energy Smart Grid Investment Grant (SGIG). This grant was received by KUB in 2009 as part of the American Reinvestment and Recovery Act (ARRA). Based upon the success of that pilot, KUB formed a plan to move forward with a Century II Grid Modernization initiative, which includes advanced metering for all KUB customers, a telecommunication system linking critical KUB infrastructure, and an increased investment in automation technology to help operate KUB's energy and water distribution systems. Over the course of ten years, KUB plans to spend \$124.4 million in this effort. The deployment is funded in large part by debt issues and system revenues. As of June 30, 2018, KUB

Knoxville Utilities Board

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completed the second year of the advanced meter deployment. KUB replaced approximately 40 percent of its electric meters, installed network communication devices on 33 percent of its gas meters, and replaced 46 percent of its water meters, spending approximately \$41.9 million on the Grid Modernization deployment.

In June 2017, the Board adopted the next three annual rate increases for all KUB Divisions. The first of the three approved electric rate increases went into effect in October 2017, generating \$10.9 million in additional annual revenue. The remaining two electric rate increases are effective in October 2018 and October 2019 and are expected to provide an additional \$11.2 million and \$5.7 million in annual revenue, respectively, to assist with the funding of the Electric Division. The first of the three approved gas rate increases went into effect in October 2017, generating \$2.2 million in additional annual revenue. The remaining two gas rate increases are effective in October 2018 and October 2019 and are expected to provide an additional \$2.3 million each in annual revenue to assist with the funding of the Gas Division. The first of the three approved water rate increases went into effect July 2017 generating \$3.1 million of additional annual Water Division revenue, while the July 2018 and July 2019 rate increases are expected to provide an additional \$3.1 million and \$3.3 million in annual revenue, respectively, to help fund the Water Division. The first of the three approved wastewater rate increases went into effect in July 2017, generating \$4.3 million in additional annual revenue. The remaining two rate increases are effective in July 2018 and July 2019 and are expected to provide an additional \$4.2 million and \$4.5 million in annual revenue, respectively, to assist with the funding of the Wastewater Division.

In fiscal year 2017, KUB completed the transition to a new disinfection system at the Mark B. Whitaker (MBW) Water Treatment plant.

KUB is currently in the process of implementing a Water Plant Redundancy initiative to ensure that high quality, reliable water service will be provided to customers over the long term. KUB maintains a single water treatment plant for its system. In lieu of building a second treatment facility to ensure capacity will be available to meet the needs of current and future water customers, KUB will invest approximately \$126 million in various redundant facilities at the site of its existing Mark B. Whitaker Water Treatment Plant over the next 11 years.

For the fiscal year, KUB stayed on track with its overall Century II capital budget and production goals. The electric system replaced 2,418 poles and 15 miles of underground electric cable. In the natural gas system, 6 miles of gas steel main were replaced. In the water system, 6.4 miles of galvanized water main and 6.6 miles of cast iron water main were replaced. In the wastewater system, 16 miles of main were rehabilitated or replaced.

Consent Decree

In February 2005, a Consent Decree was entered into federal court regarding the operation of KUB's wastewater system. Under the terms of the Consent Decree, the remediation of identified sanitary sewer overflows (SSOs) on KUB's wastewater system had to be completed by June 30, 2016. KUB completed all the requirements of the Consent Decree for the collection system two years in advance of the deadline.

The Consent Decree also required KUB to perform an evaluation of the wet weather performance and capacity of its wastewater treatment plants. In July 2007, KUB submitted a Composite Correction Plan (CCP) for its wastewater treatment plants to EPA for review. The development and filing of the CCP was a requirement of the federal order of February 2005. The CCP includes recommended improvements to KUB's Kuwahee and Fourth Creek treatment plants to address wet weather capacity issues noted in prior assessments. The EPA approved the CCP in January 2009 including a recommended schedule of plant improvements that extends beyond the expiration date of the original Consent Decree. An amendment to the Consent Decree incorporating and establishing this schedule was agreed to by all parties and was entered on June 23, 2009. The purpose of the Amendment is to allow KUB to complete a portion of work outlined in the CCP after the Consent Decree deadline of June 30, 2016. The CCP provides for a

Knoxville Utilities Board

Management's Discussion and Analysis

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biologically enhanced high-rate clarification (the BEHRC) secondary treatment system to be installed at the Fourth Creek treatment plant by June 30, 2018 and at the Kuwahee treatment plant by June 30, 2021. KUB successfully completed the installation of the BEHRC system at the Fourth Creek treatment plant ahead of schedule in April 2018. Work is currently ongoing at the Kuwahee treatment plant and remains on schedule for completion before the deadline of June 30, 2021. The total cost of such improvements is estimated to be approximately \$58 million.

KUB's funding plan for the Consent Decree includes long-term bonds and a series of rate increases phased in over the term of the order. Bond proceeds fund all types of wastewater capital projects, the majority of which are related to the Consent Decree. As of June 30, 2018, the Wastewater Division had issued \$530 million in bonds to fund system capital improvements since the inception of the Consent Decree. The Board approved two 50 percent rate increases, which went into effect in April 2005 and January 2007. The Board also approved an 8 percent rate increase, which was effective in September 2008, two 12 percent rate increases, which were effective in April 2011 and October 2012, three 6 percent rate increases effective October 2014, October 2015 and October 2016 and three 5 percent rate increases effective July 2017, July 2018, and July 2019. KUB anticipates additional bond issues and rate increases over the next decade to help fund wastewater capital improvements.

KUB successfully completed the first cycle of Maintenance Operation Management (MOM) requirements one year before the deadline by inspecting manholes and gravity mains, smoke testing gravity mains, performing required inspections of pump stations and the related force mains, and completing all Corrective Action Plan/Engineering Report (CAP/ER) projects. KUB initiated the second MOM cycle that continues to focus on the prevention of SSOs. As part of the Century II initiative, formally known as the PACE10 program, KUB has installed storage tanks providing 34 million gallons of wastewater storage to control wet weather overflows and rehabilitated or replaced approximately 368.8 miles of collection system pipe. KUB also continues to maintain a proactive operations and maintenance plan for the wastewater collection system including inspection, grease control, and private lateral enforcement. The result of the Pace10/Century II initiative has been an 83 percent reduction in SSOs.

As of June 30, 2018, the Wastewater Division had completed its 14th full year under the Consent Decree, spending \$536.9 million on capital investments to meet Consent Decree requirements.

Financial Highlights

Fiscal Year 2018 Compared to Fiscal Year 2017

KUB's consolidated Change in Net Position increased \$63.6 million in fiscal year 2018. A restatement to the fiscal year 2018 beginning net position, based on a change in method of accounting for Other Post-Employment Benefits (OPEB), increased the total net position by an additional \$4.5 million. The change resulted in a total increase of \$68.1 million in KUB's net position. Comparatively, net position increased by \$36.1 million in fiscal year 2017.

Operating revenue increased \$46 million or 6 percent, the result of additional revenues from system rate increases and a 20.8 percent increase in natural gas sales volumes. Purchased energy expense (power and natural gas) increased \$16.4 million or 3.6 percent, the combined effect of \$4.1 million increase in purchased power cost and an increase of \$12.3 million in purchased gas cost, reflecting higher base wholesale TVA rates and customer demand. Margin from sales (operating revenue less purchased energy expense) was up \$29.6 million or 9.6 percent compared with the prior fiscal year.

Operating expenses (excluding purchased power and purchased gas expense) increased \$0.1 million. Operating and maintenance (O&M) expenses were \$6.5 million or 5 percent lower than the previous year. Depreciation expense increased \$5.6 million or 7.8 percent. Taxes and tax equivalents increased \$1 million or 3 percent, reflecting higher plant in service levels.

Knoxville Utilities Board

Management's Discussion and Analysis

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Interest income was \$1.9 million more than the prior fiscal year. Interest expense increased \$1.5 million or 3.7 percent, reflecting the interest costs on new revenue bonds issued during fiscal year 2018 to fund system capital improvements offset by savings on refunding of outstanding bonds.

Capital contributions decreased \$1.5 million, the result of less assets contributed by developers.

Total plant assets (net) increased \$72.7 million or 4 percent over the last fiscal year.

Long-term debt represented 50.8 percent of KUB's consolidated capital structure, compared to 51 percent last fiscal year. Capital structure equals long-term debt (including the current and long-term portion of revenue bonds and notes), plus net position.

Fiscal Year 2017 Compared to Fiscal Year 2016

KUB's consolidated net position increased \$36.1 million. This increase was \$2.1 million more than the prior year's change in net position.

Operating revenue increased \$36.1 million or 4.9 percent, the result of lower natural gas sales volumes offset in part by additional revenues from system rate increases and a modest increase in billable wastewater volumes and a 5.2 percent increase in billed water sales. Purchased energy expense (power and natural gas) increased \$21.3 million or 4.8 percent, the combined effect of \$18.8 million increase in purchased power cost and an increase of \$2.5 million in purchased gas cost, reflecting higher TVA rates and natural gas commodity prices. Margin from sales (operating revenue less purchased energy expense) was up \$14.8 million or 5 percent compared with the prior fiscal year.

Operating expenses (excluding purchased power and purchased gas expense) increased \$13 million or 5.8 percent. Operating and maintenance (O&M) expenses were \$7.3 million or 5.9 percent higher than the previous year. Depreciation expense increased \$3.7 million or 5.3 percent. Taxes and tax equivalents increased \$2 million or 6.5 percent, reflecting higher plant in service levels.

Interest income was \$0.8 million more than the prior fiscal year. Interest expense increased \$1.3 million or 3.4 percent, reflecting the interest costs on new revenue bonds issued during fiscal year 2017 to fund system capital improvements.

Capital contributions increased \$0.8 million, the result of more assets contributed by developers.

Total plant assets (net) increased \$82.2 million or 4.7 percent over the last fiscal year.

Long-term debt represented 51 percent of KUB's consolidated capital structure, compared to 50.4 percent last fiscal year. Capital structure equals long-term debt (including the current and long-term portion of revenue bonds and notes), plus net position.

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Knoxville Utilities Board

Management's Discussion and Analysis

June 30, 2018 and 2017

Knoxville Utilities Board Consolidated Financial Statements

KUB's financial performance is reported under three basic consolidated financial statements: the Statement of Net Position; the Statement of Revenues, Expenses and Changes in Net Position; and the Statement of Cash Flows.

Statement of Net Position

KUB reports its assets, deferred outflows of resources, liabilities, deferred inflows of resources and net position in the Statement of Net Position. Assets are classified as current, restricted, plant in service, or other assets.

Liabilities are classified as current, other, or long-term debt. Net position is classified as net investment in capital assets, restricted, or unrestricted. Net position tells the user what KUB has done with its accumulated earnings, not just the balance.

Net investment in capital assets reflects the book value of all capital assets less the outstanding balances of debt used to acquire, construct, or improve those assets.

Restricted net position includes assets that have been limited to specific uses by KUB's bond covenants or through resolutions passed by the KUB Board.

Unrestricted net position is a residual classification; the amount remaining after reporting net position as either invested in capital or restricted is reported there.

Statement of Revenues, Expenses and Changes in Net Position

KUB reports its revenues and expenses (both operating and non-operating) on the Statement of Revenues, Expenses and Changes in Net Position. In addition, any capital contributions or assets donated by developers are reported on this statement.

Total revenue less total expense equals the change in net position for the reporting period. Net position at the beginning of the period is increased or decreased, as applicable, by the change in net position for the reporting period.

The change in net position for the reporting period is added to the net position segment of the Statement of Net Position.

Statement of Cash Flows

KUB reports cash flows from operating activities, capital and related financing activities, and investing activities on the Statement of Cash Flows. This statement tells the user the sources and uses of cash during the reporting period.

The statement indicates the beginning cash balance and ending cash balance and how it was either increased or decreased during the reporting period.

The statement also reconciles cash flow to operating income as it appears on the Statement of Revenues, Expenses and Changes in Net Position.

Knoxville Utilities Board
Management's Discussion and Analysis
June 30, 2018 and 2017

Condensed Financial Statements

Statement of Net Position

The following table reflects the condensed consolidated Statement of Net Position for KUB compared to the prior two fiscal years.

Statements of Net Position
As of June 30

<i>(in thousands of dollars)</i>	2018	2017	2016
Current, restricted and other assets	\$ 424,562	\$ 350,320	\$ 318,650
Capital assets, net	1,897,995	1,825,293	1,743,105
Deferred outflows of resources	25,544	33,495	34,235
Total assets and deferred outflows of resources	<u>2,348,101</u>	<u>2,209,108</u>	<u>2,095,990</u>
Current and other liabilities	169,966	167,533	159,519
Long-term debt outstanding	1,097,096	1,037,622	972,365
Deferred inflows of resources	14,259	5,268	1,512
Total liabilities and deferred inflows of resources	<u>1,281,321</u>	<u>1,210,423</u>	<u>1,133,396</u>
Net position			
Net investment in capital assets	794,383	786,361	772,012
Restricted	19,436	17,977	16,201
Unrestricted	252,961	194,347	174,381
Total net position	<u>\$ 1,066,780</u>	<u>\$ 998,685</u>	<u>\$ 962,594</u>

Normal Impacts on Statement of Net Position

The following is a description of activities which will normally impact the comparability of the Statement of Net Position presentation.

- Change in net position (from Statement of Revenues, Expenses and Changes in Net Position): impacts (increase/decrease) current and other assets and/or capital assets and unrestricted net position.
- Issuing debt for capital: increases deferred outflows of resources and long-term debt.
- Spending debt proceeds on new capital: reduces current assets and increases capital assets.
- Spending of non-debt related current assets on new capital: (a) reduces current assets and increases capital assets and (b) reduces unrestricted net position and increases net investment in capital assets.
- Principal payment on debt: (a) reduces current and other assets and reduces long-term debt and (b) reduces unrestricted net position and increases net investment in capital assets.
- Reduction of capital assets through depreciation: reduces capital assets and net investment in capital assets.

Knoxville Utilities Board

Management's Discussion and Analysis

June 30, 2018 and 2017

Impacts and Analysis

Current, Restricted and Other Assets

Fiscal Year 2018 Compared to Fiscal Year 2017

Current, restricted and other assets increased \$74.2 million or 21.2 percent. This increase reflects a \$36.8 million increase in general fund cash (including cash and cash equivalents, short-term investments, and long-term investments), an increase in the actuarially determined net pension asset of \$19.7 million, an increase in accounts receivable of \$7.7 million, an increase of \$5.3 million in operating contingency reserves and an increase in inventories of \$4.7 million. Fiscal year 2017's \$3.8 million under recovery of wholesale gas costs was collected from customers in fiscal year 2018 through adjustments to rates via the Purchased Gas Adjustment.

Fiscal Year 2017 Compared to Fiscal Year 2016

Current, restricted and other assets increased \$31.7 million or 9.9 percent. This increase reflects a \$15 million increase in general fund cash (including cash and cash equivalents, short-term investments, and long-term investments), an increase in inventories of \$8 million primarily from Grid Modernization materials, an increase of \$3.6 million in operating contingency reserves, a \$2.5 million increase in other current assets, and an increase in accounts receivable of \$1.5 million. KUB under recovered its wholesale gas costs by \$3.7 million in fiscal year 2017 compared to a \$2.2 million under recovery in fiscal year 2016. The under recovery of costs will be collected from customers next fiscal year through adjustments to rates via the Purchased Gas Adjustment.

An offset to the increases was the under recovery of \$1.4 million in purchased power costs from electric system customers through its Purchased Power Adjustment mechanism in fiscal year 2016, as compared to a \$4 million over recovery in fiscal year 2017. Fiscal year 2016's under recovery of costs was collected from customers during fiscal year 2017 through adjustments to rates via the Purchased Power Adjustment.

Capital Assets

Fiscal Year 2018 Compared to Fiscal Year 2017

Capital assets (net) increased \$72.7 million or 4 percent. Major capital expenditures (reflected in both plant additions and work in progress) in fiscal year 2018 included \$31.3 million for various electric distribution system improvements, \$26.7 million related to wastewater Century II projects, \$12.4 million for water plant and system improvements, \$10.1 million for Grid Modernization and advanced metering, including Supervisory Control and Data Acquisition (SCADA) system upgrades, \$8.9 million for utility asset replacements and relocations for the gas and water system to accommodate Tennessee Department of Transportation (TDOT) highway improvement projects and \$8.6 million for pole replacements for the electric system.

Fiscal Year 2017 Compared to Fiscal Year 2016

Capital assets (net) increased \$82.2 million or 4.7 percent. Major capital expenditures (reflected in both plant additions and work in progress) in fiscal year 2017 included \$34.4 million for various electric distribution system improvements, \$30.9 million related to wastewater Century II projects, \$9.2 million for water plant and system improvements, \$8.3 million for pole replacements for the electric system, \$7.7 million for water main replacement, \$7.3 million for construction of gas mains and service extensions, \$6.2 million for utility asset replacements and relocations for the gas and water system to accommodate Tennessee Department of Transportation (TDOT) highway improvement projects, and \$5.2 million for trucks and equipment.

Knoxville Utilities Board
Management's Discussion and Analysis
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Deferred Outflows of Resources

Fiscal Year 2018 Compared to Fiscal Year 2017

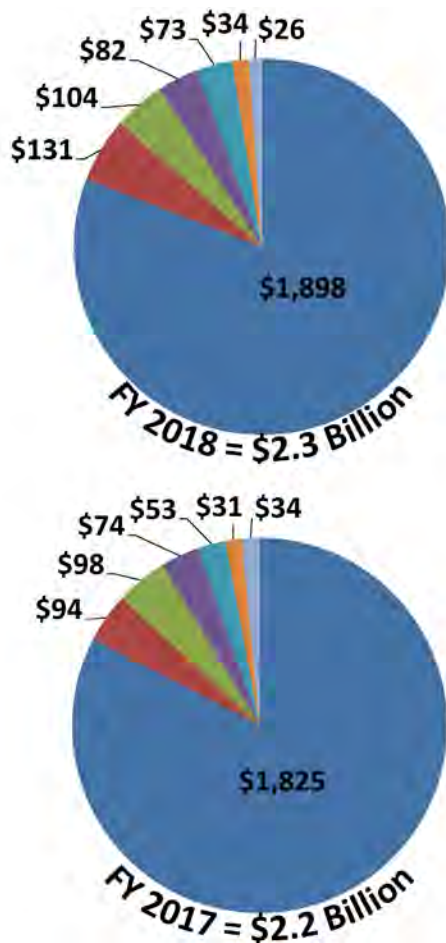
Deferred outflows of resources decreased \$8 million compared to the prior year, reflecting a decrease in pension outflow of \$7.1 million and a \$1.5 million decrease in unamortized bonds refunding costs offset by a \$0.7 increase in OPEB outflow when compared to the prior fiscal year.

Fiscal Year 2017 Compared to Fiscal Year 2016

Deferred outflows of resources decreased \$0.7 million compared to the prior year, reflecting a decrease in pension outflow of \$1.2 million offset by a \$0.5 million increase in unamortized bonds refunding costs when compared to the prior fiscal year.

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Knoxville Utilities Board
Management's Discussion and Analysis
June 30, 2018 and 2017



**Consolidated Total Assets and
Deferred Outflows of Resources
(in Millions)**

	FY18	FY17
Plant	81%	83%
General Fund	6%	4%
Contingency Fund	4%	5%
Accounts Receivable	4%	3%
Other Assets	3%	2%
Restricted Assets	1%	1%
Deferred Outflows of Resources	1%	2%

Current and Other Liabilities

Fiscal Year 2018 Compared to Fiscal Year 2017

Current and other liabilities increased \$2.4 million or 1.5 percent compared to the prior fiscal year. This reflects an increase in the current portion of revenue bonds of \$2.8 million, an increase of \$1.7 million in accrued expenses, an increase of \$1.6 million in customer advances for construction and an increase in accrued interest on revenue bonds of \$1.1 million. KUB over recovered \$4.7 million in wholesale power costs from its customers in fiscal year 2018, as compared to a \$4 million over recovery in fiscal year 2017. This over recovery of costs will be flowed back to KUB's electric customers during the next fiscal year through adjustments to rates via the Purchased Power Adjustment. KUB over recovered \$1.5 million in wholesale gas costs from its customers in fiscal year 2018, as compared to an under recovery in fiscal year 2017. This over recovery of costs will be flowed back to KUB's gas customers during the next fiscal year through adjustments to rates via the Purchased Gas Adjustment.

These increases were offset by a decline in accounts payable of \$5.6 million. The outstanding balance on TVA conservation loans declined by \$1.8 million, as KUB ceased issuance of any new loans in fiscal year 2016.

Knoxville Utilities Board

Management's Discussion and Analysis

June 30, 2018 and 2017

Fiscal Year 2017 Compared to Fiscal Year 2016

Current and other liabilities increased \$8 million or 5 percent compared to the prior fiscal year. This reflects an increase of \$6.5 million in accounts payable, an increase in the current portion of revenue bonds of \$3 million, and an increase in accrued interest on revenue bonds of \$0.2 million. Purchased power cost was also over recovered by \$4 million. The over recovery of costs will be flowed back to KUB's electric customers during fiscal year 2018 through adjustments to rates via the Purchased Power Adjustment.

These increases were offset by a decline in the actuarially determined net pension obligation of \$5 million and accrued expenses were \$0.9 million lower than the prior fiscal year. The outstanding balance on TVA conservation loans declined by \$2.2 million as KUB ceased issuance of any new loans in fiscal year 2016.

Long-term Debt

Fiscal Year 2018 Compared to Fiscal Year 2017

Long-term debt increased \$59.5 million or 5.7 percent. Revenue bonds totaling \$97 million were sold in August 2017 and were offset by the scheduled repayment of debt and bond refunding issuances. During the fiscal year, \$34.7 million of bond debt was repaid, which included principal payments from the August 2017 revenue bond issuance.

Fiscal Year 2017 Compared to Fiscal Year 2016

Long-term debt increased \$65.3 million or 6.7 percent. Revenue bonds totaling \$97 million were sold in July 2016. Also in July 2016, revenue refunding bonds of \$20.9 were sold and in March 2017, \$48.8 million in revenue refunding bonds were sold to refinance bonds sold in 2009 and 2005, respectively. The additional issuances offset by the defeased bonds and schedule debt repayments accounted for the change in long-term debt. During the fiscal year, \$31.9 million of bond debt was repaid, which included additional principal payments required from the July 2016 revenue bond issuance.

Deferred Inflows of Resources

Fiscal Year 2018 Compared to Fiscal Year 2017

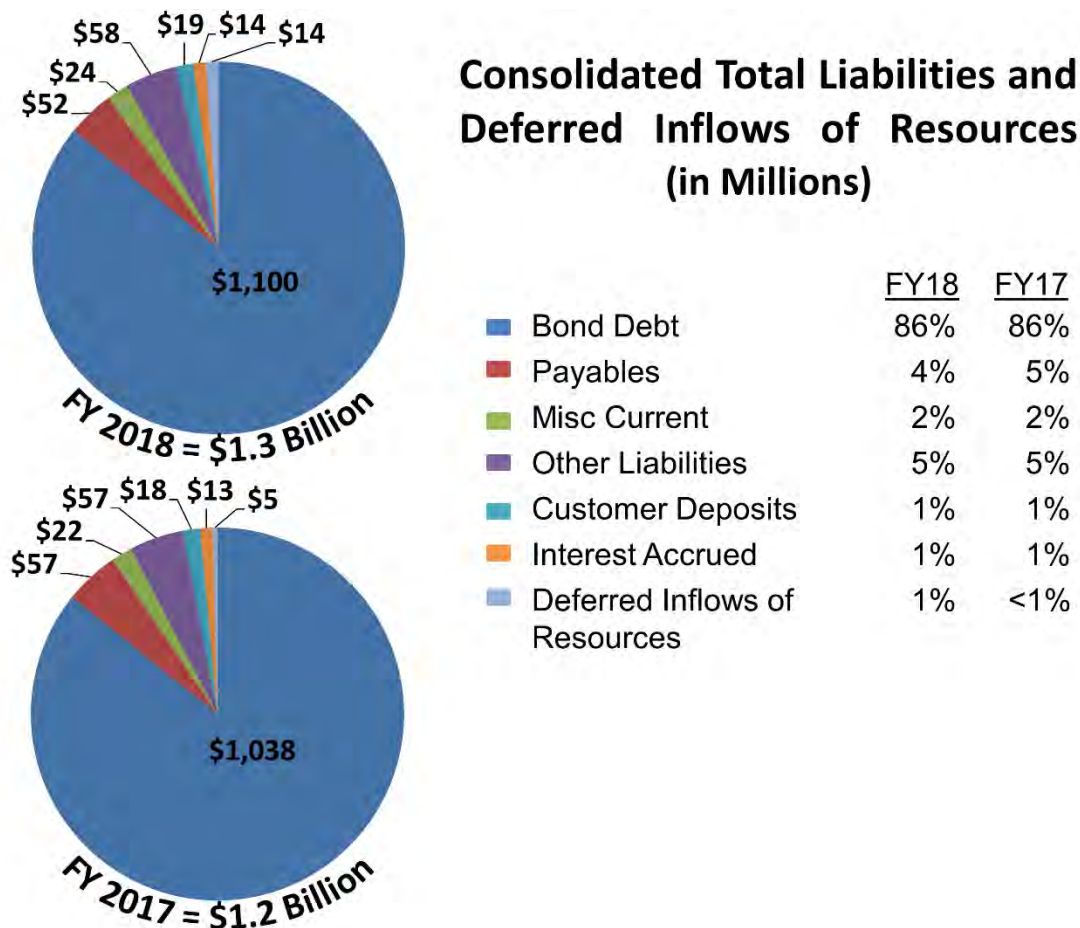
Deferred inflows increased \$9 million compared to the prior fiscal year primarily due to differences in pension inflows.

Fiscal Year 2017 Compared to Fiscal Year 2016

Deferred inflows increased \$3.8 million compared to the prior fiscal year due to differences in pension inflows.

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Net Position

Fiscal Year 2018 Compared to Fiscal Year 2017

Unrestricted net position increased \$58.6 million or 30.2 percent compared to the previous fiscal year, reflecting a \$36.8 million increase in general fund cash. Net investment in capital assets increased \$8 million or 1 percent, the result of net capital assets increasing \$72.7 million and a \$62.3 million increase in current portion of revenue bonds and total long-term debt. Restricted net position increased \$1.5 million compared to the prior year.

Fiscal Year 2017 Compared to Fiscal Year 2016

Net position increased by \$36.1 million in fiscal year 2017. Unrestricted net position increased \$20 million or 11.4 percent compared to the previous fiscal year, reflecting a \$15 million increase in general fund cash. Net investment in capital assets increased \$14.3 million or 1.9 percent, the result of net capital assets increasing \$82.2 million and a \$68.3 million increase in current portion of revenue bonds and total long-term debt. Restricted net position increased \$1.8 million compared to the prior year.

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Statement of Revenues, Expenses and Changes in Net Position

The following table reflects the condensed consolidated Statement of Revenues, Expenses and Changes in Net Position for KUB compared to the prior two fiscal years.

Statements of Revenues, Expenses and Changes in Net Position
For the Years Ended June 30

<i>(in thousands of dollars)</i>	2018	2017	2016
Operating revenues	\$ 815,544	\$ 769,496	\$ 733,362
Less: Purchased energy expense	<u>477,038</u>	<u>460,594</u>	<u>439,301</u>
Margin from sales	<u>338,506</u>	<u>308,902</u>	<u>294,061</u>
Operating expenses			
Treatment	15,951	16,211	16,618
Distribution and collection	63,868	65,309	59,536
Customer service	13,327	14,151	13,893
Administrative and general	30,891	34,897	33,239
Depreciation	77,666	72,022	68,370
Taxes and tax equivalents	<u>34,504</u>	<u>33,483</u>	<u>31,440</u>
Total operating expenses	<u>236,207</u>	<u>236,073</u>	<u>223,096</u>
Operating income	102,299	72,829	70,965
Interest income	4,063	2,140	1,388
Interest expense	(41,962)	(40,470)	(39,143)
Other income/(expense)	<u>(1,296)</u>	<u>(416)</u>	<u>(408)</u>
Change in net position before capital contributions	<u>63,104</u>	<u>34,083</u>	<u>32,802</u>
Capital contributions	<u>467</u>	<u>2,008</u>	<u>1,170</u>
Change in net position	<u>\$ 63,571</u>	<u>\$ 36,091</u>	<u>\$ 33,972</u>

Normal Impacts on Statement of Revenues, Expenses and Changes in Net Position

The following is a description of activities which will normally impact the comparability of the Statement of Revenues, Expenses and Changes in Net Position presentation.

- Operating revenue is largely determined by volume of sales for the fiscal year. Any change (increase/decrease) in retail rates would also be a cause of change in operating revenue.
- Purchased energy expense is determined by volume of power purchases from TVA and volume of natural gas purchases for the fiscal year. Also, any change (increase/decrease) in wholesale power and/or gas rates would result in a change in purchased energy expense.
- Operating expenses (distribution, customer service, administrative and general) are normally impacted by changes in areas including, but not limited to, labor cost (staffing, wage rates), active employee and retiree medical expenses, and system maintenance.
- Depreciation expense is impacted by plant additions and retirements during the fiscal year.
- Taxes and equivalents are impacted by plant additions/retirements, changes in property tax rates, and gross margin levels.

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- Interest income is impacted by level of interest rates and investments.
- Interest expense on debt is impacted by level of outstanding debt and the interest rate(s) on the outstanding debt.
- Other income/(expenses) is impacted by miscellaneous non-operating revenues and expenses.
- Capital contributions are impacted by a donation of facilities/infrastructure to KUB by developers and governmental agencies. The contributions are recognized as revenue and recorded as plant in service based on the fair market value of the asset(s).

Impacts and Analysis

Change in Net Position

Fiscal Year 2018 Compared to Fiscal Year 2017

KUB's consolidated Change in Net Position increased \$63.6 million in fiscal year 2018. A restatement to the fiscal year 2018 beginning net position, based on a change in method of accounting for OPEB, increased the total net position by an additional \$4.5 million. The change resulted in a total increase of \$68.1 million in KUB's net position. Comparatively, net position increased by \$36.1 million in fiscal year 2017.

Fiscal Year 2017 Compared to Fiscal Year 2016

KUB's consolidated net position increased \$36.1 million. This increase was \$2.1 million more than the prior year's change in net position.

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Management's Discussion and Analysis

June 30, 2018 and 2017

Margin from Sales

Fiscal Year 2018 Compared to Fiscal Year 2017

Operating revenue was \$46 million or 6 percent higher than the previous fiscal year. Both electric and natural gas sales were impacted by a colder winter than the previous fiscal year. Electric Division operating revenue increased \$13.6 million due to the result of additional revenue from KUB's electric rate increase, the flow through of TVA rate adjustments, and the flow through of prior year over recovered purchased power costs to electric customers. Gas Division revenue increased \$22.6 million for the fiscal year, the result of a 20.8 percent increase in billed sales due to the colder winter and additional revenue generated from the gas rate increase. Water Division revenue increased \$3.6 million, the net result of additional revenue from the water rate increase and a 2.1 percent decline in billed water sales volumes. Wastewater Division revenue was \$6.2 million higher than the previous year due to additional revenue from the wastewater rate increase offset by a 0.2 percent decrease in billable wastewater volumes.

Wholesale energy expense increased \$16.4 million or 3.6 percent. Purchased power expense increased \$4.1 million compared to last year, reflecting higher wholesale rates from TVA. Purchased gas expense was \$12.3 million higher, reflecting higher customer demand for the fiscal year.

Margin from sales (operating revenue less purchased energy expense) increased \$29.6 million compared to the previous year. The increase reflects additional revenue from the electric, natural gas, water, and wastewater rate increases and higher natural gas sales volumes.

Fiscal Year 2017 Compared to Fiscal Year 2016

Operating revenue was \$36.1 million or 4.9 percent higher than the previous fiscal year. Both electric and natural gas sales were impacted by another extremely mild winter. Electric Division operating revenue increased \$24.5 million due to the result of additional revenue from KUB's one percent electric rate increase, the flow through of TVA rate adjustments, and the flow through of prior year under recovered purchased power costs to electric customers. Gas Division revenue increased \$3.4 million for the fiscal year, the net result of 2.5 percent lower billed sales due to the warmer winter offset by additional revenue generated from the gas rate increase. Water Division revenue increased \$3.3 million, the result of additional revenue from the water rate increase and a 5.2 percent increase in billed water sales volumes. Wastewater Division revenue was \$4.8 million higher than the previous year due to additional revenue from the wastewater rate increase offset by a 0.3 percent decrease in billable wastewater volumes.

Wholesale energy expense increased \$21.3 million or 4.8 percent. Purchased power expense increased \$18.8 million compared to last year, reflecting higher wholesale rates from TVA. Purchased gas expense was \$2.5 million higher, reflecting higher commodity prices for natural gas offset by overall lower customer demand for the fiscal year.

Margin from sales (operating revenue less purchased energy expense) increased \$14.8 million compared to the previous year. The increase reflects additional revenue from the electric, natural gas, water, and wastewater rate increases offset by lower natural gas sales volumes.

Knoxville Utilities Board

Management's Discussion and Analysis

June 30, 2018 and 2017

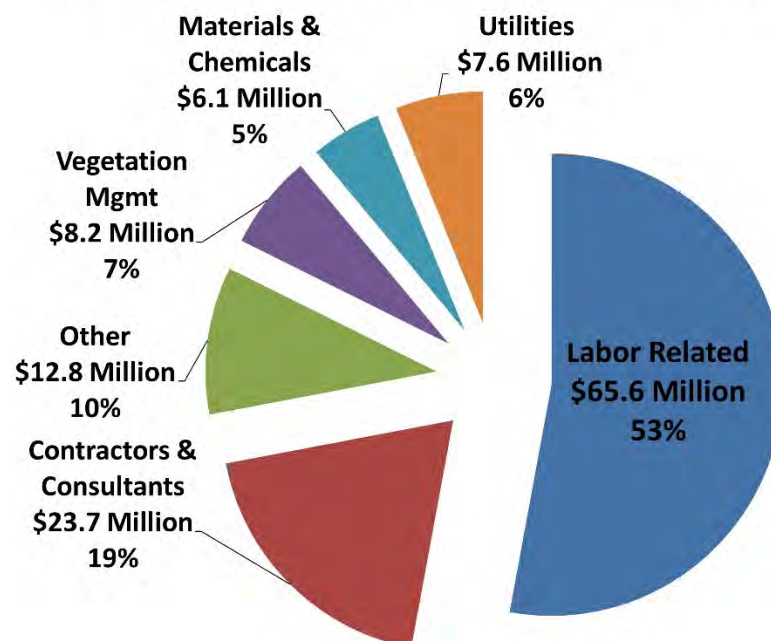
Operating Expenses

Fiscal Year 2018 Compared to Fiscal Year 2017

Operating expenses (excluding wholesale purchased energy expense) increased \$0.1 million compared to fiscal year 2017. Operating expenses include operations and maintenance (O&M) expense, depreciation, and taxes/tax equivalents. O&M expenses can be further classified as treatment, distribution and collection, customer service, and administrative and general.

- Treatment expenses were \$0.3 million lower than the prior year, reflecting lower outside contractor and consultant expenses for the wastewater system.
- Distribution and collection expenses decreased \$1.4 million or 2.2 percent, primarily due to less outside contractor use and lower labor related expenses.
- Customer service expenses decreased \$0.8 million or 5.8 percent, primary due to less outside contractor use.
- Administrative and general expenses decreased \$4 million or 11.5 percent, primarily due to a decrease in labor related expenses.

FY 2018 Consolidated O&M Expense = \$124 Million



- Depreciation expense increased \$5.6 million or 7.8 percent. KUB added \$156.7 million in assets during fiscal year 2017. A full year of depreciation expense was recorded on these capital investments and a partial year of depreciation expense was incurred on \$145.3 million in assets placed in service during fiscal year 2018.

Knoxville Utilities Board

Management's Discussion and Analysis

June 30, 2018 and 2017

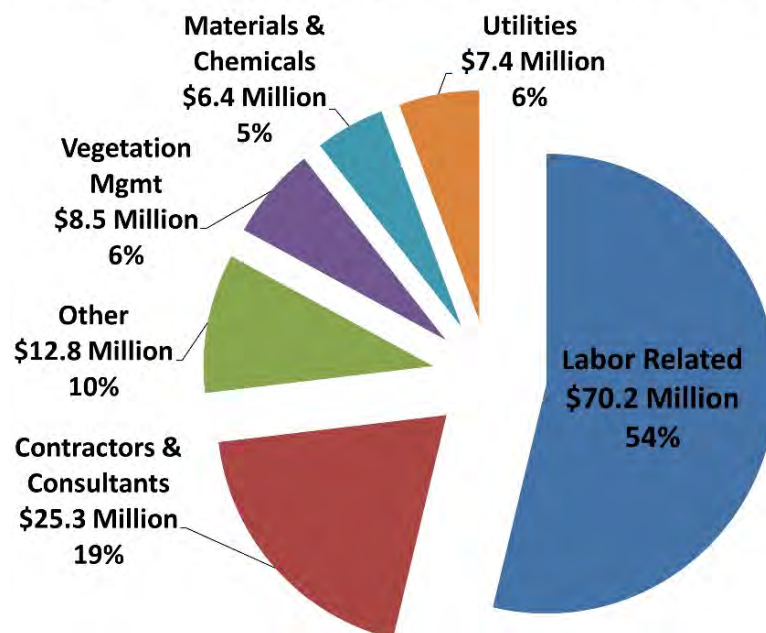
- Taxes and tax equivalents increased \$1 million or 3 percent due to increased plant in service levels. Tax equivalent payments to taxing jurisdictions in which KUB's utility systems are located are based on a combination of net plant values and margin from energy sales.

Fiscal Year 2017 Compared to Fiscal Year 2016

Operating expenses (excluding wholesale purchased energy expense) increased \$13 million or 5.8 percent compared to fiscal year 2016. Operating expenses include operations and maintenance (O&M) expense, depreciation, and taxes/tax equivalents. O&M expenses can be further classified as treatment, distribution and collection, customer service, and administrative and general.

- Treatment expenses were \$0.4 million lower than the prior year, reflecting lower outside contractor and consultant expenses for the wastewater system.
- Distribution and collection expenses increased \$5.8 million or 9.7 percent, primarily due to increased labor related expenses, outside contractor use, and costs related to storm events.
- Customer service expenses rose \$0.2 million or 1.9 percent.
- Administrative and general expenses increased \$1.7 million or 5 percent, primarily due to an increase in labor related expenses.

FY 2017 Consolidated O&M Expense = \$130.6 Million



- Depreciation expense increased \$3.7 million or 5.3 percent. KUB added \$213.7 million in assets during fiscal year 2016. A full year of depreciation expense was recorded on these capital investments and a partial year of depreciation expense was incurred on \$156.7 million in assets placed in service during fiscal year 2017.

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Management's Discussion and Analysis

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- Taxes and tax equivalents increased \$2 million or 6.5 percent due to increased plant in service levels. Tax equivalent payments to taxing jurisdictions in which KUB's utility systems are located are based on a combination of net plant values and margin from energy sales.



Other Income and Expense

Fiscal Year 2018 Compared to Fiscal Year 2017

Interest income increased \$1.9 million compared to the prior fiscal year, reflecting increases in short-term interest rates over the prior fiscal year.

Interest expense increased \$1.5 million or 3.7 percent, reflecting the net effect of interest expense from new revenue bonds sold during the fiscal year and savings on refunding of outstanding bonds.

Other income (net) decreased \$0.9 million, primarily due to the prior year recognition of \$0.9 million in non-operating income for the reimbursement by FEMA to offset the cost of restoration expenses related to the May 2017 storm.

Capital contributions by developers were \$1.5 million lower due to less donated assets compared to the prior fiscal year.

Fiscal Year 2017 Compared to Fiscal Year 2016

Interest income increased \$0.8 million compared to the prior fiscal year, reflecting modest increases in short-term interest rates over the prior fiscal year.

Interest expense increased \$1.3 million or 3.4 percent, reflecting interest expense from new bonds issued during fiscal year 2017.

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Management's Discussion and Analysis

June 30, 2018 and 2017

Other income (net) was consistent with the prior fiscal year. Future reimbursements by FEMA of \$0.9 million were recognized as non-operating income in fiscal year 2017 for the May 2017 storm.

Capital contributions by developers were \$0.8 million higher than last fiscal year.

Capital Assets

Capital Assets As of June 30 (Net of Depreciation)

<i>(in thousands of dollars)</i>	2018	2017	2016
Production Plant (Intakes)	\$ 57	\$ 58	\$ 58
Pumping and Treatment Plant	204,756	196,884	194,450
Distribution and Collection Plant			
Mains and metering	\$ 825,318	\$ 804,007	\$ 755,850
Services and meters	129,275	108,974	92,121
Electric station equipment	54,695	53,178	56,487
Poles, towers and fixtures	127,343	113,640	104,867
Overhead conductors	99,761	90,886	84,937
Line transformers	61,446	60,424	59,587
Other accounts	185,945	196,598	195,751
Total Distribution & Collection Plant	\$ 1,483,783	\$ 1,427,707	\$ 1,349,600
General Plant	55,713	58,881	55,791
Total Plant Assets	\$ 1,744,309	\$ 1,683,530	\$ 1,599,899
Work In Progress	153,686	141,763	143,206
Total Net Plant	\$ 1,897,995	\$ 1,825,293	\$ 1,743,105

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Knoxville Utilities Board

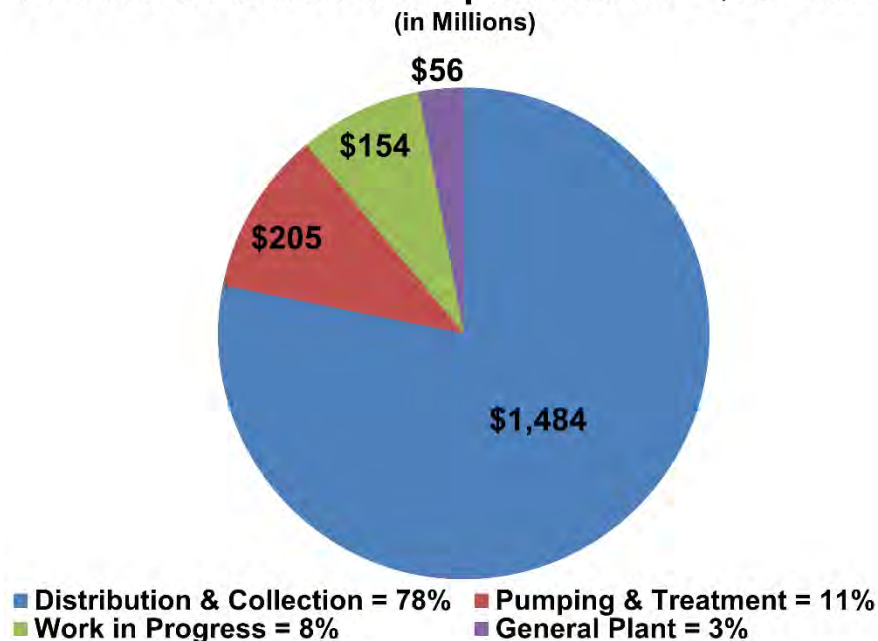
Management's Discussion and Analysis

June 30, 2018 and 2017

Fiscal Year 2018 Compared to Fiscal Year 2017

As of June 30, 2018, KUB had \$1.9 billion invested in capital assets, as reflected in the schedule of capital assets, which represents a net increase (including additions, retirements, and depreciation) of \$72.7 million or 4 percent over the end of the last fiscal year.

FY 2018 Consolidated Capital Assets = \$1.9 Billion



Major capital asset additions during the year were as follows:

- \$31.3 million for various electric distribution system improvements
- \$26.7 million related to wastewater Century II projects
 - \$12.9 million for wastewater treatment plant upgrades
 - \$7.2 million for sewer mini-basin rehabilitation and replacement
 - \$4.9 million for sewer trunk line rehabilitation and replacement
 - \$1.7 million for pump station construction and improvements
- \$12.4 million for water plant and system improvements
- \$10.1 million for Grid Modernization and advanced metering, including SCADA system upgrades, for the electric, gas and water systems
- \$8.9 million for replacement and relocation of utility assets for the gas and water system to accommodate TDOT highway improvement projects
- \$8.6 million for pole replacements for the electric system

Knoxville Utilities Board

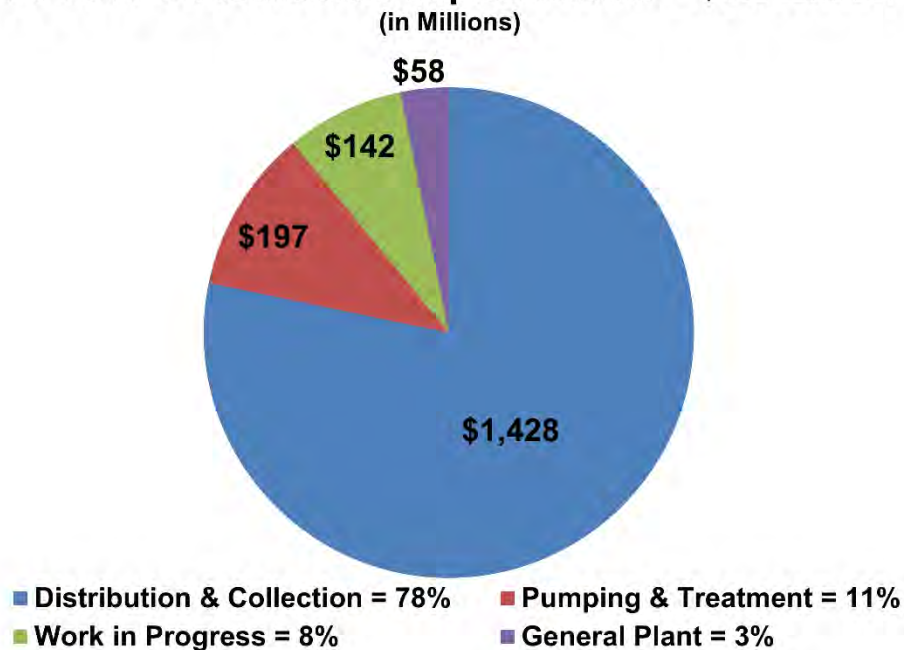
Management's Discussion and Analysis

June 30, 2018 and 2017

Fiscal Year 2017 Compared to Fiscal Year 2016

As of June 30, 2017, KUB had \$1.8 billion invested in capital assets, as reflected in the schedule of capital assets, which represents a net increase (including additions, retirements, and depreciation) of \$82.2 million or 4.7 percent over the end of the last fiscal year.

FY 2017 Consolidated Capital Assets = \$1.8 Billion



Major capital asset additions during the year were as follows:

- \$34.4 million for various electric distribution system improvements
- \$30.9 million related to wastewater Century II projects
 - \$12.4 million for wastewater treatment plant upgrades
 - \$10.6 million for sewer trunk line rehabilitation and replacement
 - \$5.3 million for sewer mini-basin rehabilitation and replacement
 - \$2.6 million for pump station construction and improvements
- \$9.2 million for water plant and system improvements
- \$8.3 million for pole replacements for the electric system
- \$7.7 million for main replacement for the water system
- \$7.3 million for construction of gas mains and service extensions
- \$6.2 million for replacement and relocation of utility assets for the gas and water system to accommodate TDOT highway improvement projects
- \$5.2 million for trucks and equipment

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Management's Discussion and Analysis

June 30, 2018 and 2017

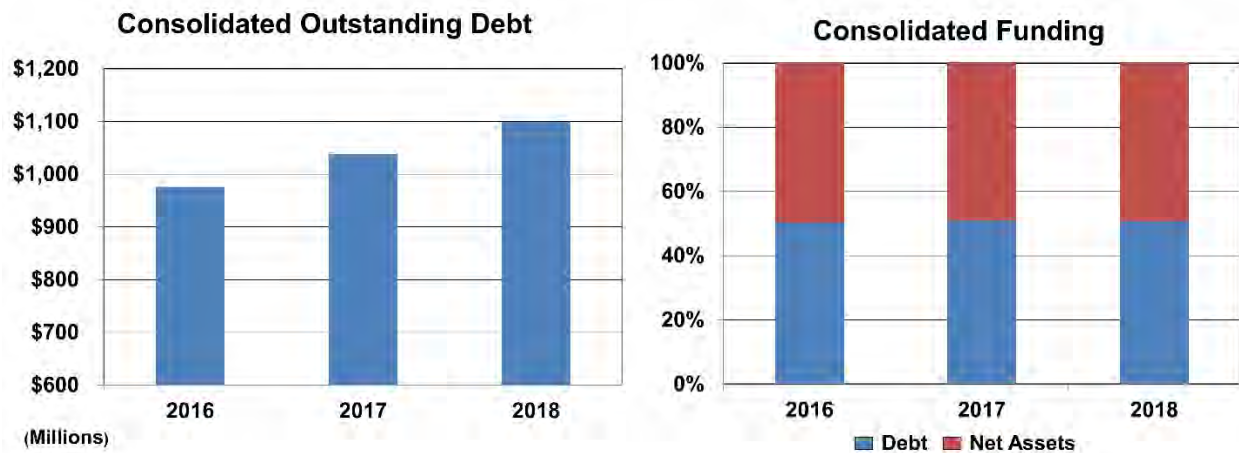
Debt Administration

KUB's outstanding debt was \$1.1 billion at June 30, 2018. Debt as a percentage of capital structure was 50.8 percent in 2018, 51 percent in 2017, and 50.4 percent at the end of fiscal year 2016.

Outstanding Debt As of June 30

(in thousands of dollars)

	2018	2017	2016
Revenue bonds	\$ 1,099,795	\$ 1,037,500	\$ 976,430
Total outstanding debt	\$ 1,099,795	\$ 1,037,500	\$ 976,430



KUB will pay \$425.4 million in principal payments over the next ten years, representing 38.7 percent of outstanding bonds.

Fiscal Year 2018 Compared to Fiscal Year 2017

As of June 30, 2018, KUB had \$1.1 billion in outstanding debt (including the current portion of revenue bonds) compared to \$1.04 billion last year, an increase of \$62.3 million. The increase is attributable to new revenue bonds issued during the fiscal year offset by the scheduled repayment of debt. KUB's weighted average cost of debt as of June 30, 2018 was 3.81 percent (3.60 percent including the impact of Build America Bonds rebates).

KUB sold \$40 million in electric system revenue bonds in August 2017 for the purpose of funding electric system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.08 percent.

KUB sold \$12 million in gas system revenue bonds in August 2017 for the purpose of funding gas system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.07 percent.

KUB sold \$20 million in water system revenue bonds in August 2017 for the purpose of funding water system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.05 percent.

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KUB sold \$25 million in wastewater system revenue bonds in August 2017 for the purpose of funding wastewater system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.08 percent.

KUB's outstanding debt is rated by Standard & Poor's and Moody's Investors Service. As of June 30, 2018, Standard & Poor's rated the revenue bonds of the Water Division AAA, the Electric and Wastewater Divisions AA+ and the revenue bonds of the Gas Division AA. Moody's Investors Service rated the bonds of the Water Division Aa1 and the Electric, Gas and Wastewater Divisions Aa2.

Fiscal Year 2017 Compared to Fiscal Year 2016

As of June 30, 2017, KUB had \$1.04 billion in outstanding debt (including the current portion of revenue bonds) compared to \$976.4 million last year, an increase of \$61.1 million. KUB's weighted average cost of debt as of June 30, 2017 was 3.85 percent (3.62 percent including the impact of Build America Bonds rebates).

KUB sold \$40 million in electric system revenue bonds in July 2016 for the purpose of funding electric system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 2.75 percent.

KUB sold \$23.4 million in electric system revenue refunding bonds in March 2017 for the purpose of refinancing existing electric system bonds at lower interest rates. KUB will realize a total debt service savings of \$3.2 million over the life of the bonds (\$2.8 million on a net present value basis). The true interest cost of the bonds, which were sold through a competitive bidding process, was 2.18 percent.

KUB sold \$12 million in gas system revenue bonds in July 2016 for the purpose of funding gas system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 2.78 percent.

KUB sold \$8.1 million in gas system revenue refunding bonds in March 2017 for the purpose of refinancing existing gas system bonds at lower interest rates. KUB will realize a total debt service savings of \$1.2 million over the life of the bonds (\$1 million on a net present value basis). The true interest cost of the bonds, which were sold through a competitive bidding process, was 2.09 percent.

KUB sold \$25 million in water system revenue bonds in July 2016 for the purpose of funding water system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 2.72 percent.

KUB sold \$20.9 million in water system revenue refunding bonds in July 2016 for the purpose of refinancing existing debt at lower interest rates. KUB will realize a total debt service savings of \$2.5 million over the life of the bonds (\$2.2 million on a net present value basis). The true interest cost of the bonds, which were sold through a competitive bidding process, was 2.07 percent.

KUB sold \$5.3 million in water system revenue refunding bonds in March 2017 for the purpose of refinancing existing debt at lower interest rates. KUB will realize a total debt service savings of \$0.7 million over the life of the bonds (\$0.6 million on a net present value basis). The true interest cost of the bonds, which were sold through a competitive bidding process, was 2.14 percent.

KUB sold \$20 million in wastewater system revenue bonds in July 2016 for the purpose of funding wastewater system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 2.72 percent.

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KUB sold \$12 million in wastewater system revenue refunding bonds in March 2017 for the purpose of refinancing existing wastewater system bonds at lower interest rates. KUB will realize a total debt service savings of \$1.4 million over the life of the bonds (\$1.3 million on a net present value basis). The true interest cost of the bonds, which were sold through a competitive bidding process, was 1.95 percent.

KUB's outstanding debt is rated by Standard & Poor's and Moody's Investors Service. As of June 30, 2017, Standard & Poor's rated the revenue bonds of the Water Division AAA, the Electric and Wastewater Divisions AA+ and the revenue bonds of the Gas Division AA. Moody's Investors Service rated the bonds of the Electric, Gas and Wastewater Divisions Aa2.

As part of the rating process for the \$25 million in water revenue bonds and \$20.9 million in water revenue refunding bonds, Moody's upgraded its rating on KUB's water system bonds to Aa1 from Aa2. Aa1 is the second to highest bond credit rating assigned by Moody's Investors Service. In its formal rating report, Moody's stated "the upgrade to Aa1 reflects the well-managed financial operations of the water system that continues to provide for solid debt service coverage and liquidity, a mature service area, and a manageable debt profile." The AAA bond rating from Standard and Poor's was reaffirmed. In its formal rating report on the water bonds, Standard and Poor's noted "based on our financial management assessment we view KUB to be '1' on a scale of 1-6, with '1' being the strongest."

Impacts on Future Financial Position

KUB anticipates a net increase of 3,550 customers during fiscal year 2019.

In June 2017, the KUB Board adopted the next three years of rate increases for all four utility Divisions to help fund the ongoing Century II infrastructure programs for each system. The second of those rate increases go into effect during fiscal year 2019.

The second approved electric rate increase will be effective October 2018. The rate increase will provide \$11.2 million in additional annual Electric Division revenue.

The second approved natural gas rate increase will be effective October 2018. The rate increase will result in \$2.3 million in additional annual Gas Division revenue.

The second approved water rate increase will be effective July 2018. The rate increase will result in additional annual Water Division revenue of \$3.1 million.

The second approved wastewater rate increase will be effective July 2018. The rate increase will provide additional annual Wastewater Division revenue of \$4.2 million.

KUB sold \$40 million in electric system revenue bonds in August 2018 for the purpose of funding electric system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.42 percent.

KUB sold \$8 million in gas system revenue bonds in August 2018 for the purpose of funding gas system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.49 percent.

KUB sold \$20 million in water system revenue bonds in August 2018 for the purpose of funding water system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.46 percent.

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Management's Discussion and Analysis

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KUB sold \$12 million in wastewater system revenue bonds in August 2018 for the purpose of funding wastewater system capital improvements. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.49 percent.

All ratings by Standard & Poor's and Moody's Investors Service were reaffirmed as part of the issuance process for the aforementioned bonds.

KUB long-term debt includes \$123.8 million of Build America Bond (BABs). The BABs were sold on a taxable basis with the United States Treasury providing a rebate to KUB for a percentage of the interest cost. The interest rebates were subject to federal sequestration during the fiscal year and were reduced by 6.6 percent. Any future actions by Congress may also affect the anticipated rebates for future fiscal years.

The Pension Plan actuarial valuation for the Plan year ending December 31, 2017 resulted in an actuarially determined contribution of \$3,156,661 for the fiscal year ending June 30, 2019, based on the Plan's current funding policy. Subsequent to June 30, 2018, the actuarial valuation for the Plan year ending December 31, 2018 was completed. The actuarial valuation resulted in an actuarially determined contribution of \$2,585,824 for the fiscal year ending June 30, 2020, based on the Plan's current funding policy. For the Plan year ending December 31, 2018, the Plan's actuarial funded ratio was 107.84 percent.

The OPEB Plan actuarial valuation as of January 1, 2017 resulted in an actuarially determined contribution of zero for the fiscal year ending June 30, 2019, based on the Plan's current funding policy. Subsequent to June 30, 2018, the actuarial valuation as of January 1, 2018 was completed. The actuarial valuation resulted in an actuarially determined contribution of \$311,324 for the fiscal year ending June 30, 2020, based on the Plan's current funding policy. The Plan's actuarial funded ratio was 102.78 percent.

GASB Statement No. 83, *Certain Asset Retirement Obligations*, is effective for fiscal years beginning after June 15, 2018. GASB Statement No. 84, *Fiduciary Activities*, is effective for fiscal years beginning after December 15, 2018. GASB Statement No. 87, *Leases*, is effective for fiscal years beginning after December 15, 2019. GASB Statement No. 88, *Certain Disclosure Related to Debt, Including Direct Borrowings and Direct Placements*, is effective for fiscal years beginning after June 15, 2018. GASB Statement No. 89, *Accounting for Interest Cost Incurred Before the End of a Construction Period*, is effective for fiscal years beginning after December 15, 2019. KUB has not elected early implementation of these standards and has not completed the process of evaluating the impact of these statements on its financial statements.

No other facts, decisions, or conditions are currently known which would have a significant impact on KUB's financial position or results of operations during fiscal year 2018.

Financial Contact

KUB's financial statements are designed to present users (citizens, customers, investors, and creditors) with a general overview of KUB's financial position and results of operations for the fiscal years ending June 30, 2018 and 2017. If you have questions about the statements or need additional financial information, contact KUB's Chief Financial Officer at 445 South Gay Street, Knoxville, Tennessee 37902.

Knoxville Utilities Board
Consolidated Statements of Net Position
June 30, 2018 and 2017

	2018	2017
Assets and Deferred Outflows of Resources		
Current assets:		
Cash and cash equivalents	\$ 128,217,924	\$ 78,955,536
Short-term investments	2,485,400	14,967,295
Short-term contingency fund investments	30,057,546	43,754,509
Other current assets	2,862,353	3,395,190
Accrued interest receivable	123,231	78,019
Accounts receivable, less allowance of uncollectible accounts of \$681,624 in 2018 and \$652,627 in 2017	82,097,279	74,433,839
Inventories	23,191,810	18,475,991
Prepaid expenses	866,295	868,425
Gas storage	7,037,629	7,884,634
Total current assets	<u>276,939,467</u>	<u>242,813,438</u>
Restricted assets:		
Bond funds	33,506,454	30,864,965
Other funds	21,446	31,434
TVA contract proceeds	-	74,619
Total restricted assets	<u>33,527,900</u>	<u>30,971,018</u>
Plant in service		
Plant in service	2,616,728,074	2,522,407,685
Less accumulated depreciation	<u>(872,419,331)</u>	<u>(838,877,792)</u>
	1,744,308,743	1,683,529,893
Retirement in progress	2,855,990	2,070,321
Construction in progress	150,829,851	139,692,725
Net plant in service	<u>1,897,994,584</u>	<u>1,825,292,939</u>
Other assets:		
Net pension asset	19,778,372	123,941
Net OPEB asset	3,751,068	-
Long-term contingency fund investments	73,744,762	54,728,134
TVA conservation program receivable	4,301,001	6,022,815
Under recovered purchased gas cost	-	3,744,086
Other	12,519,454	11,916,691
Total other assets	<u>114,094,657</u>	<u>76,535,667</u>
Total assets	<u>2,322,556,608</u>	<u>2,175,613,062</u>
Deferred outflows of resources:		
Pension outflow	1,947,863	9,090,810
OPEB outflow	662,384	-
Unamortized bond refunding costs	22,933,336	24,403,793
Total deferred outflows of resources	<u>25,543,583</u>	<u>33,494,603</u>
Total assets and deferred outflows of resources	<u>\$ 2,348,100,191</u>	<u>\$ 2,209,107,665</u>

The accompanying notes are an integral part of these consolidated financial statements.

Knoxville Utilities Board
Consolidated Statements of Net Position
June 30, 2018 and 2017

	2018	2017
Liabilities, Deferred Inflows, and Net Position		
Current liabilities:		
Current portion of revenue bonds	\$ 36,845,000	\$ 34,055,000
Sales tax collections payable	1,373,433	1,309,383
Accounts payable	51,528,545	57,143,487
Accrued expenses	22,420,724	20,709,745
Customer deposits plus accrued interest	19,239,531	18,447,639
Accrued interest on revenue bonds	14,092,280	12,994,768
Total current liabilities	<u>145,499,513</u>	<u>144,660,022</u>
Other liabilities:		
TVA conservation program	4,431,219	6,236,061
Accrued compensated absences	8,497,960	9,074,278
Customer advances for construction	4,927,837	3,295,196
Net pension liability - QEBA	280,341	185,077
Over recovered purchased power cost	4,706,715	3,957,673
Over recovered purchased gas cost	1,466,723	-
Other	155,411	124,777
Total other liabilities	<u>24,466,206</u>	<u>22,873,062</u>
Long-term debt:		
Revenue bonds	1,062,950,000	1,003,445,000
Unamortized premiums/discounts	34,146,236	34,177,284
Total long-term debt	<u>1,097,096,236</u>	<u>1,037,622,284</u>
Total liabilities	<u>1,267,061,955</u>	<u>1,205,155,368</u>
Deferred inflows of resources:		
Pension inflow	13,937,341	5,267,517
OPEB inflow	321,637	-
Total deferred inflows of resources	<u>14,258,978</u>	<u>5,267,517</u>
Total liabilities and deferred inflows of resources	<u>1,281,320,933</u>	<u>1,210,422,885</u>
Net position		
Net investment in capital assets	794,382,860	786,361,325
Restricted for:		
Debt service	19,414,174	17,870,197
Other	21,446	106,053
Unrestricted	252,960,778	194,347,205
Total net position	<u>1,066,779,258</u>	<u>998,684,780</u>
Total liabilities, deferred inflows, and net position	<u>\$ 2,348,100,191</u>	<u>\$ 2,209,107,665</u>

The accompanying notes are an integral part of these consolidated financial statements.

Knoxville Utilities Board
Consolidated Statements of Revenues, Expenses and Changes in Net Position
June 30, 2018 and 2017

	2018	2017
Operating revenues		
Electric	\$ 553,212,568	\$ 539,569,078
Gas	114,248,463	91,610,079
Water	53,836,154	50,234,004
Wastewater	94,246,807	88,082,619
Total operating revenues	<u>815,543,992</u>	<u>769,495,780</u>
Operating expenses		
Purchased power	421,104,855	417,004,982
Purchased gas	55,933,211	43,589,444
Treatment	15,951,179	16,211,491
Distribution and collection	63,867,520	65,309,186
Customer service	13,327,372	14,150,687
Administrative and general	30,890,738	34,897,376
Provision for depreciation	77,665,810	72,022,197
Taxes and tax equivalents	34,504,209	33,482,117
Total operating expenses	<u>713,244,894</u>	<u>696,667,480</u>
Operating income	<u>102,299,098</u>	<u>72,828,300</u>
Non-operating revenues (expenses)		
Contributions in aid of construction	9,219,259	4,328,656
Interest and dividend income	4,062,762	2,139,753
Interest expense	(41,961,682)	(40,468,883)
Amortization of debt costs	170,641	(204,369)
Write-down of plant for costs recovered through contributions	(9,219,259)	(4,328,656)
Other	(1,466,504)	(211,826)
Total non-operating revenues (expenses)	<u>(39,194,783)</u>	<u>(38,745,325)</u>
Change in net position before capital contributions	63,104,315	34,082,975
Capital contributions	467,468	2,007,985
Change in net position	63,571,783	36,090,960
Net position, beginning of year, as previously reported	998,684,780	962,593,820
Change in method of accounting for OPEB	4,522,695	-
Net position, beginning of year, as restated	<u>1,003,207,475</u>	<u>962,593,820</u>
Net position, end of year	<u>\$ 1,066,779,258</u>	<u>\$ 998,684,780</u>

The accompanying notes are an integral part of these consolidated financial statements.

Knoxville Utilities Board

Consolidated Statements of Cash Flows

June 30, 2018 and 2017

	2018	2017
Cash flows from operating activities:		
Cash receipts from customers	\$ 802,335,926	\$ 765,083,462
Cash receipts from other operations	13,706,479	12,678,406
Cash payments to suppliers of goods or services	(557,199,870)	(544,820,189)
Cash payments to employees for services	(58,281,778)	(58,297,150)
Payment in lieu of taxes	(29,925,260)	(29,127,961)
Cash receipts from collections of TVA conservation loan program participants	2,013,974	2,525,020
Cash payments for TVA Conservation loan program	(2,097,002)	(2,571,436)
Net cash provided by operating activities	<u>170,552,469</u>	<u>145,470,152</u>
Cash flows from capital and related financing activities:		
Net proceeds from bond issuance	97,923,109	172,176,578
Principal paid on revenue bonds and notes payable	(34,705,000)	(105,590,000)
Interest paid on revenue bonds and notes payable	(40,864,170)	(40,229,968)
Acquisition and construction of plant	(167,594,705)	(158,857,535)
Changes in bond funds, restricted	(2,641,489)	(1,929,520)
Customer advances for construction	1,695,867	1,071,598
Proceeds received on disposal of plant	5,963,771	242,537
Cash received from developers and individuals for capital purposes	9,219,259	4,328,656
Net cash used in capital and related financing activities	<u>(131,003,358)</u>	<u>(128,787,654)</u>
Cash flows from investing activities:		
Purchase of investment securities	(52,384,101)	(44,751,575)
Maturities of investment securities	58,785,002	25,633,000
Interest received	3,909,645	2,024,860
Other property and investments	(597,269)	420,356
Net cash provided by (used in) investing activities	<u>9,713,277</u>	<u>(16,673,359)</u>
Net increase (decrease) in cash and cash equivalents	49,262,388	9,139
Cash and cash equivalents, beginning of year	<u>78,955,536</u>	<u>78,946,397</u>
Cash and cash equivalents, end of year	<u>\$ 128,217,924</u>	<u>\$ 78,955,536</u>
Reconciliation of operating income to net cash provided by operating activities		
Operating income	\$ 102,299,098	\$ 72,828,300
Adjustments to reconcile operating income to net cash provided by operating activities:		
Depreciation expense	80,114,269	74,082,536
Changes in operating assets and liabilities:		
Accounts receivable	(7,663,441)	(1,488,519)
Inventories	(4,715,819)	(7,951,162)
Prepaid expenses	849,135	143,757
TVA conservation program receivable	1,721,814	2,130,377
Other assets	701,622	(2,709,883)
Sales tax collections payable	64,050	70,867
Accounts payable and accrued expenses	(7,795,795)	5,635,936
TVA conservation program payable	(1,804,842)	(2,176,792)
Unrecovered purchased power cost	749,042	5,337,316
Underrecovered gas costs	5,210,809	(1,565,433)
Customer deposits plus accrued interest	791,892	1,311,748
Other liabilities	30,635	(178,896)
Net cash provided by operating activities	<u>\$ 170,552,469</u>	<u>\$ 145,470,152</u>
Noncash capital activities:		
Acquisition of plant assets through developer contributions	\$ 467,468	\$ 2,007,985

The accompanying notes are an integral part of these consolidated financial statements.

Knoxville Utilities Board

Notes to Consolidated Financial Statements

June 30, 2018 and 2017

1. Description of Business

Knoxville Utilities Board (KUB), comprised of the Electric Division, Gas Division, Water Division, and Wastewater Division (Divisions), is reported as a component unit enterprise fund in the financial statements of the City of Knoxville. KUB's responsibility is to oversee the purchase, production, distribution, and processing of electricity, natural gas, water, and wastewater services. A seven-member Board of Commissioners (Board) governs KUB. The Board has all powers to construct, acquire, expand, and operate the Divisions. It has full control and complete jurisdiction over the management and operation of the Divisions including setting rates. KUB's accounts are maintained in conformity with the Uniform System of Accounts of the Federal Energy Regulatory Commission (FERC), the Uniform System of Accounts of the National Association of Regulatory Utility Commissioners (NARUC), and the Governmental Accounting Standards Board (GASB), as applicable.

2. Significant Accounting Policies

Basis of Accounting

In conformity with Generally Accepted Accounting Principles (GAAP), KUB follows the provisions of GASB Statement No. 34 (Statement No. 34), *Financial Statements – and Management's Discussion and Analysis – for State and Local Governments* as amended by GASB Statement No. 63 (Statement No. 63), *Financial Reporting of Deferred Outflows of Resources, Deferred Inflows of Resources and Net Position*. Statement No. 34 established standards for external financial reporting for all state and local governmental entities. Under Statement No. 63, financial statements include deferred outflows of resources and deferred inflows of resources, in addition to assets and liabilities, and report *net position* instead of net assets. In addition, KUB follows GASB Statement No. 62 (Statement No. 62), *Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements* as it relates to certain items for regulatory accounting. Regulatory accounting allows a regulated utility to defer a cost (a regulatory asset) or recognize an obligation (a regulatory liability) if it is probable that through the rate making process, there will be a corresponding increase or decrease in future revenues. Accordingly, KUB has recognized certain regulatory assets and regulatory liabilities in the accompanying Statements of Net Position.

The consolidated financial statements are prepared on the accrual basis of accounting, whereby revenues are recognized when earned and expenses are recognized when incurred. The accounting and financial reporting treatment applied is determined by measurement focus. The transactions are accounted for on a flow of economic resources measurement focus. With this measurement focus, all assets and all liabilities associated with the operations are included on the Statement of Net Position. Net position (i.e., total assets and deferred outflows of resources net of total liabilities and deferred inflows of resources) is segregated into net investment in capital assets, restricted for capital activity and debt service, and unrestricted components.

Recently Adopted New Accounting Pronouncements

In June 2015, the GASB issued GASB Statement No. 75 (Statement No. 75), *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*. The Statement addresses reporting by governments that provide OPEB to their employees. Statement No. 75 is effective for fiscal years beginning after June 15, 2017.

In March 2017, the GASB issued GASB Statement No. 85 (Statement No. 85), *Omnibus 2017*. The objective of this Statement is to address practice issues that have been identified during implementation and application of certain GASB Statements. Statement No. 85 is effective for fiscal years beginning after June 15, 2017.

In May 2017, the GASB issued GASB Statement No. 86 (Statement No. 86), *Certain Debt Extinguishment Issues*. The objective of this Statement is to improve consistency in accounting and

Knoxville Utilities Board

Notes to Consolidated Financial Statements

June 30, 2018 and 2017

financial reporting for in-substance defeasance of debt. The Statement provides guidance for transactions in which cash and other monetary assets acquired with existing resources or resources other than the proceeds of refunding debt, are placed in an irrevocable trust for the sole purpose of extinguishing debt. This Statement also improves accounting and financial reporting for prepaid insurance on debt that is extinguished and notes to financial statements for debt that is defeased in substance. Statement No. 86 is effective for fiscal years beginning after June 15, 2017.

Principles of Consolidation

The consolidated financial statements include the accounts of the Electric, Gas, Water and Wastewater Divisions. All significant intercompany balances and transactions have been eliminated in consolidation.

KUB issues separate financial reports, which include financial statements and required supplementary information, for the Electric, Gas, Water, and Wastewater Divisions. These reports may be obtained by writing Knoxville Utilities Board, P.O. Box 59017, Knoxville, TN 37950-9017.

Plant

Plant and other property are stated on the basis of original cost. The costs of current repairs and minor replacements are charged to operating expense. The costs of renewals and improvements are capitalized. The original cost of utility plant assets retired or otherwise disposed of and the cost of removal less salvage value is charged to accumulated depreciation. When other property is retired, the related asset and accumulated depreciation are removed from the accounts, and the gain or loss is included in the results of operations.

The provision for depreciation of plants in service is based on the estimated useful lives of the assets, which range from three to sixty-seven years, and is computed using the straight-line method. Pursuant to FERC/NARUC, the caption "Provision for depreciation" in the consolidated Statements of Revenues, Expenses and Changes in Net Position does not include depreciation for transportation equipment of \$2,448,459 in fiscal year 2018 and \$2,060,340 in fiscal year 2017. Under regulatory accounting, interest costs are expensed as incurred with construction of plant assets.

Operating Revenue

Operating revenue consists primarily of charges for services provided by the principal operations of KUB. Operating revenue is recorded when the service is rendered, on a cycle basis, and includes an estimate of unbilled revenue. Revenues are reported net of bad debt expense of \$2,158,897 in fiscal year 2018 and \$1,524,318 in fiscal year 2017.

Non-operating Revenue

Non-operating revenue consists of revenues that are related to financing and investing types of activities and result from non-exchange transactions or ancillary activities.

Expense

When an expense is incurred for purposes for which there are both restricted and unrestricted assets available, it is KUB's policy to apply those expenses to restricted assets to the extent such are available and then to unrestricted assets.

Net Position

GASB Statement No. 63 requires the classification of net position into three components – net investment in capital assets; net position-restricted; and net position-unrestricted.

These classifications are defined as follows:

- Net investment in capital assets – This component of net position consists of capital assets, including restricted capital assets, net of accumulated depreciation and reduced by the outstanding balances of any bonds, mortgages, notes, or other borrowings that are

Knoxville Utilities Board

Notes to Consolidated Financial Statements

June 30, 2018 and 2017

attributable to the acquisition, construction, or improvement of those assets. Deferred outflows of resources and deferred inflows of resources that are attributable to the acquisition, construction, or improvement of those assets or related debt also should be included in this component of net position. If there are significant unspent related debt proceeds at year end, the portion of the debt attributable to the unspent proceeds are not included in the calculation of net investment in capital assets. Rather, that portion of the debt is included in the same net position component as the unspent proceeds.

- Net position-restricted – This component of net position consists of restricted assets reduced by liabilities and deferred inflows of resources related to those assets. Generally, a liability relates to restricted assets if the asset results from a resource flow that also results in the recognition of a liability or if the liability will be liquidated with the restricted assets reported.
- Net position-unrestricted – This component of net position consists of assets, deferred outflows of resources, liabilities, and deferred inflows of resources that are not included in the determination of net investment in capital assets or the restricted component of net position.

Contributions in Aid of Construction and Capital Contributions

Contributions in aid of construction are cash collections from customers or others for a particular purpose, generally the construction of new facilities to serve new customers in excess of the investment KUB is willing to make for a particular incremental revenue source. KUB reduces the plant account balances to which contributions relate by the actual amount of the contribution and recognizes the contributions as non-operating revenue in accordance with Statement No. 62.

Capital contributions represent contributions of utility plant infrastructure constructed by developers and others in industrial parks and other developments, and transferred to KUB upon completion of construction and the initiation of utility service. In accordance with GASB Statement No. 33, *Accounting and Financial Reporting for Nonexchange Transactions*, such contributions are recognized as revenues and capital assets upon receipt.

Inventories

Inventories, consisting of plant materials and operating supplies, are valued at the lower of average cost or replacement value.

Change in method of accounting for OPEB

In June 2015, the Governmental Accounting Standards Board (GASB) issued Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions*, which addresses reporting by governments that provide OPEB to their employees. This standard was adopted by KUB in 2018 and resulted in a restatement of beginning net position of \$4,522,695 to increase the net OPEB asset by \$4,522,695 based on revised actuarial assumptions to conform with GASB 75.

OPEB Plan

KUB's employees hired prior to July 1, 1999, who are retired and who (prior to retirement) qualified for retiree medical insurance by meeting the Rule of 80 (age plus years of service) with a minimum of 20 years of service, and were enrolled in medical coverage on their last day are eligible for post-employment health care established by KUB's Board of Commissioners through Resolution No. 1168, as amended, dated October 18, 2007. KUB's policy is to fully fund the annual actuarially determined contributions, which are determined by actuarial valuation. As required by GASB Statement No. 75, KUB measures net OPEB liability as total OPEB liability less the amount of the Plan's fiduciary net position. The amounts reported as of June 30, 2018 must be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 are based on a June 30, 2018 measurement date.

Knoxville Utilities Board

Notes to Consolidated Financial Statements

June 30, 2018 and 2017

Pension Plan and Qualified Excess Benefit Arrangement

KUB's employees are participants in the Knoxville Utilities Board Pension Plan as authorized by the Charter of the City of Knoxville §1107(J) (Note 10). KUB's policy is to fully fund the annual actuarially determined contributions. As required by GASB Statement No. 68, KUB measures net pension liability as total pension liability less the amount of the Plan's fiduciary net position. The amounts reported as of June 30, 2018 and 2017 must be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 and 2017 are based on a December 31, 2017 and 2016 measurement date, respectively. The net pension asset is \$19,778,372 as of June 30, 2018 and \$123,941 as of June 30, 2017.

KUB implemented a qualified governmental excess benefit arrangement (QEBA) under IRC section 415(m), which was created by Congress to allow the payment of pension benefits that exceed the IRC section 415(b) limits (and therefore cannot be paid from a qualified retirement plan). The QEBA is a single-employer defined benefit pension plan, administered by KUB (Note 11). As required by GASB Statement No. 73, KUB measures the total pension liability of the QEBA. The amounts reported as of June 30, 2018 and 2017 must be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 and 2017 will be based on the December 31, 2017 and 2016 measurement dates. The total pension liability of the QEBA is \$280,341 as of June 30, 2018 and \$185,077 as of June 30, 2017.

Investments

Investments are carried at fair value as determined by quoted market prices at the reporting date.

Self-Insurance

KUB has established self-insurance programs covering portions of workers' compensation, employee health, environmental liability, general liability, property and casualty liability, and automobile liability claims. A liability is accrued for claims as they are incurred. When applicable, claims in excess of the self-insured risk are covered by KUB's insurance carrier. Additionally, KUB provides certain lifetime health benefits to eligible retired employees under a self-insurance plan administered by a third party.

Estimates

The preparation of financial statements in conformity with generally accepted accounting principles requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosures of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. These estimates are based on historical experience and various other assumptions that KUB believes are reasonable under the circumstances. However, future events are subject to change and the best estimates and judgments routinely require adjustment. Estimates are used for, but not limited to, inventory valuation, allowance for uncollectible accounts, depreciable lives of plant assets, unbilled revenue volumes, pension trust valuations, OPEB trust valuations, insurance liability reserves, and potential losses from contingencies and litigation. Actual results could differ from those estimates.

Restricted and Designated Assets

Certain assets are restricted by bond resolutions for the construction of utility plant and debt repayment. Certain additional assets are designated by management for contingency purposes and economic development.

Cash Equivalents

For purposes of the Statements of Cash Flows, KUB considers all unrestricted and undesignated highly liquid investments with an original maturity of three months or less when purchased to be cash equivalents.

Knoxville Utilities Board

Notes to Consolidated Financial Statements

June 30, 2018 and 2017

Deferred Outflows and Inflows of Resources

Deferred outflows of resources are items related to the acquisition of assets or related debt which are amortized over the life of the asset or debt. Deferred inflows of resources are items related to the acquisition of assets or related debt which are amortized over the life of the asset or debt. KUB records costs associated with the gain or loss on refunding of debt as either a deferred outflow or inflow based on the parameters of Statement No. 65. Deferred outflows of resources also include employer pension contributions made subsequent to the measurement date of the net pension liability and before the end of the employer's reporting period in accordance with Statement No. 71. Deferred inflows and deferred outflows also include the net difference between projected and actual earnings on pension plan investments and OPEB plan investments, differences between expected and actual experience, and changes in assumptions in accordance with Statement No. 68 and Statement No. 75.

Debt Premium/Discount

KUB records unamortized premium and discount on debt as a separate line item in the Long Term Debt section of the Financial Statements. Amortization of these amounts is recorded over the life of the applicable debt as amortization expense.

Debt Issuance Costs

In accordance with regulatory accounting, KUB records debt issuance costs as an Other Asset. Amortization of these amounts is recorded over the life of the applicable debt as amortization expense.

Deferred Gain/Loss on Refunding of Debt

KUB records costs associated with the gain or loss on refunding of debt as either a deferred outflow or inflow based on the parameters of Statement No. 65. In accordance with FERC presentation, amortization of these amounts is recorded over the life of the applicable debt as amortization expense.

Compensated Absences

KUB accrues a liability for earned but unpaid paid-time off (PTO) days.

TVA Conservation Program

KUB previously served as a fiscal intermediary for TVA whereby loans were made to KUB customers by TVA to be used in connection with TVA's Energy Right Residential Program. While KUB still holds existing loans on behalf of TVA, no loans were made through this program after October 31, 2015.

Subsequent Events

KUB has evaluated events and transactions through October 25, 2018, the date these financial statements were issued, for items that should potentially be recognized or disclosed. KUB sold \$40 million in electric system revenue bonds in August 2018 for the purpose of funding electric system capital improvements in fiscal year 2019. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.42 percent. Annual debt service payments including principal and interest range from \$426,345 to \$2,190,937 with final maturity in fiscal year 2048. KUB sold \$8 million in gas system revenue bonds in August 2018 for the purpose of funding gas system capital improvements in fiscal year 2019. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.49 percent. Annual debt service payments including principal and interest range from \$342,571 to \$432,319 with final maturity in fiscal year 2048. KUB sold \$20 million in water system revenue bonds in August 2018 for the purpose of funding water system capital improvements in fiscal year 2019. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.46 percent. Annual debt service payments including principal and interest range from \$868,539 to \$1,094,550 with final maturity in fiscal year 2048. KUB sold \$12 million in wastewater system revenue bonds in August 2018 for the purpose of funding wastewater system capital improvements in fiscal year 2019. The true interest cost of the bonds, which were sold through a competitive bidding process, was 3.49 percent. Annual debt service payments including principal and interest range from \$513,941 to \$648,756 with final maturity in fiscal year 2048.

Knoxville Utilities Board

Notes to Consolidated Financial Statements

June 30, 2018 and 2017

Reclassifications

Certain reclassifications have been made to the fiscal year 2017 balances to conform to fiscal year 2018 presentation.

Purchased Power Adjustment

In October 2002, the Board adopted a Purchased Power Adjustment (PPA) to address changes in wholesale power costs. The PPA was established in response to an amendment to KUB's power supply contract under which, among other things, TVA relinquished its regulatory authority over KUB retail electric rates. The PPA allows KUB to promptly adjust retail electric rates in response to wholesale rate changes or adjustments, thus ensuring that KUB will recover the costs incurred for purchased power. These changes in electric costs are reflected as adjustments to the base electric rates established by the Board. The rate-setting authority vested in the Board by the City Charter meets the "self-regulated" provisions of Statement No. 62, *Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements*, and KUB meets the remaining criteria of Statement No. 62.

TVA implemented a fuel cost adjustment in October 2006 applied on a quarterly basis to wholesale power rates. TVA's quarterly fuel cost adjustment became a monthly fuel cost adjustment effective October 2009. KUB flows changes to wholesale power rates from TVA's fuel cost adjustment mechanism directly through to its retail electric rates via the PPA.

In April 2011, TVA modified its wholesale rate structure to demand and energy billing for its distributors. In response, KUB revised its PPA to include a deferred accounting component to ensure appropriate matching of revenue and expense and cost recovery. KUB will adjust its retail rates on an annual basis to flow any over or under recovery of wholesale power costs through to its customers via the PPA.

Under the PPA mechanism, KUB tracks the actual over/(under) recovered amount in the Over/(Under) Recovered Purchased Power Cost accounts. These accounts are rolled into the PPA rate adjustments thereby assuring that any over/(under) recovered amounts are promptly passed on to the KUB's electric customers. The amount of over/(under) recovered cost was \$4,706,715 at June 30, 2018 and \$3,957,673 at June 30, 2017.

Purchased Gas Adjustment

In November 1990, the Board implemented a deferred Purchased Gas (Cost) Adjustment (PGA) mechanism, which allows KUB to flow changes in purchased gas costs through to its customers. These changes in gas costs are reflected as adjustments to the base gas rates established by the Board. The rate-setting authority vested in the Board by the City Charter meets the "self-regulated" provisions of GASB Statement No. 62 (Statement No. 62), *Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements*.

The PGA is intended to ensure that KUB recovers the total cost of natural gas purchased, transported and/or reserved for delivery to its sales and transportation customers on an equitable basis. The PGA is also intended to ensure that no excess or deficient cost recovery from KUB's customers occurs.

Under the PGA mechanism, KUB tracks the actual over/(under) recovered amount in the Over/(Under) Recovered Purchased Gas Cost accounts. These accounts are rolled into the PGA rate adjustment on June 30 of each year thereby ensuring that any over/(under) recovered amounts are passed on to KUB's gas system customers. The amount of over/(under) recovered cost was \$1,466,723 at June 30, 2018 and (\$3,744,086) at June 30, 2017.

Recently Issued Accounting Pronouncements

In November 2016, the GASB issued GASB Statement No. 83 (Statement No. 83), *Certain Asset Retirement Obligations*. The objective of this Statement is to define asset retirement obligations as a legally enforceable liability associated with the retirement of a tangible capital asset. A government

Knoxville Utilities Board

Notes to Consolidated Financial Statements

June 30, 2018 and 2017

that has legal obligations is required to perform future asset retirement activities related to its tangible capital assets to recognize a liability based on the guidance in this Statement. Statement No. 83 is effective for fiscal years beginning after June 15, 2018.

In January 2017, the GASB issued GASB Statement No. 84 (Statement No. 84), *Fiduciary Activities*. The objective of this Statement is to improve guidance regarding the identification of fiduciary activities for accounting and financial reporting purposes and how those activities should be reported. Statement No. 84 is effective for fiscal years beginning after December 15, 2018.

In June 2017, the GASB issued GASB Statement No. 87 (Statement No. 87), *Leases*. This Statement requires recognition of certain lease assets and liabilities for leases that previously were classified as operating leases and recognized as inflows of resources or outflows of resources based on the payment provisions of the contract. Under this Statement, a lessee is required to recognize a lease liability and an intangible right-to-use lease asset. Statement No. 87 is effective for fiscal years beginning after December 15, 2019.

In April 2018, the GASB issued GASB Statement No. 88 (Statement No. 88), *Certain Disclosure Related to Debt, Including Direct Borrowings and Direct Placements*. The primary objective of this Statement is to improve the information that is disclosed in notes to government financial statements related to debt, including direct borrowing and direct placements. It also clarifies which liabilities governments should include when disclosing information related to debt. Statement No. 88 is effective for fiscal years beginning after June 15, 2018.

In June 2018, the GASB issued GASB Statement No. 89 (Statement No. 89), *Accounting for Interest Cost Incurred Before the End of a Construction Period*. The objectives of this Statement are to enhance the relevance and comparability of information about capital assets and the cost of borrowing for a reporting period, and to simplify accounting for interest cost incurred before the end of a construction period. Statement No. 89 is effective for fiscal years beginning after December 15, 2019.

KUB has not elected early implementation of these standards and has not completed the process of evaluating the impact of these statements on its financial statements.

3. Deposits and Investments

KUB follows the provisions of Statement No. 40 of the Governmental Accounting Standards Board, *Deposit and Investment Risk Disclosures—an amendment of GASB Statement No. 3*. This Statement establishes and modifies disclosure requirements for state and local governments related to deposit and investment risks. KUB classifies its fair value measurements within the fair value hierarchy established by Statement No. 72 of the Governmental Accounting Standards Board, *Fair Value Measurement and Application*.

KUB's investment policy provides the framework for the administration and investment of cash deposits. The investment policy follows Tennessee State law and defines the parameters under which KUB funds should be invested. State law authorizes KUB to invest in obligations of the United States Treasury, its agencies and instrumentalities; certificates of deposit; repurchase agreements; money market funds; and the State Treasurer's Investment Pool.

Interest Rate Risk. KUB's primary investment objectives are to place investments in a manner to ensure the preservation of capital, remain sufficiently liquid to meet all operating requirements, and maximize yield of return. KUB minimizes its exposure to interest rate risk by adhering to Tennessee State law requirements for the investment of public funds. This includes limiting investments to those types described above and limiting maturity horizons. The maximum maturity is four years from the date of investment. KUB also limits its exposure by holding investments to maturity unless cash flow requirements dictate otherwise.

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Notes to Consolidated Financial Statements

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Credit Risk. KUB's investment policy, as required by state law, is to apply the prudent-person rule: Investments are made with judgment and care, under circumstances then prevailing, which persons of prudence, discretion, and intelligence exercise in the management of their own affairs, not for speculation, but for investment, considering the probable income to be derived, as well as the probable safety of their capital.

Custodial Credit Risk. KUB's investment policy limits exposure to custodial credit risk by restricting investments to a standard set forth by state law. All deposits in excess of federal depository insurance limits are collateralized with government securities held in KUB's name by a third-party custodian bank(s) acting as KUB's agent(s), or through the State of Tennessee's collateral pool. Financial institutions that participate in the collateral pool are subject to special assessment; therefore, the deposits are considered insured. A portion of KUB's investments are generally held in the State of Tennessee Local Government Investment Pool (LGIP). The LGIP is a part of the State Pooled Investment Fund and is sponsored by the State of Tennessee Treasury Department. Tennessee Code Annotated ¶¶9-4-701 *et seq.* authorizes local governments to invest in the LGIP. None of KUB's investments are exposed to custodial credit risk.

Classification of deposits and investments per Statement of Net Position:

	2018	2017
Current assets		
Cash and cash equivalents	\$ 128,217,924	\$ 78,955,536
Short-term investments	2,485,400	14,967,295
Short-term contingency fund investments	30,057,546	43,754,509
Other assets		
Long-term contingency fund investments	73,287,077	54,378,356
Restricted assets		
Bond fund	33,506,454	30,864,965
Other funds	21,446	31,434
	<u>\$ 267,575,847</u>	<u>\$ 222,952,095</u>

The above amounts do not include accrued interest of \$457,685 in fiscal year 2018 and \$349,778 in fiscal year 2017. Interest income is recorded on an accrual basis.

Investments and maturities of KUB's deposits and investments as held by financial institutions as of June 30, 2018:

Deposit and Investment Maturities (in Years)			
	Fair Value	Less Than 1	1-5
Supersweep NOW and Other Deposits	\$ 131,254,923	\$ 131,254,923	\$ -
State Treasurer's Investment Pool	8,994,072	8,994,072	-
Agency Bonds	125,573,851	32,542,947	93,030,904
Certificates of Deposits	6,784,036	6,784,036	-
	<u>\$ 272,606,882</u>	<u>\$ 179,575,978</u>	<u>\$ 93,030,904</u>

KUB categorizes its fair value measurements within the fair value hierarchy established by Statement No. 72 of the Governmental Accounting Standards Board, *Fair Value Measurement and Application*. The hierarchy is based on the valuation inputs used to measure the fair value of an asset with a maturity at purchase greater than one year. Level 1 inputs are quoted prices in active markets for identical assets; Level 2 inputs are significant other observable inputs; Level 3 inputs are significant unobservable inputs.

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KUB has the following recurring fair value measurements as of June 30, 2018:

- U.S. Agency bonds of \$93,030,904, which have a maturity at purchase of greater than one year, are valued using quoted market prices (Level 1 inputs)

KUB measures investments with a maturity at purchase of one year or less at amortized cost, which is considered a fair value equivalent due to their nature. Investments in the State Treasurer's Investment Pool are measured at net asset value (NAV) per share.

4. Accounts Receivable

Accounts receivable consists of the following:

	2018	2017
Wholesale and retail customers		
Billed services	\$ 49,764,219	\$ 45,629,784
Unbilled services	29,305,291	25,250,090
Other	3,709,393	4,206,592
Allowance for uncollectible accounts	(681,624)	(652,627)
	<u>\$ 82,097,279</u>	<u>\$ 74,433,839</u>

5. Accounts Payable and Accruals

Accounts payable and accruals consist of the following:

	2018	2017
Trade accounts	\$ 51,528,545	\$ 57,143,487
Salaries and wages	2,843,932	2,445,767
Advances on pole rental	1,225,693	2,101,729
Self-insurance liabilities	1,822,689	1,891,789
Other current liabilities	16,528,410	14,270,460
	<u>\$ 73,949,269</u>	<u>\$ 77,853,232</u>

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Knoxville Utilities Board

Notes to Consolidated Financial Statements

June 30, 2018 and 2017

6. Long-Term Obligations

	Balance June 30, 2017	Additions	Payments	Defeased	Balance June 30, 2018	Amounts Due Within One Year
Electric						
W-2005 - 3.0 - 4.5%	\$ 2,015,000	\$ -	\$ 2,015,000	\$ -	\$ -	\$ -
Y-2009 - 2.5 - 5.0%	3,600,000	-	1,750,000	-	1,850,000	1,850,000
Z-2010 - 1.45 - 6.35%	22,615,000	-	1,330,000	-	21,285,000	1,355,000
AA-2012 - 3.0 - 5.0%	31,310,000	-	2,670,000	-	28,640,000	2,805,000
BB-2012 - 3.0 - 4.0%	32,550,000	-	700,000	-	31,850,000	725,000
CC-2013 - 3.0 - 4.0%	9,035,000	-	475,000	-	8,560,000	475,000
DD-2014 - 2.0 - 4.0%	38,625,000	-	725,000	-	37,900,000	775,000
EE-2015 - 2.0 - 5.0%	28,275,000	-	150,000	-	28,125,000	150,000
FF-2015 - 2.0 - 5.0%	34,325,000	-	700,000	-	33,625,000	725,000
GG-2016 - 2.0 - 5.0%	40,000,000	-	775,000	-	39,225,000	825,000
HH-2017 - 2.5 - 5.0%	23,445,000	-	55,000	-	23,390,000	1,890,000
II-2017 - 3.0 - 5.0%	-	40,000,000	-	-	40,000,000	700,000
Total bonds	\$ 265,795,000	\$ 40,000,000	\$ 11,345,000	\$ -	\$ 294,450,000	\$ 12,275,000
Unamortized Premium	12,080,941	841,629	891,528	-	12,031,042	-
Total long term debt	\$ 277,875,941	\$ 40,841,629	\$ 12,236,528	\$ -	\$ 306,481,042	\$ 12,275,000
Gas						
P-2010 - 3.3 - 6.2%	\$ 11,460,000	\$ -	\$ 570,000	\$ -	\$ 10,890,000	\$ 595,000
Q-2012 - 2.0 - 4.0%	20,580,000	-	2,125,000	-	18,455,000	2,190,000
R-2012 - 2.0 - 4.0%	9,000,000	-	425,000	-	8,575,000	425,000
S-2013 - 2.0 - 4.0%	10,860,000	-	595,000	-	10,265,000	615,000
T-2013 - 2.0 - 4.6%	23,900,000	-	500,000	-	23,400,000	500,000
U-2015 - 2.0 - 5.0%	11,580,000	-	615,000	-	10,965,000	660,000
V-2016 - 2.125 - 5.0%	11,775,000	-	225,000	-	11,550,000	250,000
W-2017 - 5.0%	8,065,000	-	675,000	-	7,390,000	670,000
X-2017 - 2.0 - 5.0%	-	12,000,000	200,000	-	11,800,000	235,000
Total bonds	\$ 107,220,000	\$ 12,000,000	\$ 5,930,000	\$ -	\$ 113,290,000	\$ 6,140,000
Unamortized Premium	4,671,708	222,730	383,615	-	4,510,823	-
Total long term debt	\$ 111,891,708	\$ 12,222,730	\$ 6,313,615	\$ -	\$ 117,800,823	\$ 6,140,000
Water						
U-2009 - 3.0 - 4.5%	\$ 1,875,000	\$ -	\$ 925,000	\$ -	\$ 950,000	\$ 950,000
W-2011 - 2.0 - 4.0%	22,250,000	-	550,000	-	21,700,000	550,000
X-2012 - 3.0 - 5.0%	8,150,000	-	535,000	-	7,615,000	565,000
Y-2013 - 3.0 - 4.0%	8,690,000	-	300,000	-	8,390,000	320,000
Z-2013 - 2.0 - 5.0%	23,175,000	-	500,000	-	22,675,000	525,000
AA-2014 - 2.0 - 4.0%	7,575,000	-	150,000	-	7,425,000	150,000
BB-2015 - 2.0 - 5.0%	22,735,000	-	865,000	-	21,870,000	885,000
CC-2015 - 2.0 - 4.0%	19,275,000	-	400,000	-	18,875,000	425,000
DD-2016 - 3.0 - 5.0%	24,725,000	-	475,000	-	24,250,000	500,000
EE-2016 - 2.0 - 5.0%	20,875,000	-	100,000	-	20,775,000	100,000
FF-2017 - 3.0 - 5.0%	5,310,000	-	470,000	-	4,840,000	465,000
GG-2017 - 2.125 - 5.0%	-	20,000,000	200,000	-	19,800,000	380,000
Total bonds	\$ 164,635,000	\$ 20,000,000	\$ 5,470,000	\$ -	\$ 179,165,000	\$ 5,815,000
Unamortized Premium	5,357,304	735,453	348,779	-	5,743,978	-
Total long term debt	\$ 169,992,304	\$ 20,735,453	\$ 5,818,779	\$ -	\$ 184,908,978	\$ 5,815,000
Wastewater						
2008 - 4.0 - 6.0%	\$ 1,950,000	\$ -	\$ 1,950,000	\$ -	\$ -	\$ -
2010 - 6.3 - 6.5%	30,000,000	-	-	-	30,000,000	-
2010C - 1.18 - 6.1%	63,100,000	-	1,500,000	-	61,600,000	1,550,000
2012A - 2.0 - 4.0%	13,755,000	-	985,000	-	12,770,000	970,000
2012B - 1.25 - 5.0%	61,375,000	-	1,000,000	-	60,375,000	1,050,000
2013A - 2.0 - 4.0%	111,095,000	-	635,000	-	110,460,000	660,000
2014A - 2.0 - 4.0%	28,750,000	-	475,000	-	28,275,000	475,000
2015A - 3.0 - 5.0%	129,235,000	-	2,835,000	-	126,400,000	5,010,000
2015B - 3.0 - 5.0%	28,975,000	-	475,000	-	28,500,000	500,000
2016 - 2.0 - 5.0%	19,650,000	-	450,000	-	19,200,000	450,000
2017A - 3.0 - 5.0%	11,965,000	-	1,405,000	-	10,560,000	1,460,000
2017B - 2.0 - 5.0%	-	25,000,000	250,000	-	24,750,000	490,000
Total bonds	\$ 499,850,000	\$ 25,000,000	\$ 11,960,000	\$ -	\$ 512,890,000	\$ 12,615,000
Unamortized Premium	12,067,331	473,638	680,576	-	11,860,393	-
Total long term debt	\$ 511,917,331	\$ 25,473,638	\$ 12,640,576	\$ -	\$ 524,750,393	\$ 12,615,000
Consolidated						
Total bonds	\$ 1,037,500,000	\$ 97,000,000	\$ 34,705,000	\$ -	\$ 1,099,795,000	\$ 36,845,000
Total unamortized premium	34,177,284	2,273,450	2,304,498	-	34,146,236	-
Total long term debt	\$ 1,071,677,284	\$ 99,273,450	\$ 37,009,498	\$ -	\$ 1,133,941,236	\$ 36,845,000

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	Balance June 30,				Balance June 30,		Amounts Due Within One Year
Electric	2016	Additions	Payments	Defeased	2017		
W-2005 - 3.0 - 4.5%	\$ 29,480,000	\$ -	\$ 1,940,000	\$ 25,525,000	\$ 2,015,000	\$	2,015,000
Y-2009 - 2.5 - 5.0%	5,275,000	-	1,675,000	-	3,600,000		1,750,000
Z-2010 - 1.45 - 6.35%	23,920,000	-	1,305,000	-	22,615,000		1,330,000
AA-2012 - 3.0 - 5.0%	33,850,000	-	2,540,000	-	31,310,000		2,670,000
BB-2012 - 3.0 - 4.0%	33,225,000	-	675,000	-	32,550,000		700,000
CC-2013 - 3.0 - 4.0%	9,485,000	-	450,000	-	9,035,000		475,000
DD-2014 - 2.0 - 4.0%	39,325,000	-	700,000	-	38,625,000		725,000
EE-2015 - 2.0 - 5.0%	28,425,000	-	150,000	-	28,275,000		150,000
FF-2015 - 2.0 - 5.0%	35,000,000	-	675,000	-	34,325,000		700,000
GG-2016 - 2.0-5.0%	-	40,000,000	-	-	40,000,000		775,000
HH-2017 - 2.5-5.0%	-	23,445,000	-	-	23,445,000		55,000
Total bonds	\$ 237,985,000	\$ 63,445,000	\$ 10,110,000	\$ 25,525,000	\$ 265,795,000	\$	11,345,000
Unamortized Premium	9,728,282	3,222,526	697,187	172,680	12,080,941		-
Total long term debt	\$ 247,713,282	\$ 66,667,526	\$ 10,807,187	\$ 25,697,680	\$ 277,875,941	\$	11,345,000
Gas							
L-2005 - 3.0 - 4.75%	\$ 10,020,000	\$ -	\$ 725,000	\$ 9,295,000	\$ -	\$	-
N-2007 - 4.0 - 5.0%	550,000	-	550,000	-	-		-
P-2010 - 3.3 - 6.2%	12,000,000	-	540,000	-	11,460,000		570,000
Q-2012 - 2.0 - 4.0%	22,645,000	-	2,065,000	-	20,580,000		2,125,000
R-2012 - 2.0 - 4.0%	9,400,000	-	400,000	-	9,000,000		425,000
S-2013 - 2.0 - 4.0%	11,430,000	-	570,000	-	10,860,000		595,000
T-2013 - 2.0 - 4.6%	24,400,000	-	500,000	-	23,900,000		500,000
U-2015 - 2.0 - 5.0%	11,680,000	-	100,000	-	11,580,000		615,000
V-2016 - 2.125-5.0%	-	12,000,000	225,000	-	11,775,000		225,000
W-2017 - 5.0%	-	8,065,000	-	-	8,065,000		675,000
Total bonds	\$ 102,125,000	\$ 20,065,000	\$ 5,675,000	\$ 9,295,000	\$ 107,220,000	\$	5,730,000
Unamortized Premium	3,488,853	1,595,609	289,649	123,105	4,671,708		-
Total long term debt	\$ 105,613,853	\$ 21,660,609	\$ 5,964,649	\$ 9,418,105	\$ 111,891,708	\$	5,730,000
Water							
S-2005 - 3.5 - 5.0%	\$ 6,295,000	\$ -	\$ 465,000	\$ 5,830,000	\$ -	\$	-
T-2007 - 4.0 - 5.5%	750,000	-	750,000	-	-		-
U-2009 - 3.0 - 4.5%	22,625,000	-	875,000	19,875,000	1,875,000		925,000
W-2011 - 2.0 - 4.0%	22,800,000	-	550,000	-	22,250,000		550,000
X-2012 - 3.0 - 5.0%	8,665,000	-	515,000	-	8,150,000		535,000
Y-2013 - 3.0 - 4.0%	8,970,000	-	280,000	-	8,690,000		300,000
Z-2013 - 2.0 - 5.0%	23,675,000	-	500,000	-	23,175,000		500,000
AA-2014 - 2.0 - 4.0%	7,725,000	-	150,000	-	7,575,000		150,000
BB-2015 - 2.0 - 5.0%	22,835,000	-	100,000	-	22,735,000		865,000
CC-2015 - 2.0 - 4.0%	19,650,000	-	375,000	-	19,275,000		400,000
DD-2016 - 3.0-5.0%	-	25,000,000	275,000	-	24,725,000		475,000
EE-2016 - 2.0-5.0%	-	20,875,000	-	-	20,875,000		100,000
FF-2017 - 3.0-5.0%	-	5,310,000	-	-	5,310,000		470,000
Total bonds	\$ 143,990,000	\$ 51,185,000	\$ 4,835,000	\$ 25,705,000	\$ 164,635,000	\$	5,270,000
Unamortized Premium	2,702,182	3,085,193	270,448	159,623	5,357,304		-
Total long term debt	\$ 146,692,182	\$ 54,270,193	\$ 5,105,448	\$ 25,864,623	\$ 169,992,304	\$	5,270,000
Wastewater							
2005 B - 3.0 - 5.0%	\$ 14,635,000	\$ -	\$ 1,470,000	\$ 13,165,000	\$ -	\$	-
2008 - 4.0 - 6.0%	6,550,000	-	4,600,000	-	1,950,000		1,950,000
2010 - 6.3 - 6.5%	30,000,000	-	-	-	30,000,000		-
2010C - 1.18 - 6.1%	64,500,000	-	1,400,000	-	63,100,000		1,500,000
2012A - 2.0 - 4.0%	14,595,000	-	840,000	-	13,755,000		985,000
2012B - 1.25 - 5.0%	62,350,000	-	975,000	-	61,375,000		1,000,000
2013A - 2.0 - 4.0%	111,715,000	-	620,000	-	111,095,000		635,000
2014A - 2.0 - 4.0%	29,200,000	-	450,000	-	28,750,000		475,000
2015A - 3.0 - 5.0%	129,360,000	-	125,000	-	129,235,000		2,835,000
2015B - 3.0 - 5.0%	29,425,000	-	450,000	-	28,975,000		475,000
2016 - 2.0 - 5.0%	-	20,000,000	350,000	-	19,650,000		450,000
2017A - 3.0 - 5.0%	-	11,965,000	-	-	11,965,000		1,405,000
Total bonds	\$ 492,330,000	\$ 31,965,000	\$ 11,280,000	\$ 13,165,000	\$ 499,850,000	\$	11,710,000
Unamortized Premium	11,066,224	1,684,616	600,100	83,409	12,067,331		-
Total long term debt	\$ 503,396,224	\$ 33,649,616	\$ 11,880,100	\$ 13,248,409	\$ 511,917,331	\$	11,710,000
Consolidated							
Total bonds	\$ 976,430,000	\$ 166,660,000	\$ 31,900,000	\$ 73,690,000	\$ 1,037,500,000	\$	34,055,000
Total unamortized premium	26,985,541	9,587,944	1,857,384	538,817	34,177,284		-
Total long term debt	\$ 1,003,415,541	\$ 176,247,944	\$ 33,757,384	\$ 74,228,817	\$ 1,071,677,284	\$	34,055,000

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Debt service over remaining term of the debt is as follows:

Fiscal Year	Principal	Interest	Total
2019	\$ 36,845,000	\$ 41,628,710	\$ 78,473,710
2020	38,425,000	40,074,247	78,499,247
2021	40,015,000	38,431,897	78,446,897
2022	41,820,000	36,639,119	78,459,119
2023	43,585,000	34,766,547	78,351,547
2024-2028	224,745,000	148,077,700	372,822,700
2029-2033	206,465,000	109,347,770	315,812,770
2034-2038	180,215,000	75,560,065	255,775,065
2039-2043	185,095,000	40,815,046	225,910,046
2044-2048	97,810,000	8,896,622	106,706,622
2049-2050	4,775,000	248,975	5,023,975
Total	<u>\$ 1,099,795,000</u>	<u>\$ 574,486,698</u>	<u>\$ 1,674,281,698</u>

The Divisions have pledged sufficient revenue, after deduction of all current operating expenses (exclusive of tax equivalents), to meet bond principal and interest payments of revenue bonds when due. Such bond requirements are being met through monthly deposits to the bond funds as required by the bond covenants. As of June 30, 2018 these requirements had been satisfied.

During fiscal year 2006, KUB's Electric Division issued Series W 2005 bonds in part to retire certain existing debt and fund electric system capital improvements. Concurrent with the issuance of these bonds, KUB transferred funds to an irrevocable trust to pay a portion of the Series U 2001 bonds, as such amounts mature. During fiscal year 2009, KUB's Electric Division issued Series Y 2009 bonds to fund electric system capital improvements. During fiscal year 2011, KUB's Electric Division issued series Z 2010 bonds to fund electric system capital improvements. The bonds were issued as federally taxable Build America Bonds with a 35 percent interest payment rebate to be received from the United States Government for each interest payment. Effective October 1, 2017 these bonds became subject to a 6.6 percent reduction in rebate payment amounts due to the United States Government sequestration. The sequestration is effective until intervening Congressional action, at which time the sequestration rate is subject to change. During fiscal year 2012, KUB's Electric Division issued Series AA 2012 bonds to retire a portion of outstanding Series V 2004 bonds. During fiscal year 2013, KUB's Electric Division issued Series BB 2012 bonds to fund electric system capital improvements. KUB's Electric Division also issued Series CC 2013 bonds to retire a portion of outstanding Series X 2006 bonds. During fiscal year 2015, KUB's Electric Division issued Series EE 2015 bonds to retire a portion of outstanding Series Y 2009 bonds. KUB's Electric Division also issued Series DD 2014 and Series FF 2015 to fund electric system capital improvements. During fiscal year 2017, KUB's Electric Division issued Series GG 2016 bonds to fund electric system capital improvements. KUB's Electric Division also issued Series HH 2017 bonds to retire a portion of outstanding Series W 2005 bonds. During fiscal year 2018, KUB's Electric Division issued Series II 2017 bonds to fund electric system capital improvements. In prior years, certain revenue bonds were defeased by placing the proceeds of new bonds in an irrevocable trust to provide for all future debt service payments on the old bonds. Accordingly, the liability for the defeased bonds, \$27.5 million at June 30, 2018, and the trust account assets are not included in the financial statements.

During fiscal year 2011, KUB's Gas Division issued Series P 2010 bonds to fund gas system capital improvements. The bonds were issued as federally taxable Build America Bonds with a 35 percent interest payment rebate to be received from the United States Government for each interest payment. Effective October 1, 2017, these bonds became subject to a 6.6 percent reduction in rebate payment amounts due to the United States Government sequestration. The sequestration is effective until intervening Congressional action, at which time the sequestration rate is subject to change. During fiscal year 2012, KUB's Gas Division issued Series Q 2012 bonds to retire Series K

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2004 bonds. During fiscal year 2013, KUB's Gas Division issued Series R 2012 bonds to fund gas system capital improvements. KUB's Gas Division also issued Series S 2013 bonds to retire Series M 2006 outstanding bonds. During fiscal year 2014, KUB's Gas Division issued Series T 2013 to fund gas system capital improvements. During fiscal year 2015, KUB's Gas Division issued Series U 2015 bonds to retire Series N 2007 outstanding bonds. During fiscal year 2017, KUB's Gas Division issued Series V 2016 bonds to fund gas system capital improvements. KUB's Gas Division also issued Series W 2017 bonds to retire outstanding Series L 2005 bonds. During fiscal year 2018, KUB's Gas Division issued Series X 2017 bonds to fund gas system capital improvements.

During fiscal year 2010, KUB's Water Division issued Series U 2009 bonds to fund water system capital improvements. During fiscal year 2012, KUB's Water Division issued Series W 2011 bonds to fund water system capital improvements. KUB's Water Division also issued Series X 2012 bonds to retire Series Q 2004 bonds. During fiscal year 2013, KUB's Water Division issued Series Y 2013 bonds to retire a portion of outstanding Series R 2005 bonds. During fiscal year 2014, KUB's Water Division issued Series Z 2013 bonds to fund water system capital improvements. During fiscal year 2015, KUB's Water Division issued Series BB 2015 bonds to retire a portion of outstanding Series T 2007 bonds. KUB's Water Division also issued Series AA 2014 and Series CC 2015 bonds to fund water system capital improvements. During fiscal year 2017, KUB's Water Division issued Series DD 2016 bonds to fund water system capital improvements. KUB's Water Division also issued Series EE 2016 bonds to retire a portion of outstanding Series U 2009 bonds. KUB's Water Division also issued Series FF 2017 bonds to retire outstanding Series S 2005 bonds. During fiscal year 2018, KUB's Water Division issued GG 2017 bonds to fund water system capital improvements. In prior years, certain revenue bonds were defeased by placing the proceeds of new bonds in an irrevocable trust to provide for all future debt service payments on the old bonds. Accordingly, the liability for the defeased bonds, \$19.9 million at June 30, 2018, and the trust account assets are not included in the financial statements.

During fiscal year 2009, KUB's Wastewater Division issued Series 2008 bonds to fund wastewater system capital improvements. During fiscal year 2010, KUB's Wastewater Division issued Series 2010 bonds to fund capital improvements. These bonds were issued as federally taxable Build America Bonds with a 35 percent interest payment rebate to be received from the United States Government for each interest payment. Effective October 1, 2017, these bonds became subject to a 6.6 percent reduction in rebate payment amounts due to the United States Government sequestration. The sequestration is effective until intervening Congressional action, at which time the sequestration rate is subject to change. During fiscal year 2011, KUB's Wastewater Division issued Series 2010C bonds to fund capital improvements. These bonds were issued as federally taxable Build America Bonds with a 35 percent interest payment rebate to be received from the United States Government for each interest payment. Effective October 1, 2017, these bonds became subject to a 6.6 percent reduction in rebate payment amounts due to the United States Government sequestration. The sequestration is effective until intervening Congressional action, at which time the sequestration rate is subject to change. During fiscal year 2012, KUB's Wastewater Division issued Series 2012A bonds to retire Series 2004A bonds. During fiscal year 2013, KUB's Wastewater Division issued Series 2012B bonds to fund wastewater system capital improvements. KUB's Wastewater Division also issued Series 2013A bonds to retire a portion of outstanding Series 2005A bonds. During fiscal year 2015, KUB's Wastewater Division issued Series 2015A bonds to retire a portion of outstanding Series 2005A, Series 2007, and Series 2008 bonds. KUB's Wastewater Division also issued Series 2014A and Series 2015B bonds to fund wastewater system capital improvements. During fiscal year 2017, KUB's Wastewater Division issued Series 2016 bonds to fund wastewater system capital improvements. KUB's Wastewater Division also issued Series 2017A bonds to retire outstanding Series 2005B bonds. During fiscal year 2018, KUB's Wastewater Division issued Series 2017B bonds to fund wastewater system capital improvements.

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Other liabilities consist of the following:

	Balance June 30, 2017	Increase	Decrease	Balance June 30, 2018
TVA conservation program	\$ 6,236,061	\$ 329,922	\$ (2,134,764)	\$ 4,431,219
Accrued compensated absences	9,074,278	16,585,797	(17,162,115)	8,497,960
Customer advances for construction	3,295,196	2,792,954	(1,160,313)	4,927,837
Other	<u>124,777</u>	<u>247,352</u>	<u>(216,718)</u>	<u>155,411</u>
	<u>\$ 18,730,312</u>	<u>\$ 19,956,025</u>	<u>\$ (20,673,910)</u>	<u>\$ 18,012,427</u>

	Balance June 30, 2016	Increase	Decrease	Balance June 30, 2017
TVA conservation program	\$ 8,412,853	\$ 469,575	\$ (2,646,367)	\$ 6,236,061
Accrued compensated absences	9,061,226	15,234,380	(15,221,328)	9,074,278
Customer advances for construction	2,247,599	2,267,651	(1,220,054)	3,295,196
Other	<u>303,673</u>	<u>193,396</u>	<u>(372,292)</u>	<u>124,777</u>
	<u>\$ 20,025,351</u>	<u>\$ 18,165,002</u>	<u>\$ (19,460,041)</u>	<u>\$ 18,730,312</u>

7. Lease Commitments

KUB has non-cancelable operating lease commitments for office equipment, property, and vehicles, summarized for the following fiscal years:

2019	\$ 326,280
2020	<u>229,300</u>
Total operating minimum lease payments	<u>\$ 555,580</u>

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8. Capital Assets

Capital asset activity was as follows:

	Balance			Balance	
	June 30, 2017	Increase	Decrease	June 30, 2018	
Production Plant (Intakes)	\$ 742,503	\$ -	\$ -	\$ 742,503	
Pumping and Treatment Plant	305,202,535	15,992,521	(2,620,577)	318,574,479	
Distribution and Collection Plant					
Mains and metering	994,257,571	43,058,700	(4,366,076)	1,032,950,195	
Services and meters	177,936,752	29,715,666	(5,479,886)	202,172,532	
Electric station equipment	154,663,731	5,396,733	(1,681,763)	158,378,701	
Poles, towers and fixtures	160,365,582	18,548,854	(2,021,696)	176,892,740	
Overhead conductors	143,937,397	13,259,176	(2,031,041)	155,165,532	
Line transformers	99,293,217	3,464,337	(762,671)	101,994,883	
Other accounts	307,402,309	7,617,156	(26,274,336)	288,745,129	
Total Distribution & Collection Plant	\$ 2,037,856,559	\$ 121,060,622	\$ (42,617,469)	\$ 2,116,299,712	
General Plant	178,606,088	8,201,012	(5,695,720)	181,111,380	
Total Plant Assets	\$ 2,522,407,685	\$ 145,254,155	\$ (50,933,766)	\$ 2,616,728,074	
Less Accumulated Depreciation	(838,877,792)	(80,244,970)	46,703,431	(872,419,331)	
Net Plant Assets	\$ 1,683,529,893	\$ 65,009,185	\$ (4,230,335)	\$ 1,744,308,743	
Work In Progress	141,763,046	155,166,276	(143,243,481)	153,685,841	
Total Net Plant	\$ 1,825,292,939	\$ 220,175,461	\$ (147,473,816)	\$ 1,897,994,584	

	Balance			Balance	
	June 30, 2016	Increase	Decrease	June 30, 2017	
Production Plant (Intakes)	\$ 742,503	\$ -	\$ -	\$ 742,503	
Pumping and Treatment Plant	297,973,884	10,152,622	(2,923,971)	305,202,535	
Distribution and Collection Plant					
Mains and metering	934,793,860	68,837,071	(9,373,360)	994,257,571	
Services and meters	160,978,776	24,804,848	(7,846,872)	177,936,752	
Electric station equipment	152,233,167	3,292,850	(862,286)	154,663,731	
Poles, towers and fixtures	148,060,617	13,309,400	(1,004,435)	160,365,582	
Overhead conductors	136,774,702	9,610,604	(2,447,909)	143,937,397	
Line transformers	96,843,152	3,281,186	(831,121)	99,293,217	
Other accounts	300,410,274	8,641,296	(1,649,261)	307,402,309	
Total Distribution & Collection Plant	\$ 1,930,094,548	\$ 131,777,255	\$ (24,015,244)	\$ 2,037,856,559	
General Plant	168,612,148	14,760,666	(4,766,726)	178,606,088	
Total Plant Assets	\$ 2,397,423,083	\$ 156,690,543	\$ (31,705,941)	\$ 2,522,407,685	
Less Accumulated Depreciation	(797,524,421)	(74,213,237)	32,859,866	(838,877,792)	
Net Plant Assets	\$ 1,599,898,662	\$ 82,477,306	\$ 1,153,925	\$ 1,683,529,893	
Work In Progress	143,206,489	154,828,582	(156,272,025)	141,763,046	
Total Net Plant	\$ 1,743,105,151	\$ 237,305,888	\$ (155,118,100)	\$ 1,825,292,939	

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9. Risk Management

KUB is exposed to various risks of loss related to active and retiree medical claims; injuries to workers; theft of, damage to, and destruction of assets; environmental damages; and natural disasters. Claims expenditures and liabilities are reported when it is probable that a loss has occurred and the amount of that loss can be reasonably estimated. These losses include an estimate of claims that have been incurred but not reported.

These liabilities are included in accrued expenses in the Statement of Net Position. The liability is KUB's best estimate based on available information. At June 30, 2018 and June 30, 2017, the amount of these liabilities was \$1,822,689 and \$1,891,789, respectively, resulting from the following changes:

	2018	2017
Balance, beginning of year	\$ 1,891,789	\$ 1,758,352
Current year claims and changes in estimates	15,713,124	16,041,816
Claims payments	<u>(15,782,224)</u>	<u>(15,908,379)</u>
Balance, end of year	<u>\$ 1,822,689</u>	<u>\$ 1,891,789</u>

10. Pension Plan

Description of Plan

The Knoxville Utilities Board Pension Plan (the Plan) is a governmental plan as defined by the Employee Retirement Income Security Act of 1974 (ERISA or the Act), is not subject to any of the provisions of the Act, and was revised January 1, 2017 to include all prior approved amendments. The Plan is a single-employer contributory, defined benefit pension plan established by Knoxville Utilities Board Resolution No. 980 dated February 18, 1999, effective July 1, 1999, as authorized by the Charter of the City of Knoxville §1107(J). The Plan is designed to provide retirement, disability and death benefits to KUB employees. KUB administers the Plan through an Administrative Committee consisting of seven KUB employees that are appointed by KUB's President and CEO. Any amendments to the Plan involving costs not approved in the operating budget must be adopted by KUB's Board of Commissioners, upon recommendation by KUB's President and CEO. All other amendments to the Plan may be approved by KUB's President and CEO upon 60 days notification to the Board's Audit and Finance Committee. The Plan issues a financial report, which includes financial statements and required supplementary information. The report may be obtained by writing the Knoxville Utilities Board Retirement System, P.O. Box 59017, Knoxville, TN 37950-9017.

Effective January 1, 2011, KUB closed the Plan such that persons employed or re-employed by KUB on or after January 1, 2011, are not eligible to participate, but that eligible employees hired prior to January 1, 2011, who have not separated from service, shall continue as Participants and to accrue benefits under the Plan.

Participants in the Plan consisted of the following as of December 31:

	2017	2016
Inactive plan members:		
Terminated vested participants	34	43
Retirees and beneficiaries	602	605
Active plan members	<u>629</u>	<u>662</u>
Total	<u>1,265</u>	<u>1,310</u>

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Retirement Benefits

The Plan provides three benefit arrangements for KUB participants, retirees, and beneficiaries.

The Plan provides pension benefits through the Career Equity Program ("CEP") for eligible employees hired on or after January 1, 1999, and for eligible former "City System Plan A" participants who elected CEP coverage as of July 1, 1999. The guaranteed pension benefit payable to a participant who has completed five or more years of service (or reached the normal retirement date, if earlier) upon termination of KUB employment shall be a lump sum equal to the participant's average compensation times their benefit percentage, as defined in the Plan document, or an annuity may be chosen by the participant.

In addition, the Plan provided retirement benefits through "Plan A" for former City System Plan A participants who elected not to participate in the CEP. Plan A is a closed plan and is not available to KUB employees hired after July 1, 1999. Plan A provides for early retirement benefits with 25 years of service and normal retirement benefits at age 62 or later. Benefits provided to Plan A participants include several different forms of monthly annuity payments.

The Plan also provides retirement benefits through "Plan B" for former "City System Plan B" participants. Plan B is a closed plan providing benefits to participants not covered by Social Security. Benefits provided to Plan B participants include several different forms of monthly annuity payments available to participants.

Effective January 1, 2012, KUB began to provide for additional monthly supplements, which are not subject to cost of living adjustments, to certain former employees and surviving dependents of former employees who are eligible for and have elected coverage under the KUB retiree medical plan and are eligible for Medicare. This was done to compensate for the elimination of drug coverage under the KUB retiree medical plan and to assist such individuals in obtaining prescription drug coverage under Medicare Part D.

Contributions

Participation in Plan A requires employee contributions of 3% of the first \$4,800 of annual earnings and 5% of annual earnings in excess of \$4,800. KUB contributions are determined by the enrolled actuary of the Plan and equal the amount necessary to provide the benefits under the Plan determined by the application of accepted actuarial methods and assumptions. The method of funding shall be consistent with Plan objectives.

Plan Funding

KUB maintains a Funding Policy for the Plan in accordance with Tennessee State Law. The primary goal of the Policy is to document the method KUB has adopted to provide assurance that future KUB and employee contributions and current Plan assets will be sufficient to fund all benefits expected to be paid to current active, inactive and retired Plan participants and their beneficiaries. Per the Funding Policy, KUB fully funds its annual Actuarially Determined Contribution.

Investments

The Plan's investments are held by State Street Bank and Trust Company (the "Trustee"). The Plan's policy in regard to the allocation of invested assets is established by the Retirement System Investment Committee and approved by the KUB Board of Commissioners and may only be amended by the KUB Board of Commissioners. It is the policy of the Retirement System Investment Committee to pursue an investment strategy that reduces risk through the prudent diversification of the portfolio across a broad selection of distinct asset classes. The following was the Plan's adopted asset allocation policy as of December 31, 2017:

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Asset Class	Target Allocation
Domestic equity – large cap	20% - 50%
Domestic equity – mid cap	0% - 15%
Domestic equity – small cap	0% - 15%
Domestic equity – convertible securities	0% - 10%
Non-U.S. equity	0% - 20%
Real estate equity	0% - 10%
Fixed income – aggregate bonds	5% - 25%
Fixed income – long-term bonds	10% - 25%
Cash and deposits	0% - 5%

Contributions of \$3,756,283 and \$4,816,913 for 2016 and 2015, respectively, were made during the Plan sponsor's fiscal years ending June 30, 2018 and 2017, respectively. The fiscal year 2018 contribution was determined as part of the January 1, 2016 valuation using the Individual Entry Age Normal funding method. The objective under this method is to fund each participant's benefits under the Plan as payments which are level as a percentage of salary, starting on the original participation date (employment date) and continuing until the assumed retirement, termination, disability or death.

Net Pension Liability

The below summarizes the disclosures of GASB Statement No. 68, *Accounting and Financial Reporting for Pensions – an amendment of GASB Statement No. 27* ("GASB 68"), which requires measurement of the net pension liability as total pension liability less the amount of the Plan's fiduciary net position. The amounts reported as of June 30 must be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 and 2017 will be based on the December 31, 2017 and 2016 measurement date, respectively.

GASB 68 requires certain disclosures related to the net pension liability of the Plan as disclosed below:

	2017	2016
Total pension liability	\$ 207,598,733	\$ 204,390,738
Plan fiduciary net position	(227,377,105)	(204,514,679)
Plan's net pension (asset) liability	\$ (19,778,372)	\$ (123,941)

Plan fiduciary net position as a percentage of the total pension liability	109.50%	100.06%

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Changes in Net Pension Liability are as follows:

	Total Pension Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net Pension Liability (Asset) (a) - (b)
Balances at December 31, 2016	\$ 204,390,738	\$ 204,514,679	\$ (123,941)
Changes for the year:			
Service cost	4,607,486	-	4,607,486
Interest	15,015,282	-	15,015,282
Differences between Expected and Actual Experience	(1,087,161)	-	(1,087,161)
Changes of Assumptions	(357,633)	-	(357,633)
Contributions - employer	-	4,286,597	(4,286,597)
Contributions - rollovers	-	1,482,701	(1,482,701)
Contributions - member	-	5,931	(5,931)
Net investment income	-	32,442,458	(32,442,458)
Benefit payments	(14,969,979)	(14,969,979)	-
Administrative expense	-	(385,282)	385,282
Net changes	3,207,995	22,862,426	(19,654,431)
Balances at December 31, 2017	\$ 207,598,733	\$ 227,377,105	\$ (19,778,372)

Actuarial Assumptions

The total pension liability was determined by an actuarial valuation as of December 31, 2017 and 2016, using the following actuarial assumptions, applied to all periods included in the measurement:

Actuarial cost method	Individual entry age
Asset valuation method	5-year smoothed market
Amortization method	Level dollar closed period with 25 years remaining as of January 1, 2016 and 26 years remaining as of January 1, 2015
Discount rate	7.5%
Salary increase	From 2.80% to 5.15% for January 1, 2016 and January 1, 2015, based on years of service
Mortality	Sex distinct RP-2000 Combined Mortality projected to 2024 using Scale AA
Inflation	2.8 %

The actuarial assumptions used in the December 31, 2017 and 2016 valuation were based on the results of an actuarial experience study for the period January 1, 2009 through December 31, 2013.

The long-term expected rate of return on Plan investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of Plan investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. Best estimates of arithmetic real rates of return for each major asset class included in the Plan's target asset allocation as of December 31, 2017 and 2016 are

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summarized in the following table. The real rate of return reported for fixed income is for aggregate fixed income. The Plan has both aggregate and long duration fixed income.

Asset Class	Long Term Expected Real Rate of Return	
	2017	2016
Domestic equity	5.0%	5.6%
Non-U.S. equity	6.6%	7.2%
Real estate equity	5.6%	6.3%
Debt securities	1.4%	1.6%
Cash and deposits	0.7%	0.6%

Discount rate

The discount rate used to measure the total pension liability was 7.5 percent as of January 1, 2017 and 2016. The projection of cash flows used to determine the discount rate assumed that participant contributions will be made at the current contribution rate and that KUB contributions will be made at rates equal to the actuarially determined contribution rates. Based on those assumptions, the pension plan's fiduciary net position was projected to be available to make all projected future benefit payments of current plan members. Therefore, the long-term expected rate of return on pension plan investments was applied to all periods of projected benefit payments to determine the total pension liability.

Sensitivity of the net pension liability to changes in the discount rate

The following presents the net pension liability of the Plan as of December 31, 2017, calculated using the discount rate of 7.5 percent, as well as what the Plan's net pension liability would be if it were calculated using a discount rate that is one percent lower (6.5 percent) or one percent higher (8.5 percent) than the current rate:

	1% Decrease (6.5%)	Current Discount Rate (7.5%)	1% Increase (8.5%)
Plan's net pension liability	\$ (2,624,670)	\$ (19,778,372)	\$ (34,742,817)

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Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

For the year ended June 30, 2018, KUB recognized pension expense of (\$15,659).

The impact of experience gains or losses and assumptions changes on the Total Pension Liability are recognized in the pension expense over the average expected remaining service life of all active and inactive members, determined as of the beginning of the measurement period. As of December 31, 2016, this average was 5.00 years. During the measurement year, there was an experience gain of \$1,087,161 with \$217,432 of that recognized in the current year and in each of the next four years, resulting in a deferred inflow of \$869,729. Unrecognized experience gains from prior periods were \$2,921,210 of which \$824,819 was recognized as a reduction in pension expense in the current year and resulted in a deferred inflow of \$2,096,391.

During the measurement year, there were no benefit changes. There was a gain due to assumption changes of \$357,633 with \$71,526 of that recognized in the current year and in each of the next four years, resulting in a deferred inflow of \$286,107. Unrecognized assumption change gains from prior periods were \$2,346,307 of which \$586,577 was recognized as a reduction in pension expense in the current year and resulted in a deferred inflow of \$1,759,730.

The impact of investment gains or losses is recognized over a period of five years. During the measurement year, there was an investment gain of \$17,456,614. \$3,491,323 of that gain was recognized in the current year and an identical amount will be recognized in each of the next four years. Net unrecognized investment losses from prior periods were \$6,682,351 of which \$1,642,445 was recognized as an increase in pension expense in the current year. The combination of unrecognized investment gains this year along with the net unrecognized investment losses from prior periods results in a net difference between projected and actual earnings on pension plan investments as of December 31, 2017 of (\$8,925,384). The following table summarizes the current balances of deferred outflows and deferred inflows of resources along with the net recognition over future years. In addition, KUB recorded a deferred outflow of resources of \$1,878,146 at June 30, 2018 for employer contributions made between December 31, 2017 and June 30, 2018.

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	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ -	\$ 2,966,120
Changes in assumptions	-	2,045,837
Net difference between projected and actual earnings on pension plan investments	-	8,925,385
Contributions subsequent to measurement date	1,878,146	-
Total	<u>\$ 1,878,146</u>	<u>\$ 13,937,342</u>

\$1,878,146 reported as deferred outflows of resources resulting from contributions subsequent to the measurement date will be recognized as a reduction of the net pension liability in the year ended June 30, 2019. Other amounts reported as deferred outflows and deferred inflows of resources will be recognized in pension expense as follows:

Year ended June 30:

2019	\$ (3,549,235)
2020	(1,954,655)
2021	(4,653,172)
2022	(3,780,280)
Thereafter	-

For the year ended June 30, 2017, KUB recognized pension expense of \$4,674,543.

The impact of experience gains or losses and assumptions changes on the Total Pension Liability are recognized in the pension expense over the average expected remaining service life of all active and inactive members, determined as of the beginning of the measurement period. As of December 31, 2015, this average was 5.00 years. During the measurement year, there was an experience gain of \$2,233,762 with \$446,752 of that recognized in the current year and in each of the next four years, resulting in a deferred inflow of \$1,787,010. Unrecognized experience gains from prior periods were \$1,512,267 of which \$378,067 was recognized as a reduction in pension expense in the current year and resulted in a deferred inflow of \$1,134,200.

During the measurement year, there were no benefit changes. There was a gain due to assumption changes of \$2,932,884 with \$586,577 of that recognized in the current year and in each of the next four years, resulting in a deferred inflow of \$2,346,307.

The impact of investment gains or losses is recognized over a period of five years. During the measurement year, there was an investment loss of \$802,197. \$160,439 of that loss was recognized in the current year and an identical amount will be recognized in each of the next four years. Net unrecognized investment losses from prior periods were \$7,522,599 of which \$1,482,006 was recognized as an increase in pension expense in the current year. The combination of unrecognized investment losses this year along with the net unrecognized investment losses from prior periods results in a net difference between projected and actual earnings on pension plan investments as of December 31, 2016 of \$6,682,351. The following table summarizes the current balances of deferred outflows and deferred inflows of resources along with the net recognition over future years. In addition, KUB recorded a deferred outflow of resources of \$2,408,459 at June 30, 2017 for employer contributions made between December 31, 2016 and June 30, 2017.

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	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ -	\$ 2,921,210
Changes in assumptions	-	2,346,307
Net difference between projected and actual earnings on pension plan investments	6,682,351	-
Contributions subsequent to measurement date	2,408,459	-
Total	<u>\$ 9,090,810</u>	<u>\$ 5,267,517</u>

11. Qualified Excess Benefit Arrangement

Description

In fiscal year 2017, KUB implemented a qualified governmental excess benefit arrangement (QEBA) under IRC section 415(m), which was created by Congress to allow the payment of pension benefits that exceed the IRC section 415(b) limits (and therefore cannot be paid from a qualified retirement plan). The QEBA is a single-employer defined benefit pension plan, administered by KUB. The number of participants in any given year for the QEBA is determined by the number of KUB Pension Plan participants who exceed the current year's section 415(b) limitations, as calculated by the KUB Pension Plan actuary. The amount of QEBA benefit will be the amount specified by the terms of the KUB Pension Plan without regard to Section 415(b) limitations minus the amount payable from the KUB Pension Plan as limited by Section 415(b). QEBA benefits are not subject to cost of living adjustments.

As of June 30, 2018, there are 602 active employees eligible for the KUB Pension Plan who are potentially eligible to receive QEBA benefits. There are no inactive employees or retirees currently in the QEBA. The KUB Pension Plan was closed effective January 1, 2011, such that persons employed or re-employed by KUB on or after January 1, 2011, are not eligible to participate, but that eligible employees hired prior to January 1, 2011, who have not separated from service, shall continue as Participants and accrue benefits under the KUB Pension Plan. The KUB Pension Plan was amended to include the provision of QEBA benefits, therefore, amendments to the QEBA require the same authority as amendments to the KUB Pension Plan. As required by federal tax law, the QEBA is unfunded within the meaning of the federal tax laws. KUB may not pre-fund the QEBA to cover future liabilities beyond the current year. KUB has established procedures to pay for these benefits on a pay-as-you-go basis, funded by KUB. There are no assets accumulated in a trust that meets the GASB's criteria.

Implementation of GASB 73

In fiscal year 2016, KUB adopted GASB Statement No. 73, *Accounting and Financial Reporting for Pensions and Related Assets That Are Not within the Scope of GASB Statement 68, and Amendments to Certain Provisions of GASB Statements 67 and 68* ("GASB 73"). GASB 73 extends a similar approach of financial reporting to plans meeting specific criteria that are not administered through trusts that GASB 68 established for pension plans. GASB 73 requires measurement of the total pension liability of the QEBA. The amounts reported as of June 30 must be based upon a plan measurement date within the prior twelve months. Therefore, KUB's measurements as of June 30, 2018 and 2017 will be based on the December 31, 2017 and 2016 measurement dates, respectively.

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GASB 73 requires certain disclosures related to the total pension liability of the QEBA, as disclosed below:

	2017	2016
Total pension liability	\$280,341	\$185,077
Deferred outflows	(69,716)	-
Deferred inflows	-	-
Net impact on Statement of Net Position	<u>\$210,625</u>	<u>\$185,077</u>
Covered payroll	\$43,309,374	\$44,437,747
Total pension liability as a % of covered payroll	0.65%	0.42%

Changes in total pension liability of the QEBA are as follows:

	Increase (Decrease)
	Total Pension Liability
Balances at December 31, 2016	\$ 185,077
Changes for the year:	
Service cost	584
Interest	7,535
Changes of Benefits	-
Differences between Expected and Actual Experience	13,684
Changes of Assumptions	73,461
Contributions – employer	-
Contributions – rollovers	-
Contributions – member	-
Net investment income	-
Benefit payments	-
Net changes	<u>95,264</u>
Balances at December 31, 2017	<u>\$ 280,341</u>

Actuarial Assumptions

The total pension liability of the QEBA was determined by an actuarial valuation as of January 1, 2017 and projected to December 31, 2017, using the following actuarial assumptions, applied to all periods included in the measurement:

Actuarial cost method	Individual entry age
Asset valuation method	5-year smoothed market
Amortization method	Level dollar closed period with 24 years remaining as of January 1, 2017 and 25 years remaining as of January 1, 2016
Salary increase	From 2.80% to 5.15% for January 1, 2017 and January 1, 2016, based on years of service
Mortality	Sex distinct RP-2000 Combined Mortality projected to 2024 using Scale AA
Inflation	2.8 percent

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The actuarial assumptions used in the January 1, 2017 valuation were based on the results of an actuarial experience study for the period January 1, 2009 through December 31, 2013.

Discount rate

The QEBA is not funded. In accordance with paragraph 31 of GASB 73, the discount rate is based on the Bond Buyer 20-Bond GO index. This rate was 3.44% at December 31, 2017.

Sensitivity of the total pension liability to changes in the discount rate

The following presents the total pension liability of the QEBA as of December 31, 2017, calculated using the discount rate of 3.44 percent, as well as what the QEBA's total pension liability would be if it were calculated using a discount rate that is one percent lower (2.44 percent) or one percent higher (4.44 percent) than the current rate:

	1% Decrease (2.44%)	Current Discount Rate (3.44%)	1% Increase (4.44%)
QEBA's total pension liability	\$ 307,013	\$ 280,341	\$ 257,483

Pension Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to Pensions

For the year ended June 30, 2018, KUB recognized pension expense of \$29,527 for the QEBA. This amount is not expected to be the same as KUB's contribution to the QEBA (\$3,979), but instead represents the change in the net impact on KUB's Statement of Net Position plus employer contributions [\$210,625 - \$185,077 + \$3,979].

The impact of experience gains or losses and assumption changes on the total pension liability are recognized in the pension expense over the average expected remaining service life of all active and inactive members, determined as of the beginning of the measurement period. As of December 31, 2016, this average was 5 years. During the measurement year, there was an experience loss of \$13,684 with approximately \$2,737 recognized in the current year and each of the next four years, resulting in a deferred outflow of \$10,947.

During the measurement year, there were no benefit changes. There was an increase in the total pension liability due to assumption changes of \$73,461 with approximately \$14,692 recognized in the current year and each of the next four years, resulting in a deferred outflow of \$58,769.

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The table below summarizes the current balances of deferred outflows and deferred inflows of resources along with the net recognition over future years:

	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 10,947	\$ -
Changes in assumptions	58,769	-
Total	<u>\$ 69,716</u>	<u>\$ -</u>

Amounts reported as deferred outflows and deferred inflows of resources will be recognized in pension expense as follows:

Year ended June 30:		
2019	\$	17,429
2020		17,429
2021		17,429
2022		17,429
Thereafter		-

For the year ended June 30, 2017, KUB recognized pension expense of \$185,077 for the QEBA. This amount is not expected to be the same as KUB's contribution to the QEBA (\$0), but instead represents the change in the net impact on KUB's Statement of Net Position plus employer contributions.

The impact of experience gains or losses and assumption changes on the total pension liability are recognized in the pension expense over the average expected remaining service life of all active and inactive members, determined as of the beginning of the measurement period. As of December 31, 2015, this average was 5 years. During the measurement year, there were no assumption changes or experience gains or losses. The benefit change of \$0.2 million is due to the implementation of the QEBA. Benefit changes are reflected immediately in the total pension liability of the QEBA.

12. Defined Contribution Plan

The KUB Asset Accumulation 401(k) Plan (the "401(k) Plan") is a defined contribution 401(k) employee retirement savings plan covering eligible KUB employees established by the KUB Board of Commissioners in accordance with the Charter of the City of Knoxville, Tennessee. The 401(k) Plan's assets are held in trust under an agreement between KUB and Fidelity Management Trust Company. Employees hired prior to January 1, 2011 may participate and receive a matching contribution of 50 percent of their own contribution up to a maximum match of 3 percent. Employees hired on or after January 1, 2011 have an enhanced 401(k) due to the closure of the Defined Benefit Pension Plan. They may participate and receive a matching contribution of 50 percent of their own contribution up to a maximum match of 3 percent. They also receive a nonelective KUB contribution of from 3 percent to 6 percent, depending on years of service, whether they contribute or not.

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Matching contributions were previously remitted to the KUB Pension Plan (a separate defined benefit plan) in the name of the participant for employees hired prior to January 1, 2011. As of December 9, 2015, these Pension match assets moved from the KUB Pension Plan to the 401(k) Plan. Effective December 9, 2015, all matching contributions are remitted to the 401(k) Plan. The match and nonelective contributions for employees hired on or after January 1, 2011 are paid directly by KUB. KUB funded 401(k) matching contributions and nonelective contributions of \$2,174,711 and \$1,963,541, respectively, for the years ended June 30, 2018 and 2017.

13. Other Post-Employment Benefits (OPEB)

Description of Trust

The Knoxville Utilities Board Other Post Employment Benefits Trust (the Trust) is a single-employer Other Post Employment Benefits Plan (OPEB Plan) established by the Knoxville Utilities Board of Commissioners through Resolution No. 1168, as amended, dated October 18, 2007. The applicable documentation was submitted to the State Funding Board and, in December 2007, the State Funding Board approved the Trust. The Trust was also approved by the Internal Revenue Service in June 2008. KUB administers the Trust through a Board of Trustees consisting of seven KUB employees that are appointed by KUB's President and CEO. Any amendments to the Trust involving costs not approved in the operating budget must be approved by KUB's Board of Commissioners, upon recommendation by KUB's President and CEO. All other amendments to the Trust may be approved by KUB's President and CEO upon 60 days notification to the Board's Audit and Finance Committee. The investment of all deposits to the Trust is governed by an Investment Policy, which was adopted by the KUB Board and approved by the State Funding Board. The Trust issues a financial report, which includes financial statements and required supplementary information. The report may be obtained by writing the Knoxville Utilities Board Retirement System, P.O. Box 59017, Knoxville, TN 37950-9017.

Effective July 1, 1999, KUB closed the OPEB Plan such that persons employed or re-employed by KUB on or after July 1, 1999, are not eligible to participate, but that eligible employees hired prior to July 1, 1999, who are retired and who (prior to retirement) qualified for retiree medical insurance by meeting the "Rule of 80", the sum of age and at least 20 years of qualified service equal or exceed 80, accrue benefits under the Plan.

Participants in the OPEB Plan consisted of the following as of June 30:

	2018	2017
Retirees	562	567
Dependents of retirees	561	580
Eligible active employees	309	334
Total	1,432	1,481

Benefits

Other post-employment benefits may include, but shall not be limited to, medical, prescription drugs, dental, vision, hearing, Medicare Part B or Part D premiums, life insurance, long-term care, and long-term disability. Only medical and pharmacy are currently provided to eligible retirees.

Contributions and Plan Funding

The primary goal of the Funding Policy for the Trust is to document the method KUB has adopted to provide assurance that future KUB and retiree contributions and current Trust assets will be sufficient to fund all benefits expected to be paid to Trust beneficiaries. Per the Funding Policy,

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KUB's current practice is to fully fund its annual Actuarially Determined Contribution, which is determined by actuarial valuation.

Contributions are authorized by the terms of the Trust as established by KUB Resolution No. 1168, as amended, as approved by the Tennessee State Funding Board. KUB shall have the right at any time to amend, in whole or in part, the provisions of this Trust; however, no such amendment shall authorize or permit the assets of the Trust to be used for or diverted to purposes other than those expressed in the Declaration of Trust.

It shall be the sole and exclusive responsibility of KUB to determine the level of contributions KUB will make to the Trust for the purpose of financing other post-employment benefits accrued by its respective participants. Neither the Trust, nor the Trust's Board shall be responsible for collecting or otherwise determining the level of contributions needed by KUB to finance any other post-employment benefits offered by KUB. The assets of the Trust shall be expended solely to make payments for other post-employment benefits pursuant to and in accordance with the terms of the Trust and to pay the cost of administration.

Based on the date of retirement, certain retired plan members are required to contribute specified amounts monthly to maintain health insurance. Those who retired prior to July 1983 have no required monthly premiums for themselves or dependents. The retirees, or their surviving dependents, who retired between August 1983 and January 1998 are required to pay \$250 per month for pre-Medicare family health insurance. For individuals who retired after January 1998 the required monthly premium for pre-Medicare health insurance is \$250 for single coverage and \$500 for family coverage. There is currently no premium for Medicare eligible retirees or dependents. KUB is responsible for determining the level of retired plan member contributions on an annual basis, as part of its review of healthcare cost sharing.

Investments

The Trust holds investments in a balanced fund, which invests in passively managed common trust index funds, managed and sponsored by State Street Global Advisors (SSgA), with an asset allocation mirroring the asset allocation of the Trust and rebalanced monthly. The Trust's Investment Policy was established and may only be amended by the KUB Board of Commissioners. The Trust's Investment Policy is to invest in a manner that will provide sufficient investment return to meet current and future retiree health benefits, while conforming to all governing State and Federal statutes. It allows investment of Trust assets in any type of security instrument allowed for in T.C.A 8-50-1203. The following was the Trust's adopted investment target allocations as set forth in the Trust's Investment Policy as of June 30, 2018:

Asset Class	Target Allocation
Domestic Equity:	
Large Cap	30%
Small Cap	8%
International Equity:	
Developed	16%
Emerging	8%
Real Estate Equity	8%
Debt Securities	30%
Total	100%

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Contributions of zero and \$620,015 were made to the OPEB Trust for the fiscal years ending June 30, 2018 and 2017, respectively, based on the OPEB Plan's actuarial valuations as of January 1, 2016, and 2015.

Implementation of GASB 75

In fiscal year 2018, KUB adopted GASB Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefits Other Than Pensions* ("GASB 75"), which requires measurement of the net OPEB liability as total OPEB liability, less the amount of the Trust's fiduciary net position. The amounts reported as of June 30, 2018 are based on the reporting date for the KUB Other Post-Employment Benefits Plan which is June 30, 2018. Measurements as of the reporting date are based on the fair value of assets as of June 30, 2018 and the Total OPEB Liability as of the valuation date, January 1, 2017, updated to June 30, 2018.

The components of the net OPEB liability of the Trust are as follows as of June 30:

	2018	2017
Total OPEB liability	\$ 45,604,431	\$ 44,477,738
Plan fiduciary net position	49,355,499	49,000,433
Net OPEB (asset) liability	<u>\$ (3,751,068)</u>	<u>\$ (4,522,695)</u>

Plan fiduciary net position as a percentage of the total OPEB liability	108.23%	110.17%

Changes in Net OPEB Liability are as follows:

	Total OPEB Liability (a)	Increase (Decrease) Plan Fiduciary Net Position (b)	Net OPEB Liability (Asset) (a) - (b)
Balances at June 30, 2017	\$ 44,477,738	\$ 49,000,433	\$ (4,522,695)
Changes for the year:			
Service cost	202,603	-	202,603
Interest	3,295,240	-	3,295,240
Differences between Expected and Actual Experience	1,324,769	-	1,324,769
Changes of Assumptions	(397,180)	-	(397,180)
Contributions - employer	-	-	-
Contributions - member	-	-	-
Net investment income	-	3,705,473	(3,705,473)
Benefit payments	(3,298,739)	(3,298,739)	-
Administrative expense	-	(51,668)	51,668
Net changes	1,126,693	355,066	771,627
Balances at June 30, 2018	<u>\$ 45,604,431</u>	<u>\$ 49,355,499</u>	<u>\$ (3,751,068)</u>

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Actuarial assumptions

The total OPEB liability was determined by an actuarial valuation as of January 1, 2017, updated to June 30, 2018, using the following actuarial assumptions, applied to all periods included in the measurement:

Discount rate:	7.5%
Healthcare cost trend rates:	Pre-Medicare: 7.83% grading down to 4.5% over 20 years; Medicare: 6.88% grading down to 4.5% over 20 years; Administrative expenses: 3.0% per year
Salary increases:	From 2.80% to 5.15%, based on years of service
Mortality:	Sex distinct RP-2000 Combined Mortality projected to 2024 using Scale AA
Inflation	2.8%

The actuarial assumptions used in the January 1, 2017 valuation were based on the results of an actuarial experience study for the period January 1, 2009 through December 31, 2013, with subsequent revisions to retirement and termination assumptions based upon a special experience study, which reflected experience through December 31, 2016.

The long-term expected rate of return on Trust investments was determined using a building-block method in which best-estimate ranges of expected future real rates of return (expected returns, net of Trust investment expense and inflation) are developed for each major asset class. These ranges are combined to produce the long-term expected rate of return by weighting the expected future real rates of return by the target asset allocation percentage and by adding expected inflation. The long-term expected rate of return may be lower in periods of current strong performance due to future valuations that mean revert to the long-term average. Best estimates of arithmetic real rates of return for each major asset class included in the Trust's target asset allocation (see the discussion of the Trust's Investment Policy) are summarized in the chart below.

Asset Class	Long Term Expected Real Rate of Return	
	2018	2017
Domestic equity	5.1%	5.5%
International equity	6.6%	6.8%
Real estate equity	5.8%	6.0%
Debt securities	1.6%	1.4%
Cash and deposits	0.8%	0.6%

Discount rate

The discount rate used to measure the total OPEB liability was 7.5 percent. The projection of cash flows used to determine the discount rate assumed that participant contributions will be made at the current contribution rate and that KUB contributions will be made at rates equal to the actuarially determined contribution rates. Based on those assumptions, the Trust's fiduciary net position was projected to be available to make all projected future benefit payments. Therefore, the long-term expected rate of return on Trust investments was applied to all periods of projected benefit payments to determine the total OPEB liability.

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Sensitivity of the net OPEB liability to changes in the discount rate.

The following presents the net OPEB liability of the Trust as of June 30, 2018, calculated using the discount rate of 7.5 percent, as well as what the Trust's net OPEB liability would be if it were calculated using a discount rate that is 1 percent lower (6.5 percent) or 1 percent higher (8.5 percent) than the current rate:

	1% Decrease (6.5%)	Current Discount Rate (7.5%)	1% Increase (8.5%)
Net OPEB liability (asset)	\$1,172,935	\$(3,751,068)	\$(7,892,399)

Sensitivity of the net OPEB liability to changes in the healthcare cost trend rates.

The following presents the net OPEB liability of the Trust as of June 30, 2018, as well as what the Trust's net OPEB liability would be if it were calculated using a healthcare cost trend rate that is 1 percent lower or 1 percent higher than the current rate:

	1% Decrease	Baseline Trend	1% Increase
Net OPEB liability (asset)	\$(8,393,131)	\$(3,751,068)	\$1,703,576

OPEB Expense and Deferred Outflows of Resources and Deferred Inflows of Resources Related to OPEB

For the year ended June 30, 2018, KUB recognized OPEB expense of \$430,880.

The impact of liability experience gains or losses and assumption changes on the Total OPEB Liability are recognized in the OPEB expense over the average expected remaining service life of all active and inactive members of the OPEB Plan. As of the beginning of the measurement period, this average was 2.0 years. During the measurement year, there was an experience loss of \$1,324,769 with \$662,385 of that recognized in the current year and the remaining amount will be recognized in the next year, resulting in a deferred outflow of resources of \$662,384.

During the measurement year, there were no benefit changes. There was a decrease in the Total OPEB Liability due to assumption changes of \$397,180 with \$198,590 of that recognized in the current year and in the next year, resulting in a deferred inflow of \$198,590.

The impact of investment gains or losses is recognized over a period of five year. During the measurement year, there was an investment gain of \$153,809. \$30,762 of that was recognized in the current year and \$123,047 will become a deferred inflow of resources recognized over the next four years. The table below summarizes the current balances of deferred outflows and deferred inflows of resources along with the net recognition over future years.

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	Deferred Outflows of Resources	Deferred Inflows of Resources
Differences between expected and actual experience	\$ 662,384	\$ -
Changes in assumptions	-	198,590
Net difference between projected and actual earnings on OPEB plan investments	-	123,047
Total	<u>\$ 662,384</u>	<u>\$ 321,637</u>

Amounts reported as deferred outflows and deferred inflows of resources will be recognized in OPEB expense as follows:

Year ended June 30:		
2019	\$	433,032
2020		(30,762)
2021		(30,762)
2022		(30,761)
Thereafter		-

14. Related Party Transactions

KUB, in the normal course of operations, is involved in transactions with the City of Knoxville. Such transactions for the years ended June 30, 2018 and 2017 are summarized as follows:

	2018	2017
City of Knoxville		
Amounts billed by KUB for utilities and related services	\$ 15,524,288	\$ 15,360,561
Payments by KUB in lieu of property tax	19,144,877	18,524,684
Payments by KUB for services provided	1,114,977	2,561,261

With respect to these transactions, accounts receivable from the City of Knoxville included in the balance sheet at year end were:

	2018	2017
Accounts receivable	\$ 991,023	\$ 1,136,541

15. Natural Gas Supply Contract Commitments

For fiscal year 2018, the Gas Division hedged 50 percent of its total gas purchases via gas supply contracts. As of June 30, 2018, the Gas Division had hedged the price on approximately 7 percent of its anticipated gas purchases for fiscal year 2019.

KUB contracts separately for the purchase, transportation and storage of natural gas. Purchase commitments for the next five years are as follows:

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Firm obligations related to purchased gas – demand

	2019	2020	2021	2022	2023
Transportation					
Tennessee Gas Pipeline	\$ 3,271,320	\$ 1,090,440	\$ -	\$ -	\$ -
East Tennessee Natural Gas	10,066,388	2,748,496	-	-	-
Storage					
Tennessee Gas Pipeline	1,787,976	595,992	-	-	-
East Tennessee Natural Gas	757,460	-	-	-	-
Saltville Natural Gas	1,870,560	1,483,600	1,290,120	1,290,120	967,590
Demand Total	<u>\$ 17,753,704</u>	<u>\$ 5,918,528</u>	<u>\$ 1,290,120</u>	<u>\$ 1,290,120</u>	<u>\$ 967,590</u>

Firm obligations related to purchased gas – commodity

	2019	2020	2021	2022	2023
Baseload					
ConocoPhillips	\$ 513,820	\$ -	\$ -	\$ -	\$ -
Shell Energy	1,056,168	-	-	-	-
BP Energy Company	7,107,913	1,619,500	-	-	-
CNX Gas	1,243,042	-	-	-	-
Sequent Energy	651,721	-	-	-	-
NJR Energy Services	898,762	-	-	-	-
Commodity Total	<u>\$ 11,471,426</u>	<u>\$ 1,619,500</u>	<u>\$ -</u>	<u>\$ -</u>	<u>\$ -</u>

The total commodity values presented here are based upon firm supply obligations with each individual natural gas supplier. The firm obligations value for ConocoPhillips, Shell Energy, and BP Energy Company are based upon firm supply obligations and locked prices with those suppliers. The firm obligations value for BP Energy Company, Sequent, CNX Gas, and NJR Energy Services are based upon firm supply obligations and the applicable NYMEX strip prices on June 30, 2018.

16. Other Commitments and Contingencies

In the normal course of business, there are various lawsuits pending against KUB. Management has reviewed these lawsuits with counsel, who is vigorously defending KUB's position and is of the opinion that the ultimate disposition of these matters will not have a material adverse effect on KUB's financial position, results of operations or cash flows.

In February 2005, a Consent Decree was entered into federal court regarding the operation of KUB's wastewater system. Under the terms of the Consent Decree, the remediation of identified sanitary sewer overflows (SSOs) on KUB's wastewater system had to be completed by June 30, 2016. KUB completed all the requirements of the Consent Decree for the collection system two years in advance of the deadline.

The Consent Decree also required KUB to perform an evaluation of the wet weather performance and capacity of its wastewater treatment plants. In July 2007, KUB submitted a Composite Correction Plan (CCP) for its wastewater treatment plants to EPA for review. The development and filing of the CCP was a requirement of the federal order of February 2005. The CCP includes recommended improvements to KUB's Kuwahee and Fourth Creek treatment plants to address wet weather capacity issues noted in prior assessments. The EPA approved the CCP in January 2009 including a recommended schedule of plant improvements that extends beyond the expiration date of the original Consent Decree. An amendment to the Consent Decree incorporating and establishing this schedule was agreed to by all parties and was entered on June 23, 2009. The purpose of the Amendment is to allow KUB to complete a portion of work outlined in the CCP after the Consent Decree deadline of

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June 30, 2016. The CCP provides for a biologically enhanced high-rate clarification (the BEHRC) secondary treatment system to be installed at the Fourth Creek treatment plant by June 30, 2018 and at the Kuwahee treatment plant by June 30, 2021. KUB successfully completed the installation of the BEHRC system at the Fourth Creek treatment plant ahead of schedule in April 2018. Work is currently ongoing at the Kuwahee treatment plant and remains on schedule for completion before the deadline of June 30, 2021. The total cost of such improvements is estimated to be approximately \$58 million.

KUB's funding plan for the Consent Decree includes long-term bonds and a series of rate increases phased in over the term of the order. Bond proceeds fund all types of wastewater capital projects, the majority of which are related to the Consent Decree. As of June 30, 2018, the Wastewater Division had issued \$530 million in bonds to fund system capital improvements since the inception of the Consent Decree. The Board approved two 50 percent rate increases, which went into effect in April 2005 and January 2007. The Board also approved an 8 percent rate increase, which was effective in September 2008, two 12 percent rate increases, which were effective in April 2011 and October 2012, three 6 percent rate increases effective October 2014, October 2015 and October 2016 and three 5 percent rate increases effective July 2017, July 2018, and July 2019. KUB anticipates additional bond issues and rate increases over the next decade to help fund wastewater capital improvements.

KUB successfully completed the first cycle of Maintenance Operation Management (MOM) requirements one year before the deadline by inspecting manholes and gravity mains, smoke testing gravity mains, performing required inspections of pump stations and the related force mains, and completing all Corrective Action Plan/Engineering Report (CAP/ER) projects. KUB initiated the second MOM cycle that continues to focus on the prevention of SSOs. As part of the Century II initiative, formally known as the PACE10 program, KUB has installed storage tanks providing 34 million gallons of wastewater storage to control wet weather overflows and rehabilitated or replaced approximately 368.8 miles of collection system pipe. KUB also continues to maintain a proactive operations and maintenance plan for the wastewater collection system including inspection, grease control, and private lateral enforcement. The result of the Pace10/Century II initiative has been an 83 percent reduction in SSOs.

As of June 30, 2018, the Wastewater Division had completed its 14th full year under the Consent Decree, spending \$536.9 million on capital investments to meet Consent Decree requirements.

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17. Segment Information

The following financial information represents identifiable activities for which the revenue bonds and other revenue backed debt are outstanding for the respective Divisions:

Condensed Statement of Net Position

	2018			
	Electric	Gas	Water	Wastewater
Assets and Deferred Outflows of Resources				
Current assets	\$ 130,784,113	\$ 53,677,817	\$ 27,346,382	\$ 65,131,156
Restricted assets	17,738,339	3,499,668	4,052,965	8,236,928
Net capital assets	581,742,407	278,095,447	318,177,240	719,979,490
Other assets	43,578,498	18,210,394	18,868,526	33,437,239
Total assets	<u>\$ 773,843,357</u>	<u>\$ 353,483,326</u>	<u>\$ 368,445,113</u>	<u>\$ 826,784,813</u>
Deferred outflows of resources	4,456,959	1,437,457	3,537,637	16,111,529
Total assets and deferred outflows of resources	<u>\$ 778,300,316</u>	<u>\$ 354,920,783</u>	<u>\$ 371,982,750</u>	<u>\$ 842,896,342</u>
Liabilities and Deferred Inflows of Resources				
Current liabilities	\$ 95,619,157	\$ 17,331,159	\$ 11,626,083	\$ 20,923,114
Other liabilities	16,615,433	4,800,729	1,568,701	1,481,343
Long-term debt	294,206,042	111,660,823	179,093,978	512,135,393
Total liabilities	<u>\$ 406,440,632</u>	<u>\$ 133,792,711</u>	<u>\$ 192,288,762</u>	<u>\$ 534,539,850</u>
Deferred inflows of resources	6,844,310	2,424,026	1,853,667	3,136,975
Total liabilities and deferred inflows of resources	<u>\$ 413,284,942</u>	<u>\$ 136,216,737</u>	<u>\$ 194,142,429</u>	<u>\$ 537,676,825</u>
Net position				
Net investment in capital assets	\$ 278,370,404	\$ 161,294,129	\$ 138,681,584	\$ 216,036,743
Restricted	12,285,419	2,050,413	1,941,221	3,158,568
Unrestricted	74,359,551	55,359,504	37,217,516	86,024,206
Total net position	<u>\$ 365,015,374</u>	<u>\$ 218,704,046</u>	<u>\$ 177,840,321</u>	<u>\$ 305,219,517</u>

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Condensed Statement of Net Position

	2017			
	Electric	Gas	Water	Wastewater
Assets and Deferred Outflows of Resources				
Current assets	\$ 126,944,697	\$ 37,997,762	\$ 28,286,134	\$ 49,584,845
Restricted assets	16,094,418	3,221,379	3,663,847	7,991,374
Net capital assets	548,723,543	271,284,847	298,532,602	706,751,947
Other assets	26,644,185	14,128,546	11,279,052	24,483,884
Total assets	<u>\$ 718,406,843</u>	<u>\$ 326,632,534</u>	<u>\$ 341,761,635</u>	<u>\$ 788,812,050</u>
Deferred outflows of resources	7,909,536	2,645,831	4,607,518	18,331,718
Total assets and deferred outflows of resources	<u>\$ 726,316,379</u>	<u>\$ 329,278,365</u>	<u>\$ 346,369,153</u>	<u>\$ 807,143,768</u>
Liabilities and Deferred Inflows of Resources				
Current liabilities	\$ 95,388,231	\$ 19,167,104	\$ 10,304,921	\$ 19,799,766
Other liabilities	16,615,024	3,047,328	1,622,907	1,587,803
Long-term debt	266,530,941	106,161,708	164,722,304	500,207,331
Total liabilities	<u>\$ 378,534,196</u>	<u>\$ 128,376,140</u>	<u>\$ 176,650,132</u>	<u>\$ 521,594,900</u>
Deferred inflows of resources	2,528,408	895,478	684,777	1,158,854
Total liabilities and deferred inflows of resources	<u>\$ 381,062,604</u>	<u>\$ 129,271,618</u>	<u>\$ 177,334,909</u>	<u>\$ 522,753,754</u>
Net position				
Net investment in capital assets	\$ 275,291,471	\$ 160,724,983	\$ 134,010,490	\$ 216,334,381
Restricted	11,360,213	1,874,535	1,732,368	3,009,134
Unrestricted	58,602,091	37,407,229	33,291,386	65,046,499
Total net position	<u>\$ 345,253,775</u>	<u>\$ 200,006,747</u>	<u>\$ 169,034,244</u>	<u>\$ 284,390,014</u>

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Knoxville Utilities Board
Notes to Consolidated Financial Statements
June 30, 2018 and 2017

**Condensed Statement of Revenues, Expenses
and Changes in Net Position**

	2018			
	Electric	Gas	Water	Wastewater
Operating revenues	\$560,110,507	\$ 114,539,188	\$ 54,365,215	\$ 94,715,764
Operating expenses	497,857,357	80,099,775	29,830,805	35,977,830
Provision for depreciation	35,430,800	12,717,222	10,379,928	19,137,860
Total operating expenses	<u>533,288,157</u>	<u>92,816,997</u>	<u>40,210,733</u>	<u>55,115,690</u>
Operating income	26,822,350	21,722,191	14,154,482	39,600,074
Non-operating expense	(9,351,637)	(3,813,875)	(5,985,484)	(20,043,786)
Change in net position before capital contributions	17,470,713	17,908,316	8,168,998	19,556,288
Capital contributions	119,992	20,125	49,129	278,222
Change in net position	<u>17,590,705</u>	<u>17,928,441</u>	<u>8,218,127</u>	<u>19,834,510</u>
Net position				
Beginning of year, as previously reported	345,253,775	200,006,747	169,034,244	284,390,014
Change in method of accounting for OPEB	2,170,894	768,858	587,950	994,993
Net position, beginning of year, as restated	<u>347,424,669</u>	<u>200,775,605</u>	<u>169,622,194</u>	<u>285,385,007</u>
End of year	<u>\$365,015,374</u>	<u>\$ 218,704,046</u>	<u>\$ 177,840,321</u>	<u>\$ 305,219,517</u>

**Condensed Statement of Revenues, Expenses
and Changes in Net Position**

	2017			
	Electric	Gas	Water	Wastewater
Operating revenues	\$546,364,012	\$ 91,868,316	\$ 50,769,639	\$ 88,517,210
Operating expenses	497,323,835	69,495,685	29,123,189	36,725,972
Provision for depreciation	31,450,260	12,261,903	9,792,630	18,517,403
Total operating expenses	<u>528,774,095</u>	<u>81,757,588</u>	<u>38,915,819</u>	<u>55,243,375</u>
Operating income	17,589,917	10,110,728	11,853,820	33,273,835
Non-operating expense	(8,324,347)	(4,020,718)	(5,937,091)	(20,463,169)
Change in net position before capital contributions	9,265,570	6,090,010	5,916,729	12,810,666
Capital contributions	1,420,361	-	123,840	463,784
Change in net position	<u>10,685,931</u>	<u>6,090,010</u>	<u>6,040,569</u>	<u>13,274,450</u>
Net position				
Beginning of year	334,567,844	193,916,737	162,993,675	271,115,564
End of year	<u>\$345,253,775</u>	<u>\$ 200,006,747</u>	<u>\$ 169,034,244</u>	<u>\$ 284,390,014</u>

Knoxville Utilities Board
Notes to Consolidated Financial Statements
June 30, 2018 and 2017

Condensed Statement of Cash Flows

	2018			
	Electric	Gas	Water	Wastewater
Net cash provided by operating activities	\$ 51,557,302	\$ 35,529,580	\$ 25,748,290	\$ 57,717,293
Net cash used in capital and related financing activities	(50,954,932)	(18,097,897)	(21,982,580)	(39,967,945)
Net cash provided by (used in) investing activities	<u>2,536,758</u>	<u>613,141</u>	<u>989,073</u>	<u>5,574,305</u>
Net increase (decrease) in cash and cash equivalents	3,139,128	18,044,824	4,754,783	23,323,653
Cash and cash equivalents, beginning of year	<u>37,195,215</u>	<u>13,391,230</u>	<u>9,395,231</u>	<u>18,973,860</u>
Cash and cash equivalents, end of year	<u>\$ 40,334,343</u>	<u>\$ 31,436,054</u>	<u>\$ 14,150,014</u>	<u>\$ 42,297,513</u>

Condensed Statement of Cash Flows

	2017			
	Electric	Gas	Water	Wastewater
Net cash provided by operating activities	\$ 58,301,306	\$ 20,879,095	\$ 16,704,257	\$ 49,585,495
Net cash used in capital and related financing activities	(49,016,710)	(17,822,101)	(12,212,926)	(49,735,917)
Net cash provided by (used in) investing activities	<u>(6,881,167)</u>	<u>(701,913)</u>	<u>(4,488,917)</u>	<u>(4,601,363)</u>
Net increase (decrease) in cash and cash equivalents	2,403,429	2,355,081	2,414	(4,751,785)
Cash and cash equivalents, beginning of year	<u>34,791,786</u>	<u>11,036,149</u>	<u>9,392,817</u>	<u>23,725,645</u>
Cash and cash equivalents, end of year	<u>\$ 37,195,215</u>	<u>\$ 13,391,230</u>	<u>\$ 9,395,231</u>	<u>\$ 18,973,860</u>

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Knoxville Utilities Board
Required Supplementary Information - Schedule of Changes in Net Pension
Liability and Related Ratios
June 30, 2018
(Unaudited)

	*Year ended December 31			
	2017	2016	2015	2014
Total pension liability				
Service cost	\$ 4,607,486	\$ 4,226,985	\$ 4,157,062	\$ 4,092,808
Interest	15,015,282	14,966,559	14,812,784	14,698,657
Differences between expected and actual experience	(1,087,161)	(2,233,762)	(1,890,334)	-
Changes of assumptions	(357,633)	(2,932,883)	-	-
Benefit payments, including refunds of member contributions	(14,969,979)	(14,138,511)	(15,350,926)	(15,533,167)
Net change in total pension liability	3,207,995	(111,612)	1,728,586	3,258,298
Total pension liability - beginning	204,390,738	204,502,350	202,773,764	199,515,466
Total pension liability - ending (a)	\$ 207,598,733	\$ 204,390,738	\$ 204,502,350	\$ 202,773,764
Plan fiduciary net position				
Contributions - employer	\$ 4,286,597	\$ 5,243,146	\$ 5,991,887	\$ 5,908,541
Contributions - participants	1,488,632	555,075	487,546	475,854
Net investment income	32,360,219	13,788,263	(95,430)	22,292,369
Other additions	82,239	45,848	30,879	29,733
Benefit payments, including refunds of member contributions	(14,895,979)	(14,044,511)	(15,274,926)	(15,405,167)
Administrative expense	(385,282)	(441,332)	(397,160)	(378,085)
Death benefits	(74,000)	(94,000)	(76,000)	(128,000)
Net change in plan fiduciary net position**	22,862,426	5,052,489	(9,333,204)	12,795,245
Plan fiduciary net position - beginning**	204,514,679	199,462,190	208,795,394	196,000,149
Plan fiduciary net position - ending (b)**	\$ 227,377,105	\$ 204,514,679	\$ 199,462,190	\$ 208,795,394
Plan's net pension liability - ending (a) - (b)	\$ (19,778,372)	\$ (123,941)	\$ 5,040,160	\$ (6,021,630)
Plan fiduciary net position as a percentage of the total pension liability	109.53%	100.06%	97.54%	102.97%
Covered payroll	\$ 43,309,374	\$ 44,437,747	\$ 44,446,743	\$ 44,076,351
Plan's net pension liability as a percentage of covered payroll	(45.67%)	(0.28%)	11.34%	(13.66%)

Notes to Schedule:

* Information not reflected prior to 2014 due to changes in actuary methodologies required under GASB 67, which was implemented in 2014.

** Excludes amounts related to 401(k) matching contributions.

Knoxville Utilities Board
Required Supplementary Information - Schedule of Employer Pension
Contributions
June 30, 2018
(Unaudited)

	*Year ended December 31			
	2017	2016	2015	2014
Actuarially determined contribution	\$ 4,286,597	\$ 5,243,146	\$ 5,991,887	\$ 5,908,541
Contribution in relation to the actuarially determined contribution	4,286,597	5,243,146	5,991,887	5,908,541
Contribution deficiency	\$ -	\$ -	\$ -	\$ -
Covered payroll	\$ 43,309,374	\$ 44,437,747	\$ 44,446,743	\$ 44,076,351
Contributions as a percentage of covered payroll	9.90%	11.80%	13.48%	13.41%

Notes to Schedule:

Valuation Dates: January 1, 2012 - 2016
Timing: Actuarially determined contributions for a plan year are based upon 50% of the amounts determined at the actuarial valuations for each of the two prior plan years.

Key methods and assumptions used to determine contribution rates:

Actuarial cost method: Entry age normal at January 1, 2012; Individual entry age of January 1, 2013 - 2016
Asset valuation method: 5-year smoothed market
Amortization method: Level dollar closed period with 25 years remaining as of January 1, 2016
Discount rate: 8% at January 1, 2012 - 2013, 7.5% at January 1, 2014 - 2016
Salary increases: From 2.58% to 7.92% for January 1, 2012 - 2013 and from 2.80% to 5.15% for January 1, 2014 - 2016, based on years of service
Mortality: Sex distinct RP-2000 Combined Mortality projected to 2018 using Scale AA for the January 1, 2012 - 2013 valuations. Sex distinct RP-2000 Combined Mortality projected to 2024 using Scale AA for the January 1, 2014 - 2016 valuations.
Inflation: 2.8 percent

* Schedule of Employer Contribution information is not reflected prior to 2014 due to changes in actuary methodologies required under GASB 67, which was implemented 2014.

Knoxville Utilities Board

Required Supplementary Information – Schedule of Changes in Net OPEB Liability and Related Ratios

June 30, 2018

(Unaudited)

	*Year ended June 30 2018
Total OPEB liability	
Service cost	\$ 202,603
Interest	3,295,240
Differences between expected and actual experience	1,324,769
Changes of assumptions	(397,180)
Benefit payments	(3,298,739)
Net change in total OPEB liability	1,126,693
Total OPEB liability - beginning	44,477,738
Total OPEB liability - ending (a)	\$ 45,604,431
Plan fiduciary net position	
Contributions - employer	\$ -
Net investment income	3,705,473
Benefit payments	(3,298,739)
Administrative expense	(51,668)
Net change in plan fiduciary net position	355,066
Plan fiduciary net position - beginning	49,000,433
Plan fiduciary net position - ending (b)	\$ 49,355,499
Net OPEB liability - ending (a) - (b)	\$ (3,751,068)
Plan fiduciary net position as a percentage of the total OPEB liability	108.23%
Covered employee payroll	\$ 23,677,080
Net OPEB liability as a percentage of covered employee payroll	(15.84%)

Notes to Schedule:

* Information not reflected prior to 2018 due to changes in actuary methodologies required under GASB 75, which was implemented in 2018.

Knoxville Utilities Board

Required Supplementary Information – Schedule of Employer OPEB Contributions

June 30, 2018

(Unaudited)

	*Year ended June 30
	2018
Actuarially determined contribution	\$ -
Contribution in relation to the annual required contribution	-
Contribution deficiency/(excess)	<u>\$ -</u>
Covered employee payroll	\$ 23,677,080
Contributions as a percentage of covered employee payroll	0.00%

Notes to Schedule:

Valuation Date:	January 1, 2016
Timing:	Actuarially determined contribution rates are calculated based on the actuarial valuation completed 18 months before the beginning of the fiscal year.

Key methods and assumptions used to determine contribution rates:

Actuarial cost method:	Entry age normal
Asset valuation method:	5-year smoothed market
Amortization method:	Level dollar, closed period with 20 years remaining as of January 1, 2016
Discount rate:	7.5%
Healthcare cost trend rate:	Pre-Medicare: 8.00% to 4.50 % grading down over 20 years Medicare: 7.00% to 4.50% grading down over 20 years Administrative expenses: 3.0% per year

* Schedule of Employer Contribution information is not reflected prior to 2018 due to changes in actuary methodologies required under GASB 75, which was implemented in 2018.

Knoxville Utilities Board

Required Supplementary Information – Qualified Governmental Excess Benefit Arrangement

Schedule of Changes in Total Pension Liability and Related Ratios

June 30, 2018

(Unaudited)

	*Year ended December 31	
	2017	2016
Total pension liability		
Service cost	\$ 584	\$ -
Interest (includes interest on service cost)	7,535	-
Changes of benefit terms	-	185,077
Differences between expected and actual experience	13,684	-
Changes of assumptions	73,461	-
Benefit payments, including refunds of member contributions	-	-
Net change in total pension liability	<u>95,264</u>	<u>185,077</u>
Total pension liability - beginning	<u>185,077</u>	<u>-</u>
Total pension liability - ending	<u>\$ 280,341</u>	<u>\$ 185,077</u>
Covered payroll	\$ 43,309,374	\$ 44,437,747
Total pension liability as a percentage of covered payroll	0.65%	0.42%

Notes to Schedule:

* There are no assets accumulated in a trust that meet the criteria in paragraph 4 of GASB 73 to pay related benefits.

Knoxville Utilities Board
Supplemental Information –
Schedule of Expenditures of Federal Awards and State Financial Assistance
June 30, 2018 **Schedule 1**

<u>Federal Grantor/ Pass-Through Grantor</u>	<u>Program Name</u>	<u>CFDA Number</u>	<u>Contract Number</u>	<u>Expenditures</u>
U.S. Department of Homeland Security through Tennessee Department of Military	Disaster Grants - Public Assistance	97.036	34101-19618	<u>\$ 878,634</u>
	Total Program 97.036			<u>\$ 878,634</u>
	Total Federal Awards			<u><u>\$ 878,634</u></u>

NOTE 1 - BASIS OF PRESENTATION

The Schedule of Expenditures of Federal Awards and State Financial Assistance includes the federal award related grant activity of Knoxville Utilities Board and is presented on the accrual basis of accounting. The expenditures reported in the Schedule of Expenditures and State Financial Assistance were incurred in fiscal year 2017. In accordance with the requirements of CFDA 97.036, the expenditures have been reported in fiscal year 2018 when the grant was approved by the Federal Emergency Management Association. KUB did not elect to use 10% de minimis indirect cost rate.

Knoxville Utilities Board

Supplemental Information – Schedule of Findings and Questioned Costs

June 30, 2018

Schedule 2

Section I -- Summary of Auditors' Results

Financial Statements

Type of auditors' report issued:	Unmodified
Internal control over financial reporting: Material weakness(es) identified?	None reported
Significant deficiency(s) identified not considered to be material weaknesses?	None reported
Noncompliance material to financial statements:	None reported

Federal Awards

Internal control over major programs: Material weakness(es) identified?	None reported
Significant deficiency(s) identified not considered to be material weaknesses?	None reported
Type of auditors' report issued on compliance for major programs:	Unmodified
Any audit findings disclosed that are required to be reported in accordance with Title 2 U.S. Code of Federal Regulations Part 200?	None reported

Identification of major programs:	<u>CFDA</u> 97.036	<u>Name of Program</u> Disaster Grants – Public Assistance
Dollar threshold used to distinguish between Type A and Type B programs:	\$750,000	
Auditee qualified as low-risk auditee?	No	

Section II -- Financial Statement Findings

None reported.

Section III -- Federal Award Findings and Questioned Costs

None reported.

Section IV – Summary Schedule of Prior Year Audit Findings

Not applicable as there were no prior year findings reported.

Section V – Corrective Action Plan

Not applicable as there were no current year findings reported.

Knoxville Utilities Board
Supplemental Information - Schedule of Insurance in Force
June 30, 2018
(Unaudited)

Schedule 3

Crime

Covers losses resulting from employee dishonesty, robbery, burglary, and computer fraud. Limits of coverage - \$5,000,000; \$250,000 retention.

Directors' and Officers' Liability Insurance

Covers KUB personnel appropriately authorized to make decisions on behalf of KUB (including but not limited to Commissioners, President and CEO, Senior Vice Presidents, Vice Presidents, and Directors) for wrongful acts. Limits of coverage - \$20,000,000; \$1,000,000 corporate deductible, \$0 individual deductible.

Employment Practices Liability

Coverage for costs related to actual or alleged employment practices violations for amounts exceeding specified amount (\$500,000). Limits of coverage - \$10,000,000.

Fiduciary

Covers losses resulting from wrongful acts related to KUB's Pension, 401(k), OPEB Trust funds, and Medical Plan. Limits of coverage - \$10,000,000; \$150,000 deductible.

Pollution Legal Liability

New conditions coverage for losses exceeding specified amount per occurrence (\$1,000,000). Limits of coverage - \$20,000,000.

Property Insurance

This coverage provides protection of KUB's property for fire, extended coverage, vandalism and malicious mischief, and coverage on boilers and machinery. Also included are flood and earthquake damage and mechanical failure. Limits of coverage - \$250,000,000 per occurrence (subject to certain sublimits); \$2,500,000 deductible per occurrence.

Travel Accident

Covers losses related to employees' business travel. Limits of coverage - \$1,500,000 aggregate.

Excess Insurance for General Liability

As a government entity, KUB's liability is limited under the Tennessee Governmental Tort Liability Act (TCA §29-20-403). KUB is self-insured for up to the first \$700,000 of any accident and has insurance of \$1,000,000 above this retention.

Excess Insurance for Workers' Compensation

Covers all losses exceeding specified amount per occurrence (\$1,000,000). Limits of coverage - Statutory; stop loss coverage applies for aggregate losses over \$5,000,000.

Employee Health Plan Stop Loss Coverage

KUB's employee health plan is self-funded. KUB has purchased stop loss insurance, which covers KUB's exposure to annual expenses in excess of \$500,000 per individual participant.

See accompanying Report of Independent Auditors on Supplemental Information.



Report of Independent Auditors on Internal Control Over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards*

Board of Commissioners
Knoxville Utilities Board
Knoxville, Tennessee

We have audited, in accordance with the 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, the financial statements of the Knoxville Utilities Board (KUB), a component unit of the City of Knoxville, Tennessee, as of and for the year ended June 30, 2018, and the related notes to the financial statements, which collectively comprise KUB's basic financial statements, and have issued our report thereon dated October 25, 2018.

Internal Control over Financial Reporting

In planning and performing our audit of the financial statements, we considered KUB's internal control over financial reporting (internal control) to determine the audit procedures that are appropriate in the circumstances for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of KUB's internal control. Accordingly, we do not express an opinion on the effectiveness of KUB's internal control.

A *deficiency in internal control* exists when the design or operation of a control does not allow management or employees in the normal course of performing their assigned functions, to prevent, or detect and correct misstatements on a timely basis. A *material weakness* is a deficiency, or a combination of deficiencies, in internal control, such that there is a reasonable possibility that a material misstatement of KUB's financial statements will not be prevented, or detected and corrected on a timely basis. A *significant deficiency* is a deficiency, or a combination of deficiencies, in internal control that is less severe than a material weakness, yet important enough to merit attention by those charged with governance.

Our consideration of internal control was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over financial reporting that might be material weaknesses or significant deficiencies. Given these limitations, during our audit we did not identify any deficiencies in internal control over financial reporting that we consider to be material weaknesses. However, material weaknesses may exist that have not been identified.

Board of Commissioners
Knoxville Utilities Board
Knoxville, Tennessee

Compliance and Other Matters

As part of obtaining reasonable assurance about whether KUB's financial statements are free from material misstatement, we performed tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements, noncompliance with which could have a direct and material effect on the determination of financial statement amounts. However, providing an opinion on compliance with those provisions was not an objective of our audit, and accordingly, we do not express such an opinion. The results of our tests disclosed no instances of noncompliance or other matters that are required to be reported under *Government Auditing Standards*.

Purpose of Report

The purpose of this report is solely to describe the scope of our testing of internal control and compliance and the results of that testing, and not to provide an opinion on the effectiveness of KUB's internal control or on compliance. This report is an integral part of an audit performed in accordance with *Government Auditing Standards* in considering KUB's internal control and compliance. Accordingly, this communication is not suitable for any other purpose.

Coulter & Justus, P.C.

Knoxville, Tennessee
October 25, 2018



Report of Independent Auditors on Compliance for Each Major Program and on Internal Control over Compliance Required by the Uniform Guidance

Board of Commissioners
Knoxville Utilities Board
Knoxville, Tennessee

Report on Compliance for the Major Federal Program

We have audited the compliance of the Knoxville Utilities Board (KUB), a component unit of the City of Knoxville, Tennessee, with the types of compliance requirements described in the *U.S. Office of Management and Budget (OMB) Compliance Supplement* that could have a direct and material effect on its major federal program for the year ended June 30, 2018. KUB's major federal program is identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs.

Management's Responsibility

Management is responsible for compliance with federal statutes, regulations, and terms and conditions of federal awards applicable to its federal program.

Auditor's Responsibility

Our responsibility is to express an opinion on compliance for KUB's major federal program based on our audit of the types of compliance requirements referred to above.

We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States; and the audit requirements of Title 2 U.S. *Code of Federal Regulations* (CFR) Part 200, *Uniform Administrative Requirements, Cost Principles, and Audit Requirements for Federal Awards* (Uniform Guidance). Those standards and the Uniform Guidance require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on the major federal program occurred. An audit includes examining, on a test basis, evidence about KUB's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances.

We believe that our audit provides a reasonable basis for our opinion on compliance for the major federal program. However, our audit does not provide a legal determination of KUB's compliance.

Board of Commissioners
Knoxville Utilities Board
Knoxville, Tennessee

Opinion

In our opinion, KUB complied, in all material respects, with the compliance requirements referred to above that could have a direct and material effect on its major federal program for the year ended June 30, 2018.

Report on Internal Control over Compliance

Management of KUB is responsible for establishing and maintaining effective internal control over compliance with the types of compliance requirements referred to above. In planning and performing our audit of compliance, we considered KUB's internal control over compliance with the types of requirements that could have a direct and material effect on its major federal program to determine the auditing procedures that are appropriate in the circumstances for the purpose of expressing an opinion on compliance and to test and report on internal control over compliance in accordance with the Uniform Guidance, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of KUB's internal control over compliance.

A deficiency in internal control over compliance exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a federal program on a timely basis. *A material weakness in internal control over compliance* is a deficiency, or combination of deficiencies in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis. *A significant deficiency in internal control over compliance* is a deficiency, or a combination of deficiencies, in internal control over compliance with a type of compliance requirement of a federal program that is less severe than a material weakness in internal control over compliance, yet important enough to merit attention by those charged with governance.

Our consideration of internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over compliance that might be material weaknesses or significant deficiencies and therefore, material weaknesses or significant deficiencies may exist that were not identified.

The purpose of this report on internal control over compliance is solely to describe the scope of our testing of internal control over compliance and the results of that testing based on the requirements of the Uniform Guidance. Accordingly, this report is not suitable for any other purpose.

Coulter & Justus, P.C.

Knoxville, Tennessee
October 25, 2018

**SUMMARY OF CERTAIN PROVISIONS
OF
WATER BOND RESOLUTION**

SUMMARY OF CERTAIN PROVISIONS OF THE WATER BOND RESOLUTIONS

The following statements are brief summaries of certain provisions of the Water Bond Resolutions, copies of which are available for examination at the offices of the Board. Terms defined in the Water Bond Resolutions and not defined elsewhere in this Official Statement shall have the meaning set forth in the Water Bond Resolutions. Section numbers refer to sections of Resolution No. 2075, as amended by Resolution No. 3633, Resolution No. R-26-88, Resolution No. R-8-98, Resolution No. R-151-01 and Resolution R-228-2018 and as supplemented by Resolution No. R-207-2019 and as otherwise supplemented prior to the date hereof (collectively, the "Resolution").

Security

The Series II-2019 Bonds constitute and, when issued, will be Bonds under the Resolution. All Series II-2019 Bonds are limited obligations of the City, payable solely and ratably from the Net Revenues of the Water System of the City and are on parity with each other in all respects.

The Series II-2019 Bonds will be issued pursuant to the provision of the Resolution which sets forth in detail covenants of the City with respect to the Series II-2019 Bonds. The following summary is a brief outline of certain provisions contained in the Resolution and is not to be considered as a full statement thereof. This summary is qualified by reference to and is subject to the Resolution, copies of which may be examined at the office of the Board.

Pledge of Revenues

The Bonds issued under and pursuant to the Resolution shall not be general obligations of the City, and no holder of any Bond issued under the Resolution shall ever have the right to compel any exercise of taxing power of the City to pay said Bonds or the interest thereon. The punctual payment of principal and premium, if any, and interest on all Parity Indebtedness and Hedge Payments with respect to Parity Indebtedness shall be payable from and secured equally and ratably by the Net Revenues of the System, without priority by reason of number or time of sale or execution or delivery and such Net Revenues are irrevocably pledged to the punctual payment of such principal, premium, interest and Hedge Payments as the same become due.

Certain Definitions

"Accreted Value" shall mean, with respect to any Capital Appreciation Debt, an amount equal to the principal amount of such Capital Appreciation Debt (determined on the basis of the principal amount per \$5,000 at maturity thereof) plus the amount assuming semi-annual compounding of earnings which would be produced on the investment of such principal amount, beginning on the dated date of such Capital Appreciation Debt and ending at the date such Accreted Value is calculated, at a yield which, if produced until maturity, will produce \$5,000 at maturity. As of any Valuation Date, the Accreted Value of any Capital Appreciation Debt shall mean the amount set forth for such date in the resolution authorizing such Capital Appreciation Debt, which amount shall be required to be determined in the manner described above, and as of any date other than a Valuation Date, the sum of (a) the Accreted Value on the preceding Valuation Date and (b) the product of (1) a fraction, the numerator of which is the number of days having elapsed from the preceding Valuation Date and the denominator of which is the number of days from such preceding Valuation Date to the next succeeding Valuation Date and (2) the difference between the Accreted Values for such Valuation Dates.

"Aggregate Debt Service" for any period shall mean, as of any date of calculation, the sum of the amounts of Debt Service for such period with respect to all indebtedness with respect to which such calculation is required to be made for such period.

"Balloon Date" shall mean any maturity date for Balloon Indebtedness in a Balloon Year.

"Balloon Indebtedness" shall mean any bonds, notes or other indebtedness of the Board or the City, on behalf of the Board, other than Short-Term Indebtedness, twenty-five percent or more of the initial principal amount of which matures (or must be redeemed at the option of the holder) during any twelve month period, if such twenty-five percent or more is not to be amortized to below twenty-five percent by mandatory redemption prior to the beginning of such twelve month period.

"Balloon Year" shall mean any 12-month period in which more than 25% of the original principal amount of related Balloon Indebtedness matures or is subject to mandatory redemption by the Authority.

"Capital Appreciation Debt" shall mean any bonds, notes or other indebtedness of the Board or of the City on behalf of the Board as to which interest is payable only at the maturity or prior redemption of such bonds.

"Commitment," when used with respect to Balloon Indebtedness, shall mean a binding written commitment from a financial institution, surety, or insurance company to refinance such Balloon Indebtedness on or prior to any Balloon Date thereof.

"Consulting Engineer" shall mean (i) an engineering firm or individual engineer employed by the Board with substantial experience in advising utilities similar to the System operated by the Board as to the construction and maintenance of the System and in the projection of relative costs of expansion in the System or (ii) an engineer or engineers who are employees of the Board whose reports or projections are certified by a financial advisor with substantial experience in advising utilities similar to the System.

"Current Operating Expenses" shall include but not be limited to, expenses for ordinary repairs, removals and replacements of the System, salaries and wages, employees' health, hospitalization, pension and retirement expenses, fees for services, materials and supplies, rents, administrative and general expenses (including legal, engineering, accounting and financial advisory fees and expenses and costs of other consulting or technical services not funded with proceeds of indebtedness), insurance expenses, taxes and other governmental charges, the imposition or amount of which is not subject to control of the Board or the City, any payments made by the Board during any fiscal year to purchase water for delivery during or after the end of that fiscal year, and other payments made under any water supply contract, and any principal or interest payments made by the Board during any fiscal year on bonds, notes or other obligations, including loan agreements, issued or entered into for the purpose of financing the purchase of water, and to the extent so provided by the resolution authorizing such bonds, notes or obligations and to the extent not inconsistent with generally accepted accounting principles. Current Operating Expenses do not include depreciation or obsolescence charges or reserves therefor, amortization of intangibles or other bookkeeping entries of a similar nature, interest charges and charges for the payment of principal or amortization of bonded or other indebtedness of the Board or the City, on behalf of the Board, payable from revenues of the System, costs or charges made therefor, capital additions, replacements, betterments, extensions or improvements to or retirement from the System which under generally accepted accounting principles are properly chargeable to the capital account or the reserve for depreciation, and do not include losses from the sale, abandonment, reclassification, revaluation or other disposition of any properties of the System, nor such property items, including taxes and fuels, which are capitalized pursuant to the then existing accounting practices of the Board or expenses of a system that is merged into the System, as permitted hereunder, if revenues of the merged system are not included in Revenues at the

election of the Board. If the Board operates its utilities as a Combined System, as defined herein, Current Operating Expenses shall be deemed to refer to the Current Operating Expenses of the Combined System.

"Debt Service" for any period shall mean, as of any date of calculation and with respect to the indebtedness with respect to which such calculation is being made, an amount equal to (i) the interest accruing during such period on such indebtedness plus (ii) the portion of each Principal Installment which would accrue during such period if such Principal Installment were deemed to accrue periodically in equal amounts from the next preceding Principal Installment due date for such indebtedness (or, if there shall be no such preceding Principal Installment due date, from a date of issuance of the indebtedness). For purposes of this definition:

(a) The principal and interest portions of the Accreted Value of Capital Appreciation Debt becoming due at maturity or by virtue of a Sinking Fund Installment shall be included in the calculations of accrued and unpaid and accruing interest or Principal Installments in such manner and during such period of time as is specified in the resolution authorizing such Capital Appreciation Debt.

(b) The annual principal and interest requirement on Short-Term Indebtedness shall be calculated as that amount necessary to amortize the Short-Term Indebtedness from the date it was issued over twenty (20) years in twenty (20) approximately equal annual payments of principal and interest using an assumed interest rate (which shall be the interest rate as of the date of issuance or the date of calculation, whichever is less, certified by a Financial Advisor to be the interest rate at which the City on behalf of the Board could reasonably expect to borrow the same amount by issuing indebtedness with the same priority of lien as such Balloon Indebtedness and with a 20-year term).

(c) With respect to any Variable Rate Indebtedness, including Hedged Indebtedness if the interest thereon calculated as set forth below is expected to vary, the interest coming due in any specified future period shall be determined as if the interest rate in effect at all times during such future period was, at the option of the Board, either (1) the average of the actual interest rates which were in effect (weighted according to the length of the period during which each such interest rate was in effect) for the most recent 12-month period immediately preceding the date of calculation for which such information is available (or shorter period if such information is not available for a 12-month period), or (2) the current average annual fixed rate of interest on securities of similar quality having a similar maturity date as certified by a Financial Advisor.

(d) With respect to any Hedged Indebtedness, the interest on such Hedged Indebtedness during any Hedge Period and for so long as the provider of the related Hedge Agreement has not defaulted on its payment obligations thereunder shall be calculated by adding (x) the amount of interest payable by the City or the Board on such Hedged Indebtedness pursuant to its terms and (y) the amount of Hedge Payments payable by the City or the Board under the related Hedge Agreement and subtracting (z) the amount of Hedge Receipts payable by the provider of the related Hedge Agreement at the rate specified in the related Hedge Agreement; provided, however, that to the extent that the provider of any Hedge Agreement is in default thereunder, the amount of interest payable by the City or the Board on the related Hedged Indebtedness shall be the interest calculated as if such Hedge Agreement had not been executed. In determining the amount of Hedge Payments or Hedge Receipts that are not fixed throughout the Hedge Period (i.e., which are variable), payable or receivable for any future period, such Hedge Payments or Receipts for any period of calculation (the "Determination Period") shall be computed by assuming that the variables comprising the calculation (e.g., indices) applicable to the Determination Period are equal to the average of the actual variables which were in effect (weighted according to the length of the period during which each such variable was in effect) for the most recent 12-month period immediately preceding the date of calculation for which such information is available (or shorter period if such information is not available for a 12-month period).

(e) With respect to Balloon Indebtedness (1) which is subject to a Commitment or (2) which does not have a Balloon Year commencing within 12 months from the date of calculation, such Balloon Indebtedness shall be assumed to be amortized in substantially equal annual amounts to be paid for principal and interest over an assumed amortization period of 20 years from the date of issuance at an assumed interest rate (which shall be the interest rate as of the date of issuance or the date of calculation, whichever is less, certified by a Financial Advisor to be the interest rate at which the City on behalf of the Board could reasonably expect to borrow the same amount by issuing indebtedness with the same priority of lien as such Balloon Indebtedness and with a 20-year term); provided, however, that if the maturity of such Balloon Indebtedness (taking into account the term of any Commitment) is in excess of 20 years from the date of issuance, then such Balloon Indebtedness shall be assumed to be amortized in substantially equal annual amounts to be paid for principal and interest over an assumed amortization period of years equal to the number of years from the date of issuance of such Balloon Indebtedness to maturity (including the Commitment) and at the interest rate provided above. For the purpose of calculating the Debt Service Requirement on Balloon Indebtedness (a) which are not subject to a Commitment and (b) which have a Balloon Year commencing within 12 months from the date of calculation, the principal payable on such Balloon Indebtedness during the Balloon Year shall be calculated as if paid on the Balloon Date.

(f) The principal of and interest on Parity Indebtedness and Hedge Payments shall be excluded from the determination of Debt Service to the extent that the same were or are expected to be paid with amounts on deposit on the date of calculation (or proceeds of indebtedness to be deposited on the date of issuance of any proposed Parity Indebtedness) in a fund established for such purpose.

"Financial Advisor" shall mean an investment banking or financial advisory firm or commercial bank who or which is retained by the Board for the purpose of passing on questions relating to the availability and terms of specified types of indebtedness and is actively engaged in and, in the good faith opinion of the Board, has a favorable reputation for skill and experience in underwriting or providing financial advisory services in respect of similar types of securities.

"Fiscal Year" shall mean the twelve month period beginning July 1 of each year and ending June 30 of the following year.

"Hedge Agreement" shall mean, without limitation, (i) any contract known as or referred to or which performs the function of an interest rate swap agreement, currency swap agreement, forward payment conversion agreement, or futures contract; (ii) any contract providing for payments based on levels of, or changes or differences in, interest rates, currency exchange rates, or stock or other indices; (iii) any contract to exchange cash flows or payments or series of payments; (iv) any type of contract called, or designed to perform the function of, interest rate floors, collars, or caps, options, puts, or calls, to hedge or minimize any type of financial risk, including, without limitation, payment, currency, rate, or other financial risk; and (v) any other type of contract or arrangement that the Board determines is to be used, or is intended to be used, to manage or reduce the cost of any indebtedness or other obligations, to convert any element of any indebtedness or other obligations from one form to another, to maximize or increase investment return, to minimize investment return risk, or to protect against any type of financial risk or uncertainty. A Hedge Agreement shall not include any commodity hedge agreement or similar arrangement. For purposes of Resolution No. 2075, as amended, a Hedge Agreement shall be deemed not to have any principal amount for purposes of obtaining consents or approvals of holders of Parity Indebtedness or for otherwise determining the amount of Outstanding Parity Indebtedness.

"Hedged Indebtedness" shall mean any indebtedness or other obligation for which the Board or the City, on behalf of the Board, shall have entered into a Hedge Agreement.

"Hedge Payments" shall mean amounts payable by the Board or the City, on behalf of the Board, pursuant to any Hedge Agreement, other than termination payments, fees, expenses, and indemnity payments.

"Hedge Period" shall mean the period during which a Hedged Agreement is in effect.

"Hedge Receipts" shall mean amounts payable by any provider of a Hedge Agreement pursuant to such Hedge Agreement, other than termination payments, fees, expenses, and indemnity payments.

"Maximum Annual Aggregate Debt Service" shall mean the maximum Aggregate Debt Service in the Fiscal Year during which such calculation is made or any future Fiscal Year.

"Net Revenues" shall mean Revenues, excluding any profits or losses on the sale or other disposition, not in the ordinary course of business, of investments or fixed or capital assets, less Current Operating Expenses.

"Outstanding Parity Indebtedness" shall mean any Parity Indebtedness that is outstanding under the resolution or other document under which such Parity Indebtedness is issued.

"Parity Indebtedness" shall mean bonds, notes, loan agreements, and other debt obligations, including Balloon Indebtedness, Short-Term Indebtedness, Variable Rate Indebtedness and Hedge Agreements (but only to the extent of Hedge Payments), issued by or entered into by the Board or by the City on behalf of the Board on a parity of lien under the Resolution in accordance with the restrictive provisions of the Resolution described herein, including any bonds, notes, loan agreements or other obligations secured by a pledge of and/or lien on a Merged System and the revenues derived from the operation of such Merged System, as defined herein, (provided such pledge and lien are subject only to normal and customary expenses of operating, maintaining, repairing and insuring any such System), so long as the Merged System is not being operated separately from the System as is permitted herein.

"Principal Installment" shall mean, as of the date of calculation and with respect to the indebtedness with respect to which the calculation is being made, (i) the principal amount of the indebtedness due on a certain future date for which no Sinking Fund Installments have been established, (ii) Sinking Fund Installment due on a certain future date for such indebtedness and (iii) if such future dates coincide, the sum of such principal amount and any such Sinking Fund Installment.

"Qualified Hedge Provider" shall mean an entity whose senior unsecured long term obligations, financial program rating, counterparty rating, or claims paying ability, or whose payment obligations under the related Hedge Agreement are absolutely and unconditionally guaranteed or insured or collateralized by an entity whose senior unsecured long term obligations, financial program rating, counterparty rating, or claims paying ability, are rated either (i) at least as high as "A" or better by Standard & Poor's Rating Group (or any successor thereto) ("S&P") or "A2" or better by Moody's Investors Services, Inc. (or any successor thereto) ("Moody's") (the "Initial Rating Requirement") and such entity maintains a rating on its debt or claims paying ability of not less than "A-" from S&P or "A3" from Moody's (the "Minimum Rating Requirement"); provided that this requirement shall be deemed to have been met, even if the rating of such entity is reduced below the Minimum Rating Requirement, if such entity is replaced with an entity meeting the Initial Rating Requirement within twenty business days from when the Board receives notice that the Minimum Rating Requirement has not been met. An entity's status as a Qualified Hedge Provider is made as of the time the applicable calculation is made.

"Revenues" shall mean all revenues, rentals, earnings and income of the System from whatever source, determined in accordance with generally accepted accounting principles, including all revenues derived from the operation of the System; proceeds from the sale of property; proceeds of insurance and condemnation awards and compensation for damages, to the extent not applied to the payment of the cost of repairs, replacements and improvements; and all amounts realized from the investment of money in the accounts and funds of the System (excluding any investment earnings from construction or improvement funds created for the deposit of bond, note, or loan agreement proceeds pending use, to the extent such income is applied to the purposes for which the bonds, notes or loan agreement were issued, and funds created to refund any outstanding obligations payable from Revenues of the System) and at the election of the Board, shall not include any rates, fees, rentals or other charges or other income received by the Board from the operation of a Merged System.

"Short-Term Indebtedness" shall mean bonds, notes or other obligations, including Variable Rate Indebtedness, maturing five (5) years or less from their date of issuance which are issued in anticipation of the issuance of revenue bonds the proceeds of which will be used to pay the Short-Term Indebtedness.

"Sinking Fund Installment" shall mean, as of any particular date of calculation, the amount required to be paid on a certain future date for the retirement of Outstanding Parity Indebtedness which mature after said future date, but does not include any amount payable by reason of the maturity of an Outstanding Parity Indebtedness or by call for redemption at the election of the Board or the City on behalf of the Board.

"Valuation Date" shall mean with respect to any Capital Appreciation Indebtedness, the date or dates set forth in the resolution authorizing such Capital Appreciation Bonds on which specific Accreted Values are assigned to the Capital Appreciation Bonds.

"Variable Rate Indebtedness" shall mean any bonds, notes or other obligations of the Board or the City, on behalf of the Board, the interest rate on which is subject to periodic adjustment, at intervals, at such times and in such manner as shall be determined by the resolution authorizing such indebtedness, provided that if the interest rate shall have been fixed for the remainder of the term thereof (including a fixed rate pursuant to a Hedge Agreement with a Qualified Hedge Provider), it shall no longer be Variable Rate Indebtedness.

The term "Bonds" in Resolution No. 2075 shall for all purposes have the same meaning as "Parity Indebtedness" described above unless the context clearly requires otherwise, and notwithstanding any provision of Resolution No. 2075 to the contrary, any Parity Indebtedness issued on a parity of lien under Resolution No. 2075, as amended, may be in such form, may be executed in such manner, may be payable upon such terms and upon such dates, may be subject to such registration provisions, may be designated in such manner, may be issued for such purpose and may be issued pursuant to such applicable laws as is provided in the resolution authorizing such Parity Indebtedness.

Additional Indebtedness

The Series II-2019 Bonds issued pursuant to the Resolution shall be on a parity with the Outstanding Parity Indebtedness, and with all Parity Indebtedness hereafter issued within the terms, limitations and restrictions of the Resolution, as amended.

The City has covenanted that it will not incur any other obligations or indebtedness payable from the revenues of the System which will have priority, with respect to the payment of principal or interest out of the Water Fund, over the Series II-2019 Bonds.

The following shall apply to the incurrence of additional Parity Indebtedness:

(a) Provided that all payments required to be made to the Debt Service Fund and into any reserve fund which may be required under resolutions authorizing Parity Indebtedness are current as of the date of issuance of the additional bonds, notes or other obligations, additional bonds, notes or other obligations may be issued or entered into by the City or the Board on a parity and equality of lien with the Outstanding Parity Indebtedness with respect to the lien and claim of such additional bonds, notes or other obligations to the net revenues of the System and the money on deposit in the Debt Service Fund for the following purposes and under the following conditions, but not otherwise:

(i) For the purpose of refunding any Outstanding Parity Indebtedness, subordinate bonds, notes, loan agreements or other obligations, provided that after the issuance of such additional Parity Indebtedness, the Aggregate Debt Service on all Outstanding Parity Indebtedness, including the additional Parity Indebtedness to be issued, in any Fiscal Year shall not increase by more than ten percent (10%) after the issuance of such additional Parity Indebtedness.

(ii) For the purpose of financing the completion or equipping of improvements to the System for which Outstanding Parity Indebtedness have previously been issued but only to the extent necessary to complete such improvements in the manner contemplated at the time of the issuance of the Outstanding Parity Indebtedness that financed such improvements.

(iii) For the purposes of refunding any Outstanding Parity Indebtedness or any Prior Lien Bonds, subordinated bonds, notes or other obligations or extending, improving or replacing the System or for any other lawful purpose under applicable law, if one of the following conditions shall have been met: (A) the Net Revenues for any twelve-month period selected by the Board ending within the twelve months prior to the date of the issuance of the additional Parity Indebtedness must have been equal to at least 120% of the Maximum Annual Aggregate Debt Service on Outstanding Parity Indebtedness plus the Debt Service on the additional Parity Indebtedness proposed to be issued or (B) the estimated Net Revenues of the System for each of the three Fiscal Years next succeeding the issuance of the additional Parity Indebtedness, must be equal at least to 120% of Maximum Annual Aggregate Debt Service on the Notes, any other Outstanding Parity Indebtedness and all outstanding Prior Lien Bonds plus the Debt Service on the additional Parity Indebtedness proposed to be issued; provided, however, that if the additional Parity Indebtedness is to be issued for the acquisition or construction of any extension, improvement or replacement to the System, then the estimate of Net Revenues may be for the three Fiscal Years ensuing after the time that such improvement, extension or replacement is expected to be placed in service.

(iv) For the purpose of entering into a Hedge Agreement with a Qualified Hedge Provider with respect to Outstanding Parity Indebtedness but only to the extent of Hedge Payments.

(b) In calculating Net Revenues, Debt Service and Maximum Annual Aggregate Debt Service for all purposes under the Resolution, the following adjustments and assumptions shall be made:

(i) In calculating Net Revenues on a historical basis, the amount of such Net Revenues may be adjusted to take into account any rate increase adopted by the Board that is effective prior to the date of such calculation.

(ii) In calculating projected Net Revenues for any period in the future, the amount of such Net Revenues may be adjusted to take into account any rate increase adopted by the Board that is to be effective within one year of the date of such calculation, and if such calculation is being made in connection with the issuance of Parity Indebtedness, the Net Revenues may be calculated based upon the assumption that any improvements financed with proceeds of the Parity Indebtedness will be completed within a time period established in a report of a Consulting Engineer.

(c) Any calculation or projection of Net Revenues described above, whether for a historical period or for a future period, shall be set forth in a certificate of the President and Chief Executive Officer and Chief Financial Officer of the Board. If the calculation is made as to a future period, a Consulting Engineer shall state in a report that the assumptions underlying any projections of the Board as to Net Revenues are reasonable. Any calculation of the Maximum Annual Aggregate Debt Service shall also be set forth in a certificate of the President and Chief Executive Officer and Chief Financial Officer of the Board, which certificate shall be accompanied by a certificate of a financial advisory firm to the effect that the calculation of Maximum Annual Aggregate Debt Service is correct and is in compliance with the terms of the Resolution, but such certificate of the financial advisory firm shall only be required if Variable Rate Indebtedness, Balloon Indebtedness or Short-Term Indebtedness must be taken into account in the calculation of Maximum Annual Aggregate Debt Service.

(d) Any obligation of the Board to pay amounts under a Hedge Agreement other than Hedge Payments, including a termination payment upon the termination of a Hedge Agreement, shall be a subordinate obligation to the obligations with respect to Parity Indebtedness.

Collection of Revenues and Disposition of Revenues

As long as any Parity Indebtedness shall be outstanding and unpaid either as to principal or as to interest, or until the discharge and satisfaction of the Parity Indebtedness as provided in the resolution authorizing said Parity Indebtedness, the entire income and revenues of the System shall be deposited as collected in the Revenue Fund established by the Resolution (the "Revenue Fund"), to be administered and controlled by the Board. The income and revenues deposited therein shall be used only as follows:

(a) The money in the Revenue Fund shall be disbursed first from month to month for the payment of Current Operating Expenses.

(b) The money remaining in the Revenue Fund, after payment of Current Operating Expenses, shall next be used to make deposits into a separate and special fund, to be known as the Debt Service Fund (the "Debt Service Fund"), to be kept separate and apart from all other funds of the Board and used to pay principal of and interest on Parity Indebtedness and Hedge Payments (net of Hedge Receipts) with respect thereto as the same become due, either by maturity or mandatory redemption. Such deposits shall be made monthly, or as otherwise set forth herein or in the resolution authorizing such Parity Indebtedness or Hedged Payments, until all Parity Indebtedness is paid in full or discharged and satisfied. Unless otherwise authorized in the resolution authorizing any Parity Indebtedness, for the period commencing with the month next following the delivery of the Parity Indebtedness, each monthly deposit shall be an amount that, together with all other monthly deposits of approximately equal amounts during such period and amounts otherwise in said Fund, will be equal to principal due on the Parity Indebtedness on the next principal payment date, divided by the number of months from and including the month of the first such deposit to and including the months preceding the next principal payment date; provided that, if the next principal payment date is more than 13 months following the month next following the delivery of the Parity Indebtedness, such monthly deposits to the Debt Service Fund shall commence in the month that is 13 months prior to the month of the next principal payment date.

Furthermore, during such period, there shall be deposited to the Debt Service Fund monthly an amount equal to one-sixth (1/6) of the interest coming due on the next interest payment date for Parity Indebtedness (unless otherwise specified in the resolution authorizing such Parity Indebtedness).

In each month thereafter, each monthly deposit shall consist of an interest component and a principal component except as provided in the Resolution. If interest is payable semi-annually, then the interest component shall be an amount equal to not less than one-sixth (1/6th) of the interest coming due on any Parity Indebtedness on the next succeeding interest payment date, unless otherwise specified in the resolution authorizing such Parity Indebtedness. Unless otherwise specified in the resolution authorizing Parity Indebtedness, the principal component shall be an amount which shall be established annually on each July 1 for all payments to be made during the ensuing twelve-month period commencing in July of each calendar year and ending in June of the following calendar year and shall be not less than one-twelfth (1/12) of the principal amounts, as the case may be, coming due, whether by maturity or mandatory redemption, on the Parity Indebtedness then outstanding during such twelve-month period. No further deposit shall be required when the Debt Service Fund balance is equal to or greater than the amount needed to pay interest coming due on the next interest payment date and the total of the principal amounts payable, either by maturity or mandatory redemption, during the applicable twelve-month period. Money in the Debt Service Fund shall be used solely and is expressly and exclusively pledged for the purpose of paying principal of and interest on Parity Indebtedness. Notwithstanding the foregoing, deposits for the payment of principal and interest on Variable Rate Indebtedness or Hedge Payments shall be made as set forth in the resolution authorizing such Variable Rate Indebtedness or Hedge Payments.

(c) The next available money in the Revenue Fund shall be paid to any issuer of an insurance policy, surety bond, letter of credit or similar instrument (a "Reserve Fund Credit Facility") (pro rata, if more than one) to the extent needed to reimburse the issuer for any amounts advanced under the Reserve Fund Credit Facility, including any amounts payable under any guaranty agreement relating to such amounts, together with reasonable related expenses incurred by the issuer of such Reserve Fund Credit Facility and any interest relating to such amounts.

(d) The next available money in the Revenue Fund shall be deposited to any reserve fund created pursuant to any resolution authorizing Parity Indebtedness in the manner provided in such resolution.

(e) The next available money in the Revenue Fund shall be used to pay liquidity fees, remarketing agent fees and similar fees that are payable in connection with the issuance of Parity Indebtedness.

(f) The next available money in the Revenue Fund shall be used for the payment of all other payments to be made under the Parity Indebtedness not provided for in the preceding subsections including payments in connection with Hedge Agreements that are not Hedge Payments, including termination payments.

(g) The next available money in the Revenue Fund shall be used to pay principal of and interest on (including reasonable reserves therefor) any bonds, notes or obligations payable from the Revenues of the System, but junior and subordinate to the Parity Indebtedness and then for the purpose of the payment of liquidity fees, credit enhancement fees, remarketing agent fees and similar fees that are payable in connection with bonds, notes or other obligations payable from the Revenues of the System, but junior and subordinate to the Parity Indebtedness.

(h) The next available money in the Revenue Fund shall be used for the purpose of making payments in lieu of taxes and, to the extent not so used, may be used for any lawful purpose, including such reserve funds and other funds as the Board deems necessary and appropriate.

(i) Money on deposit in the Funds described above may be invested by the Board in such investments as shall be permitted by applicable law, as determined by an authorized representative of the Board, all such investments to mature not later than the date on which the money so invested shall be required for the purpose for which the respective Fund was created. All income derived from such investments shall be regarded as revenues of the System and shall be deposited in the Revenue Fund. Such investments shall at any time necessary be liquidated and the proceeds thereof applied to the purpose for which the respective Fund was created. The Board is authorized to enter into contracts with third parties for the investment of funds in any of the Funds described herein.

(j) The Revenue Fund and the Debt Service Fund shall be held and maintained by the Board and, when not invested, kept on deposit with a bank or financial institution regulated by and the deposits of which are insured by the Federal Deposit Insurance Corporation or similar federal agency. All moneys in such Funds so deposited shall at all times be secured to the extent and in the manner required by applicable State law.

Rate Covenant

The City shall maintain the System in good condition and will operate the System in an efficient and economical manner, and the City will fix rates and collect charges for water and for the services, facilities and commodities furnished by the System so as to provide revenues sufficient to pay, as the same shall become due, the principal of and interest on the Bonds, in addition to paying as the same shall become due the necessary expenses of operating and maintaining the System and all other obligations and indebtedness that are payable out of the revenues of the System, which obligations and indebtedness are a charge against said revenues equally and ratably with the charge of the Bonds.

Without limiting the foregoing, the Board will fix rates and collect charges for water and the services, facilities and commodities furnished by the System so that the Net Revenues of the System will be at least sufficient for each Fiscal Year beginning on and after July 1, 2018, computed as of the date such rates and charges are established, to pay the sum of:

(i) an amount equal to 120% of the Aggregate Debt Service on all Outstanding Parity Indebtedness for such Fiscal Year; and

(ii) certain amounts, if any, required to be paid or deposited during such Fiscal Year relating to any reserve fund deposits, liquidity fees, remarketing agent fees and similar fees, and reimbursements under any Reserve Fund Credit Facility.

Discharge and Satisfaction of Bonds

If the Board, on behalf of the City, shall pay and discharge the indebtedness evidenced by any of the Series II-2019 Bonds (referred to hereinafter, collectively, as the "Bonds") in any one or more of the following ways:

(a) By paying or causing to be paid, by deposit of sufficient funds as and when required with the Registration Agent, the principal of and interest on such Bonds as and when the same become due and payable;

(b) By depositing or causing to be deposited with any financial institution which has trust powers and which is regulated by and the deposits of which are insured by the Federal Deposit Insurance Corporation or similar federal agency ("an Agent"; which Agent may be the Registration Agent), in trust or escrow, on or before the date of maturity or redemption, sufficient money or Defeasance Obligations, the principal of and interest on which, when due and payable, will provide sufficient moneys to pay or redeem such Bonds and to pay premium, if any, and interest thereon when due until the maturity or redemption date (provided, if such Bonds are to be redeemed prior to maturity thereof, proper notice of such redemption shall have been given or adequate provision shall have been made for the giving of such notice); or

(c) By delivering such Bonds to the Registration Agent, for cancellation by it;

and if the Board, on behalf of the City, shall also pay or cause to be paid all other sums payable under the Resolution by the Board or the City with respect to such Bonds or make adequate provision therefor, and by resolution of the Board instruct any such Agent to pay amounts when and as required to the Registration Agent for the payment of principal of and interest and redemption premiums, if any, on such Bonds when due, then and in that case the indebtedness evidenced by such Bonds shall be discharged and satisfied and all covenants, liens, pledges, agreements and obligations entered into, created, or imposed under the Resolution, including the pledge of and lien on the net earnings of the System set forth in the Resolution, shall be fully discharged and satisfied with respect to such Bonds and the owners thereof and shall thereupon cease, terminate and become void.

If the Board, on behalf of the City, shall pay and discharge or cause to be paid and discharged the indebtedness evidenced by any of the Bonds in the manner provided in either clause (a) or clause (b) above, then the registered owners thereof shall thereafter be entitled only to payment out of the money or Defeasance Obligations deposited as aforesaid.

Except as otherwise provided in the Resolution, neither Defeasance Obligations nor moneys deposited with the Agent nor principal or interest payments on any such Defeasance Obligations shall be withdrawn or used for any purpose other than, and shall be held in trust for, the payment of the principal of and premium, if any, and interest on said Bonds; provided that any cash received from such principal or interest payments on such Defeasance Obligations deposited with the Agent, (A) to the extent such cash will not be required at any time for such purpose, shall be paid over to the Board as received by the Agent and (B) to the extent such cash will be required for such purpose at a later date, shall, to the extent practicable, be reinvested in Defeasance Obligations maturing at times and in amounts sufficient to pay when due the principal and premium, if any, and interest to become due on said Bonds on or prior to such redemption date or maturity date thereof, as the case may be, and interest earned from such reinvestments, to the extent not needed for the payment of such principal, premium and interest, shall be paid over to the Board, as received by the Agent. For the purposes described herein, Defeasance Obligations shall mean direct obligations of, or obligations, the principal of and interest on which are guaranteed by, the United States of America, or any agency thereof, obligations of any agency or instrumentality of the United States or any other obligations at the time of the purchase thereof are permitted investments under Tennessee law for the purposes described in this Section, which bonds or other obligations shall not be subject to redemption prior to their maturity other than at the option of the registered owner thereof.

Nothing described above shall be construed to alter or change the redemption provisions relating to the Series II-2019 Bonds. No redemption privilege shall be exercised with respect to the Series II-2019 Bonds or any Parity Bonds except at the option and election of the Board. The right of redemption set forth in the Resolution shall not be exercised by any Registration Agent or Agent unless expressly so directed in writing by an authorized representative of the Board.

Sale of System

Except as expressly authorized by the Resolution, the City shall not sell, mortgage, lease or otherwise dispose of the System or any substantial-part thereof. However, the City shall have, and reserves the right to sell, lease or otherwise dispose of any of the property comprising a part of the System determined to be no longer necessary and useful in the operation thereof, which is found, by the Board, or such other body as may be authorized to manage and operate the System, not to be both useful and necessary for the continued operation of the System substantially as it now exists; and prior to any such sale, lease or other disposition of said property, the Board, or such other body as may be hereafter authorized to manage and operate the System, shall by resolution duly adopted, have made said finding and authorized such sale, lease or other disposition of the property. Also, the City shall have the right to sell, lease, transfer or otherwise dispose of the System as a whole or substantially as a whole, to any municipal corporation, county, political subdivision, governmental corporation or governmental agency (each of which shall be included within the term "Transferee" as herein used), provided the Transferee thus acquiring the System from the City will assume the performance of and be bound by all of the City's obligations to the holders of the Bonds under the covenants and provisions of the Resolution.

Insurance

The City will carry adequate fire and windstorm insurance on buildings and contents of buildings of the System and provide for adequate public liability insurance, and the City will also carry such other insurance as is ordinarily carried by utility companies privately owned or municipally owned and doing a similar business in territory contiguous to the City.

Audits

The City will cause proper books and accounts adapted to the System to be kept and will cause the books and accounts with respect to the System to be audited annually by an independent firm of certified public accountants, and will make generally available to security holders the balance sheet and the profit and loss statement of the System as certified by such accountants.

Appointment of Receiver

The holder or holders of not less than twenty-five percent (25%) of the Bonds then outstanding, including a trustee or trustees for such holders, shall, in addition to all other remedies and rights of holders of any of the Bonds, have the right, by appropriate proceedings in any court of competent jurisdiction, in the event of default in the payment of the principal of or interest on the Bonds which default shall continue for a period of thirty days, to obtain the appointment of a receiver for the System, which receiver may enter upon and take possession of the System, operate and maintain the System, fix rates and collect all revenues arising therefrom in as full a manner and to the same extent as the City itself might do. The receiver shall deposit all moneys collected by him in a separate account or accounts and shall dispose of such revenues in accordance with the terms and conditions of this resolution and as the court shall direct.

Combined Systems

Notwithstanding anything provided in the Resolution, nothing contained in the Resolution shall prevent the Board from combining any or all of the Board's utility systems into a single unified operation (the "Combined System") and commingling the revenues of the systems so combined in the Combined System without keeping separate accounts of the funds of each of such systems, provided payments from the funds of the Combined System are required to be made into the Debt Service Fund created under the

Resolution from time to time in amounts sufficient to comply with provisions thereof and in amounts sufficient to pay the principal of and interest on the Outstanding Parity Indebtedness as such principal and interest becomes due. Bonds, notes and other obligations ("Parity Combined System Obligations") payable from revenues of the Combined System may be issued on a parity with Outstanding Parity Indebtedness provided at the time of the issuance of any such Parity Combined System Obligations, the following conditions have been complied with. The Net Revenues of the Combined System, for a period of twelve consecutive months (hereinafter sometimes called the "Combined Twelve-Month Period") out of the eighteen months immediately preceding the issuance of such Parity Combined System Obligations shall be equal to at least 1.2 times the Maximum Annual Aggregate Debt Service on all Outstanding Parity Indebtedness and the obligations proposed to be issued; or if within twelve months prior to the issuance of the Parity Combined System Obligations a revised schedule of rates for the Combined System or any part thereof shall have been put into effect, then the Net Revenues of the Combined System for the Twelve-Month Period, as certified by a Consulting Engineer or Financial Adviser, that would have resulted from such revised rates had they been in effect for the Twelve-Month Period, may be used in lieu of the actual Net Revenues for such Twelve-Month Period.

Separate or Merged Systems

Nothing contained in the Resolution shall prevent the Board from acquiring a separate water transmission or distribution system or any combination thereof, or any other system, facilities or equipment which municipalities in Tennessee operating water distribution systems are authorized to own, operate or finance, and nothing herein shall prevent the issuance of bonds, notes, warrants, certificates or other obligations or evidences of indebtedness, to acquire any such system or facilities. Any facilities or system acquired by the Board, at the election of the Board, may be operated as a separate and independent system or be merged into the System and operated as a single unified system with the System (the "Merged Systems"). Revenues of the Merged Systems may be commingled without keeping separate accounts of the funds of each of the systems, provided all Revenues of the Merged Systems are applied in accordance with the Resolution, including the payment of principal of and interest on all bonds, notes or other obligations of the acquired system. All Outstanding Parity Indebtedness and any bonds, notes and other obligations of the acquired system outstanding upon the merger of the systems designated by the Board may be payable from revenues of the Merged Systems on a parity and equality of lien with each other, provided the Net Revenues of the Merged Systems, for a period of twelve consecutive months (hereinafter sometimes called the "Twelve-Month Period") out of the eighteen months immediately preceding the merger of the systems shall be equal to at least 1.2 times the Maximum Annual Aggregate Debt Service on all Outstanding Parity Indebtedness, all bonds, notes and obligations of the acquired system then outstanding and any additional indebtedness to be then issued; or if within twelve months prior to any such calculation, the Board shall have put into effect a revised schedule of rates for the Merged Systems or any part thereof, then the Net Revenues of the Merged Systems, as certified by a Consulting Engineer or Financial Adviser, that would have resulted from such revised rates had they been in effect for the Twelve-Month Period, may be used in lieu of the actual Net Revenues for such Twelve-Month Period.

Amendment of Resolution

The Resolution may be amended without the consent of or notice to the holders of the Parity Indebtedness for the purposes of (i) curing any ambiguity or formal defect or omission in the Resolution; (ii) making such amendments as are necessary to prevent interest on any Parity Indebtedness from being included in gross income of the holders thereof for federal income tax purposes; (iii) adding to the covenants and agreements of the City or the Board or surrendering or limiting any right or power of the City or the Board; or (iv) making such amendments as are necessary for any Parity Indebtedness to be held or continue to be held in book-entry form.

In addition to the amendments to the Resolution without the consent of the holders as referred to above, the Resolution may be amended from time to time if such amendment shall have been consented to by the holders of not less than a majority in principal amount of Outstanding Parity Indebtedness (not including in any case any Bonds or Parity Indebtedness which may then be held or owned by or for the account of the City or Board); but the Resolution may not be so amended (without the consent of all affected holders of Outstanding Parity Indebtedness) in such manner as to:

(a) make any change in the maturity or interest rate (other than in accordance with its terms) of the Parity Indebtedness, or modify the terms of payment of principal of or interest on Parity Indebtedness or impose any conditions with respect to such payment; or

(b) to make any Parity Indebtedness redeemable other than in accordance with its terms; or

(c) to create a preference or priority of any Parity Indebtedness over any other Parity Indebtedness; or

(d) reduce the percentage of the principal amount of Parity Indebtedness the consent of the holders of which is required to effect a further amendment.

Whenever the City shall propose to amend the Resolution under the provisions described above, the Board shall cause notice of the proposed amendment to the holders of the Parity Indebtedness by sending a summary of such proposed amendment to such holders and shall state that a copy of the proposed amendatory resolution is on file in the office of the Secretary of the Board. The holders of Parity Indebtedness shall be determined by the registration records of the City or the Board or any registration agent therefor or in such other manner as is commercially reasonable.

Whenever at any time within one year from the date of the mailing of such notice there shall be filed with the Secretary an instrument or instruments executed by the holders of at least a majority aggregate principal amount of the Outstanding Parity Indebtedness, which instrument or instruments shall refer to the proposed amendatory resolution described in such notice and shall specifically consent to and approve the adoption thereof, then the Board and/or the City may adopt such amendatory resolution and such resolution shall become effective and binding upon the holders of all Parity Indebtedness.

Any consent given by the holder of Parity Indebtedness pursuant to the provisions described above, shall be irrevocable for a period for one year from the date of the instrument evidencing such consent and shall be conclusive and binding upon all future holders of the same Parity Indebtedness during such period. Such consent may be revoked at any time after one year from the date of such instrument by the holder who gave such consent or by a successor in title by filing notice of such revocation with the Secretary.

For purposes of determining the aggregate principal amount of Parity Indebtedness outstanding for purposes of amendments, and whether the holders of a sufficient percentage in aggregate principal amount of Bonds and Parity Indebtedness have consented to any amendment, the Board may make such determination at any time while a request for consents to such amendment is outstanding and may include any Parity Indebtedness issued during such period in making such determination. The Accreted Value of any Capital Appreciation Debt as of the time of any such determination shall be used in making any such determination.

The fact and date of the execution of any instrument relative to amendments may be proved by the certificate of any officer in any jurisdiction who by the laws thereof is authorized to take

acknowledgments of deeds within such jurisdiction, that the person signing such instrument acknowledged before him the execution thereof, or may be proved by an affidavit of a witness to such execution sworn to before such officer. In the event that any Parity Indebtedness is held in book-entry form, any consent to an amendment may be executed by any beneficial owner of such Parity Indebtedness, which beneficial ownership may be proved by an affidavit of the beneficial owner.

Notwithstanding anything in the Resolution to the contrary, the Board and/or the City may adopt amendments to the Resolution that do not become effective until the payment or defeasance of any Parity Indebtedness outstanding on the date such amendments are adopted.

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**SUMMARY OF CERTAIN PROVISIONS
OF
WASTEWATER BOND RESOLUTION**

SUMMARY OF CERTAIN PROVISIONS OF THE WASTEWATER SYSTEM BOND RESOLUTIONS

The following statements are brief summaries of certain provisions of the Wastewater Bond Resolutions, copies of which are available for examination at the offices of the Board. Terms defined in the Wastewater Bond Resolutions and not defined elsewhere in this Official Statement shall have the meaning set forth in the Wastewater Bond Resolutions. Section numbers refer to sections of Resolution No. R- 129-90, as amended by Resolution No. R-5-98, Resolution No. R-148-01 and Resolution No. 11-S and as supplemented by Resolution No. R-208-2019 and as otherwise supplemented prior to the date hereof (collectively, the "Resolution").

Security

The Series 2019 Bonds constitute and, when issued, will be Bonds under the Resolution. All Series 2019 Bonds are limited obligations of the City, payable solely and ratably from the net revenues of the Wastewater System of the City and are on parity with each other in all respects.

The Series 2019 Bonds will be issued pursuant to the Resolution, which sets forth in detail the terms and covenants of the City with respect to the Series 2019 Bonds. The following summary is a brief outline of certain provisions contained in the Resolution and is not to be considered as a full statement thereof. This summary is qualified by reference to and is subject to said resolution, copies of which may be examined at the office of the Board.

Certain Definitions

The following are definitions in summary form of certain terms contained in the Resolution and used herein:

"Accreted Value" shall mean, with respect to any Capital Appreciation Debt, an amount equal to the principal amount of such Capital Appreciation Debt (determined on the basis of the principal amount per \$5,000 at maturity thereof) plus the amount assuming semi-annual compounding of earnings which would be produced on the investment of such principal amount, beginning on the dated date of such Capital Appreciation Debt and ending at the date such Accreted Value is calculated, at a yield which, if produced until maturity, will produce \$5,000 at maturity. As of any Valuation Date, the Accreted Value of any Capital Appreciation Debt shall mean the amount set forth for such date in the resolution authorizing such Capital Appreciation Debt, which amount shall be required to be determined in the manner described above, and as of any date other than a Valuation Date, the sum of (a) the Accreted Value on the preceding Valuation Date and (b) the product of (1) a fraction, the numerator of which is the number of days having elapsed from the preceding Valuation Date and the denominator of which is the number of days from such preceding Valuation Date to the next succeeding Valuation Date and (2) the difference between the Accreted Values for such Valuation Dates.

"Aggregate Debt Service" for any period shall mean, as of any date of calculation, the sum of the amounts of Debt Service for such period with respect to all indebtedness with respect to which such calculation is required to be made for such period.

"Balloon Date" shall mean any maturity date for Balloon Indebtedness in a Balloon Year.

"Balloon Indebtedness" shall mean any bonds, notes or other indebtedness of the Board or the City, on behalf of the Board, other than Short-Term Indebtedness, twenty-five percent or more of the

initial principal amount of which matures (or must be redeemed at the option of the holder) during any twelve month period, if such twenty-five percent or more is not to be amortized to below twenty-five percent by mandatory redemption prior to the beginning of such twelve month period.

"Balloon Year" shall mean any 12-month period in which more than 25% of the original principal amount of related Balloon Indebtedness matures or is subject to mandatory redemption by the Authority.

"Bondholder" shall mean the registered owner of any Bond which at the time shall be registered other than to bearer, or such holders' duly authorized attorney in fact, representative or assigns.

"Bondholders' Committee" shall mean a committee elected by the Bondholders to exercise certain rights upon the occurrence of an Event of Default pursuant to the Resolution.

"Bonds" shall mean Wastewater System Revenue Bonds issued from time to time pursuant to and under the authority of the Resolution and shall for all purposes have the same meaning as "Parity Indebtedness" unless the context clearly requires otherwise.

"Capital Appreciation Debt" shall mean any bonds, notes or other indebtedness of the Board or of the City on behalf of the Board as to which interest is payable only at the maturity or prior redemption of such bonds.

"Commitment," when used with respect to Balloon Indebtedness, shall mean a binding written commitment from a financial institution, surety, or insurance company to refinance such Balloon Indebtedness on or prior to any Balloon Date thereof.

"Consulting Engineer" shall mean (i) an engineering firm or individual engineer employed by the Board with substantial experience in advising utilities similar to the System operated by the Board as to the construction and maintenance of the System and in the projection of relative costs of expansion in the System or (ii) an engineer or engineers who are employees of the Board whose reports or projections are certified by a financial advisor with substantial experience in advising utilities similar to the System.

"Debt Service" for any period shall mean, as of any date of calculation and with respect to the indebtedness with respect to which such calculation is being made, an amount equal to (i) the interest accruing during such period on such indebtedness plus (ii) the portion of each Principal Installment which would accrue during such period if such Principal Installment were deemed to accrue periodically in equal amounts from the next preceding Principal Installment due date for such indebtedness (or, if there shall be no such preceding Principal Installment due date, from a date of issuance of the indebtedness). For purposes of this definition:

(A) The principal and interest portions of the Accreted Value of Capital Appreciation Debt becoming due at maturity or by virtue of a Sinking Fund Installment shall be included in the calculations of accrued and unpaid and accruing interest or Principal Installments in such manner and during such period of time as is specified in the resolution authorizing such Capital Appreciation Debt.

(B) The annual principal and interest requirement on Short-Term Indebtedness shall be calculated as that amount necessary to amortize the Short-Term Indebtedness from the date it was issued over twenty (20) years in twenty (20) approximately equal annual payments of principal and interest using an assumed interest rate (which shall be the interest rate as of the date of issuance or the date of calculation, whichever is less, certified by a Financial Advisor to be the interest rate at which the City on behalf of the Board could reasonably expect to borrow the same amount by issuing indebtedness with the same priority of lien as such Balloon Indebtedness and with a 20-year term).

(C) With respect to any Variable Rate Indebtedness, including Hedged Indebtedness if the interest thereon calculated as set forth below is expected to vary, the interest coming due in any specified future period shall be determined as if the interest rate in effect at all times during such future period was, at the option of the Board, either (1) the average of the actual interest rates which were in effect (weighted according to the length of the period during which each such interest rate was in effect) for the most recent 12-month period immediately preceding the date of calculation for which such information is available (or shorter period if such information is not available for a 12-month period), or (2) the current average annual fixed rate of interest on securities of similar quality having a similar maturity date as certified by a Financial Advisor.

(D) With respect to any Hedged Indebtedness, the interest on such Hedged Indebtedness during any Hedge Period and for so long as the provider of the related Hedge Agreement has not defaulted on its payment obligations thereunder shall be calculated by adding (x) the amount of interest payable by the City or the Board on such Hedged Indebtedness pursuant to its terms and (y) the amount of Hedge Payments payable by the City or the Board under the related Hedge Agreement and subtracting (z) the amount of Hedge Receipts payable by the provider of the related Hedge Agreement at the rate specified in the related Hedge Agreement; provided, however, that to the extent that the provider of any Hedge Agreement is in default thereunder, the amount of interest payable by the City or the Board on the related Hedged Indebtedness shall be the interest calculated as if such Hedge Agreement had not been executed. In determining the amount of Hedge Payments or Hedge Receipts that are not fixed throughout the Hedge Period (i.e., which are variable), payable or receivable for any future period, such Hedge Payments or Receipts for any period of calculation (the "Determination Period") shall be computed by assuming that the variables comprising the calculation (e.g., indices) applicable to the Determination Period are equal to the average of the actual variables which were in effect (weighted according to the length of the period during which each such variable was in effect) for the most recent 12-month period immediately preceding the date of calculation for which such information is available (or shorter period if such information is not available for a 12-month period).

(E) With respect to Balloon Indebtedness (1) which is subject to a Commitment or (2) which does not have a Balloon Year commencing within 12 months from the date of calculation, such Balloon Indebtedness shall be assumed to be amortized in substantially equal annual amounts to be paid for principal and interest over an assumed amortization period of 20 years from the date of issuance at an assumed interest rate (which shall be the interest rate as of the date of issuance or the date of calculation, whichever is less, certified by a Financial Advisor to be the interest rate at which the City on behalf of the Board could reasonably expect to borrow the same amount by issuing indebtedness with the same priority of lien as such Balloon Indebtedness and with a 20-year term); provided, however, that if the maturity of such Balloon Indebtedness (taking into account the term of any Commitment) is in excess of 20 years from the date of issuance, then such Balloon Indebtedness shall be assumed to be amortized in substantially equal annual amounts to be paid for principal and interest over an assumed amortization period of years equal to the number of years from the date of issuance of such Balloon Indebtedness to maturity (including the Commitment) and at the interest rate provided above. For the purpose of calculating the Debt Service Requirement on Balloon Indebtedness (a) which are not subject to a Commitment and (b) which have a Balloon Year commencing within 12 months from the date of calculation, the principal payable on such Balloon Indebtedness during the Balloon Year shall be calculated as if paid on the Balloon Date.

(F) The principal of and interest on Parity Indebtedness and Hedge Payments shall be excluded from the determination of Debt Service to the extent that the same were or are expected to be paid with amounts on deposit on the date of calculation (or proceeds of indebtedness to be deposited on the date of issuance of any proposed Parity Indebtedness) in a fund established for such purpose.

(G) In calculating the Debt Service on any Parity Indebtedness or proposed Parity Indebtedness with respect to which the federal government or any agency thereof is or is expected to be obligated to make tax refunds or other payments to the City or the Board for the purpose of reducing the interest costs associated therewith, the Board may offset any stated interest payment on such Parity Indebtedness or proposed Parity Indebtedness by the amount of the scheduled tax refund or other payment corresponding thereto..

"Debt Service Fund" shall mean the Debt Service Fund created as described herein.

"Financial Advisor" shall mean an investment banking or financial advisory firm or commercial bank who or which is retained by the Board for the purpose of passing on questions relating to the availability and terms of specified types of indebtedness and is actively engaged in and, in the good faith opinion of the Board, has a favorable reputation for skill and experience in underwriting or providing financial advisory services in respect of similar types of securities.

"Fiscal Year" shall mean the twelve month period established by the Board as its fiscal year, and which, as of the date of the adoption of the Resolution, is the twelve month period commencing on July 1 of any calendar year and ending on June 30 of the following calendar year.

"Hedge Agreement" shall mean, without limitation, (i) any contract known as or referred to or which performs the function of an interest rate swap agreement, currency swap agreement, forward payment conversion agreement, or futures contract; (ii) any contract providing for payments based on levels of, or changes or differences in, interest rates, currency exchange rates, or stock or other indices; (iii) any contract to exchange cash flows or payments or series of payments; (iv) any type of contract called, or designed to perform the function of, interest rate floors, collars, or caps, options, puts, or calls, to hedge or minimize any type of financial risk, including, without limitation, payment, currency, rate, or other financial risk; and (v) any other type of contract or arrangement that the Board determines is to be used, or is intended to be used, to manage or reduce the cost of any indebtedness or other obligations, to convert any element of any indebtedness or other obligations from one form to another, to maximize or increase investment return, to minimize investment return risk, or to protect against any type of financial risk or uncertainty. A Hedge Agreement shall not include any commodity hedge agreement or similar arrangement. For purposes of Resolution No. R-129-90, as amended, a Hedge Agreement shall be deemed not to have any principal amount for purposes of obtaining consents or approvals of holders of Parity Indebtedness or for otherwise determining the amount of Outstanding Parity Indebtedness.

"Hedged Indebtedness" shall mean any indebtedness or other obligation for which the Board or the City, on behalf of the Board, shall have entered into a Hedge Agreement.

"Hedge Payments" shall mean amounts payable by the Board or the City, on behalf of the Board, pursuant to any Hedge Agreement, other than termination payments, fees, expenses, and indemnity payments.

"Hedge Period" shall mean the period during which a Hedged Agreement is in effect.

"Hedge Receipts" shall mean amounts payable by any provider of a Hedge Agreement pursuant to such Hedge Agreement, other than termination payments, fees, expenses, and indemnity payments.

"Investment Securities" shall mean any of the following, if and to the extent that the same are legal for the investment of funds of the City and the Board:

(i) direct obligations of, or obligations the principal of and interest on which are unconditionally guaranteed by, the United States of America;

(ii) bonds, debentures, notes, participation certificates or other evidences of indebtedness issued or guaranteed by Bank for Cooperatives; Federal Intermediate Credit Bank; Federal Home Loan Bank System; Export-Import Bank of the United States Federal Land Banks; Federal National Mortgage Association; United States Postal Service; Government National Mortgage Association; Federal Financing Bank; Farmers Home Administration; Federal Home Loan Mortgage Association or any agency or instrumentality of the United States of America or any other corporation wholly-owned by the United States of America;

(iii) Public Housing Bonds issued by public agencies or municipalities and fully secured as to the payment of both principal and interest by a pledge of annual contributions under an annual contributions contract or contracts with the United States of America or any agency thereof; or Project Notes issued by public agencies or municipalities and fully secured as to the payment of both principal and interest by a requisition or payment agreement with the United States of America or any agency thereof;

(iv) direct and general obligations, to the payment of the principal of and interest on which the full faith and credit of the issuer is pledged, of any of the following: any state of the United States, or any political subdivision of any such state; provided that (a) as to such obligations of a political subdivision, all the taxable real property within such political subdivision shall be subject to taxation thereby to pay such obligations and the interest thereon, without limitation as to rate or amount, and (b) at the time of their purchase under the Resolution, such obligations of any such state or political subdivision are rated in either of the two highest rating categories by two nationally recognized bond rating agencies;

(v) bank time deposits evidenced by certificates of deposit and banker's acceptances issued by any bank, trust company or savings and loan association which is a member of the Federal Deposit Insurance Corporation, provided that such time deposits and bankers' acceptances (a) do not exceed at any one time in the aggregate five percent (5 %) of the total of the capital and surplus of such bank or trust company, or (b) are secured by obligations described in items (i) or (ii) of the definition of Investment Securities, which such obligations at all times have a market value (exclusive of accrued interest) at least equal to such time deposits so secured and, which are free and clear of any claims by third parties and are segregated in a custodial or trust account held by a third party as the agent solely of, or in trust solely for the benefit of, the Board;

(vi) repurchase agreements with any bank or trust company or savings and loan association which is a member of the Federal Deposit Insurance Corporation, which such agreements are secured by securities which are obligations described in items (i) or (ii) of this definition of Investment Securities provided that each such repurchase agreement (A) is in commercially reasonable form and is for a commercially reasonable period, and (B) results in transfer to the Board of legal title to, or the grant to the Board of a prior perfected security interest in, identified securities referred to in items (i) or (ii) above which are free and clear of any claims by third parties and are segregated in a custodial or trust account held by a third party (other than the repurchaser) as the agent solely of, or in trust solely for the benefit of, the Board; provided that such securities acquired pursuant to such repurchase agreements shall be valued at the lower of the then current market value of such securities or the repurchase price thereof set forth in the applicable repurchase agreement; and

(vii) deposits in the State of Tennessee Local Government Investment Pool created under Chapter 4, Title 9, Tennessee Code Annotated.

"Maximum Annual Aggregate Debt Service" shall mean the maximum Aggregate Debt Service in the Fiscal Year during which such calculation is made or any future Fiscal Year.

"Net Revenues" shall mean the Revenues after deducting the Operation and Maintenance Expenses.

"Operation and Maintenance Expenses" shall mean the costs and expenses of operating and maintaining the Wastewater System, including, without limiting the generality of the foregoing, (i) all expenses includable in the operation and maintenance expense accounts of the Board relating to the Wastewater System according to generally accepted accounting principles, exclusive of depreciation and amortization of property values or losses, and excluding any payments in-lieu-of taxes to the City or other taxing jurisdictions in the State of Tennessee and (ii) to the extent not included in the preceding clause (i) or paid from bond proceeds or otherwise, the Board's share of the costs and expenses of operating and maintaining any plants and properties jointly owned with others.

"Original Bonds" shall mean the outstanding bonds, as referred to in the definition of Original Resolution.

"Original Resolution" means the resolutions authorizing the issuance of the City's Sewer Revenue - General Obligation Bonds, Series M, dated April 1, 1977, as amended, and the resolutions supplemental thereto.

"Outstanding Parity Indebtedness" shall mean any Parity Indebtedness that is outstanding under the resolution or other document under which such Parity Indebtedness is issued.

"Parity Indebtedness" shall mean bonds, notes, loan agreements, and other debt obligations, including Balloon Indebtedness, Short-Term Indebtedness, Variable Rate Indebtedness and Hedge Agreements (but only to the extent of Hedge Payments), issued by or entered into by the Board or by the City on behalf of the Board on a parity of lien under the Resolution in accordance with the restrictive provisions of the Resolution described herein, including any bonds, notes, loan agreements or other obligations secured by a pledge of and/or lien on a Merged System (as defined herein) and the revenues derived from the operation of such Merged System, as defined herein, (provided such pledge and lien are subject only to normal and customary expenses of operating, maintaining, repairing and insuring any such System), so long as the Merged System is not being operated separately from the System as is permitted herein.

"Principal Installment" shall mean, as of the date of calculation and with respect to the indebtedness with respect to which the calculation is being made, (i) the principal amount of the indebtedness due on a certain future date for which no Sinking Fund Installments have been established, (ii) Sinking Fund Installment due on a certain future date for such indebtedness and (iii) if such future dates coincide, the sum of such principal amount and any such Sinking Fund Installment.

"Qualified Hedge Provider" shall mean an entity whose senior unsecured long term obligations, financial program rating, counterparty rating, or claims paying ability, or whose payment obligations under the related Hedge Agreement are absolutely and unconditionally guaranteed or insured or collateralized by an entity whose senior unsecured long term obligations, financial program rating, counterparty rating, or claims paying ability, are rated either (i) at least as high as "A" or better by Standard & Poor's Rating Group (or any successor thereto) ("S&P") or "A2" or better by Moody's Investors Services, Inc. (or any successor thereto) ("Moody's") (the "Initial Rating Requirement") and such entity maintains a rating on its debt or claims paying ability of not less than "A-" from S&P or "A3" from Moody's (the "Minimum Rating Requirement"); provided that this requirement shall be deemed to

have been met, even if the rating of such entity is reduced below the Minimum Rating Requirement, if such entity is replaced with an entity meeting the Initial Rating Requirement within twenty business days from when the Board receives notice that the Minimum Rating Requirement has not been met. An entity's status as a Qualified Hedge Provider is made as of the time the applicable calculation is made.

"Refunded Municipal Obligations" means obligations of any state, the District of Columbia or possession of the United States or any political subdivision thereof which obligations are rated in the highest rating category by Moody's Investors Service and Standard & Poor's Corporation and provision for the payment of the principal of and interest on which shall have been made by deposit with a trustee or escrow agent of direct obligations of the United States of America, which are held by a bank or trust company organized and existing under the laws of the United States of America or any state, the District of Columbia or possession thereof in the capacity as custodian, the maturing principal of and interest on which direct obligations of the United States of America when due and payable shall be sufficient to pay when due the principal of and interest on such obligations of such state, the District of Columbia, possession, or political subdivision.

"Revenues" shall mean and include all income, fees, charges, receipts, profits and other moneys derived by the Board from its ownership or operation of the Wastewater System, including, without limiting the generality of the foregoing, (i) all income, fees, charges, receipts, profits and other moneys derived from the furnishing or supplying of the services, facilities and commodities through the Wastewater System; and (ii) all income from investments of moneys held under the Resolution other than investment income on any construction fund but not including any earnings on moneys set aside for rebate to the United States under the provisions of Section 148(f) of the Internal Revenue Code of 1986, as amended. "Revenues" shall not include deposits subject to refund until such deposits have become the property of the Board; and income, fees, charges, receipts, profits or other moneys derived by the Board from its ownership or operation of any separate utility system or any gifts, grants, donations or other moneys received by the Board from any State or Federal agency or other person if such gifts, grants, donations or other moneys are the subject of any limitation or reservation (i) imposed by the donor or grantor or (ii) imposed by law or administrative regulation to which the donor or grantor is subject, limiting the application of such funds. "Revenues" shall also not include any payments to the Board with respect to which an adjustment to Debt Service has been made pursuant to the subparagraph (G) of the definition of Debt Service.

"Short-Term Indebtedness" shall mean bonds, notes or other obligations, including Variable Rate Indebtedness, maturing five (5) years or less from their date of issuance which are issued in anticipation of the issuance of revenue bonds the proceeds of which will be used to pay the Short-Term Indebtedness.

"Sinking Fund Installment" shall mean, as of any particular date of calculation, the amount required to be paid on a certain future date for the retirement of Outstanding Parity Indebtedness which mature after said future date, but does not include any amount payable by reason of the maturity of an Outstanding Parity Indebtedness or by call for redemption at the election of the Board or the City on behalf of the Board.

"Supplemental Resolution" shall mean any resolution adopted by the City pursuant to and in compliance with the Resolution providing for the issuance of Bonds, and shall also mean any other resolution adopted by the City pursuant to and in compliance with the provisions of the Resolution amending or supplementing the provisions of the Resolution.

"Valuation Date" shall mean with respect to any Capital Appreciation Indebtedness, the date or dates set forth in the resolution authorizing such Capital Appreciation Bonds on which specific Accreted Values are assigned to the Capital Appreciation Bonds.

"Variable Rate Indebtedness" shall mean any bonds, notes or other obligations of the Board or the City, on behalf of the Board, the interest rate on which is subject to periodic adjustment, at intervals, at such times and in such manner as shall be determined by the resolution authorizing such indebtedness, provided that if the interest rate shall have been fixed for the remainder of the term thereof (including a fixed rate pursuant to a Hedge Agreement with a Qualified Hedge Provider), it shall no longer be Variable Rate Indebtedness.

"Wastewater System" or "Wastewater Control System" shall mean all plants and properties, both real and personal and tangible and intangible, now or hereafter existing, of the City, both within and without the City, used for or pertaining to the collection, treatment and disposal of sewerage and wastewater, including industrial waste. Without limiting the generality of the foregoing, said term shall include: (1) the existing plants and properties comprising the Wastewater System of the City, as of the date of adoption of the Resolution; and (2) all additions, improvements, enlargements, extensions, expansions, and betterments to the Wastewater System of the City hereafter constructed or otherwise acquired, including, without limitation, properties acquired by purchase or annexations or properties acquired through the Board's participation in any regional wastewater system.

Authorization of Bonds

Bonds, notes and other obligations of the City or the Board may be issued that will have a parity of lien on the Net Revenues of the Wastewater System. Such Parity Indebtedness may be issued under the Resolution from time to time pursuant to the terms, conditions and limitations of the Resolution, in such amounts as may be determined by the Board, for any purpose authorized therein. The principal amount of Parity Indebtedness which may be issued thereunder and secured thereby shall not be limited, except as may be provided by law.

General Provisions for Issuance of Parity Indebtedness

Parity Indebtedness shall be issued by means of a Supplemental Resolution adopted by the City or the Board in accordance with applicable law.

Requirements for Issuing Additional Indebtedness

Additional Parity Indebtedness may be incurred provided the following requirements are met:

(a) Provided that all payments required to be made to the Debt Service Fund and into any reserve fund which may be required under resolutions authorizing Parity Indebtedness are current as of the date of issuance of the additional bonds, notes or other obligations, additional bonds, notes or other obligations may be issued or entered into by the City or the Board on a parity and equality of lien with the Outstanding Parity Indebtedness with respect to the lien and claim of such additional bonds, notes or other obligations to the net revenues of the System and the money on deposit in the Debt Service Fund for the following purposes and under the following conditions, but not otherwise:

(i) For the purpose of refunding any Outstanding Parity Indebtedness, subordinate bonds, notes, loan agreements or other obligations, provided that after the issuance of such additional Parity Indebtedness, the Aggregate Debt Service on all Outstanding Parity Indebtedness, including the additional Parity Indebtedness to be issued, in any Fiscal Year shall not increase by more than ten percent (10%) after the issuance of such additional Parity Indebtedness.

(ii) For the purpose of financing the completion or equipping of improvements to the System for which Outstanding Parity Indebtedness have previously been issued but only to the extent necessary to complete such improvements in the manner contemplated at the time of the issuance of the Outstanding Parity Indebtedness that financed such improvements.

(iii) For the purposes of refunding any Outstanding Parity Indebtedness or any Prior Lien Bonds, subordinated bonds, notes or other obligations or extending, improving or replacing the System or for any other lawful purpose under applicable law, if one of the following conditions shall have been met: (A) the Net Revenues for any twelve-month period selected by the Board ending within the twelve months prior to the date of the issuance of the additional Parity Indebtedness must have been equal to at least 120% of the Maximum Annual Aggregate Debt Service on Outstanding Parity Indebtedness plus the Debt Service on the additional Parity Indebtedness proposed to be issued or (B) the estimated Net Revenues of the System for each of the three Fiscal Years next succeeding the issuance of the additional Parity Indebtedness, must be equal at least to 120% of Maximum Annual Aggregate Debt Service on the Notes, any other Outstanding Parity Indebtedness and all outstanding Prior Lien Bonds plus the Debt Service on the additional Parity Indebtedness proposed to be issued; provided, however, that if the additional Parity Indebtedness is to be issued for the acquisition or construction of any extension, improvement or replacement to the System, then the estimate of Net Revenues may be for the three Fiscal Years ensuing after the time that such improvement, extension or replacement is expected to be placed in service.

(iv) For the purpose of entering into a Hedge Agreement with a Qualified Hedge Provider with respect to Outstanding Parity Indebtedness but only to the extent of Hedge Payments.

(b) In calculating Net Revenues, Debt Service and Maximum Annual Aggregate Debt Service for all purposes under the Resolution, the following adjustments and assumptions shall be made:

(i) In calculating the Net Revenues on a historical basis, the amount of such Net Revenues may be adjusted to take into account any rate increase adopted by the Board that is effective prior to the date of such calculation.

(ii) In calculating the Net Revenues for a period in the future, the amount of such Net Revenues may be adjusted to take into account any rate increase adopted by the Board that is to be effective within one year of the date of such calculation, and if such calculation is being made in connection with the issuance of Parity Indebtedness, the Net Revenues may be calculated based upon the assumption that any improvements financed with proceeds of the Parity Indebtedness will be completed within a time period established in a report of a Consulting Engineer.

(c) Any calculation or projection of Net Revenues described above, whether for a historical period or for a future period, shall be set forth in a certificate of the President and Chief Executive Officer and Chief Financial Officer of the Board. If the calculation is made as to a future period, a Consulting Engineer shall state in a report that the assumptions underlying any projections of the Board as to Net Revenues are reasonable. Any calculation of the Maximum Annual Aggregate Debt Service shall also be set forth in a certificate of the President and Chief Executive Officer and Chief Financial Officer of the Board, which certificate shall be accompanied by a certificate of a financial advisory firm to the effect that the calculation of Maximum Annual Aggregate Debt Service is correct and is in compliance with the terms of the Resolution, but such certificate of the financial advisory firm shall only be required if

Variable Rate Indebtedness, Balloon Indebtedness or Short-Term Indebtedness must be taken into account in the calculation of Maximum Annual Aggregate Debt Service.

(d) Any obligation of the Board to pay amounts under a Hedge Agreement other than Hedge Payments, including a termination payment upon the termination of a Hedge Agreement, shall be a subordinate obligation to the obligations with respect to Parity Indebtedness.

Application of Revenues

As long as any Parity Indebtedness shall be outstanding and unpaid either as to principal or as to interest, or until the discharge and satisfaction of the Parity Indebtedness as provided in the resolution authorizing said Parity Indebtedness, the entire income and revenues of the System shall be deposited as collected in the Revenue Fund established by the Resolution (the "Revenue Fund"), to be administered and controlled by the Board. The income and revenues deposited therein shall be used only as follows:

(a) The money in the Revenue Fund shall be disbursed first from month to month for the payment of Operation and Maintenance Expenses.

(b) The money remaining in the Revenue Fund, after payment of Operation and Maintenance Expenses, shall next be used to make deposits into a separate and special fund, to be known as the Debt Service Fund (the "Debt Service Fund"), to be kept separate and apart from all other funds of the Board and used to pay principal of and interest on Parity Indebtedness and Hedge Payments (net of Hedge Receipts) with respect thereto as the same become due, either by maturity or mandatory redemption. Such deposits shall be made monthly, or as otherwise set forth in the Resolution or in the resolution authorizing such Parity Indebtedness or Hedged Payments, until all Parity Indebtedness is paid in full or discharged and satisfied. Unless otherwise authorized in the resolution authorizing any Parity Indebtedness, for the period commencing with the month next following the delivery of the Parity Indebtedness, each monthly deposit shall be an amount that, together with all other monthly deposits of approximately equal amounts during such period and amounts otherwise in said Fund, will be equal to principal due on the Parity Indebtedness on the next principal payment date, divided by the number of months from and including the month of the first such deposit to and including the months preceding the next principal payment date; provided that, if the next principal payment date is more than 13 months following the month next following the delivery of the Parity Indebtedness, such monthly deposits to the Debt Service Fund shall commence in the month that is 13 months prior to the month of the next principal payment date. Furthermore, during such period, there shall be deposited to the Debt Service Fund monthly an amount equal to one-sixth (1/6) of the interest coming due on the next interest payment date for Parity Indebtedness (unless otherwise specified in the resolution authorizing such Parity Indebtedness).

In each month thereafter, each monthly deposit shall consist of an interest component and a principal component except as provided in the Resolution. If interest is payable semi-annually, then the interest component shall be an amount equal to not less than one-sixth (1/6th) of the interest coming due on any Parity Indebtedness on the next succeeding interest payment date, unless otherwise specified in the resolution authorizing such Parity Indebtedness. Unless otherwise specified in the resolution authorizing Parity Indebtedness, the principal component shall be an amount which shall be established annually on each July 1 for all payments to be made during the ensuing twelve-month period commencing in July of each calendar year and ending in June of the following calendar year and shall be not less than one-twelfth (1/12) of the principal amounts, as the case may be, coming due, whether by maturity or mandatory redemption, on the Parity Indebtedness then outstanding during such twelve-month period. No further deposit shall be required when the Debt Service Fund balance is equal to or greater than the amount needed to pay interest coming due on the next interest payment date and the total of the principal amounts payable, either by maturity or mandatory redemption, during the applicable twelve-month

period. Money in the Debt Service Fund shall be used solely and is expressly and exclusively pledged for the purpose of paying principal of and interest on Parity Indebtedness. Notwithstanding the foregoing, deposits for the payment of principal and interest on Variable Rate Indebtedness or Hedge Payments shall be made as set forth in the resolution authorizing such Variable Rate Indebtedness or Hedge Payments.

(c) The next available money in the Revenue Fund shall be paid to any issuer of an insurance policy, surety bond, letter of credit or similar instrument (a "Reserve Fund Credit Facility") (pro rata, if more than one) to the extent needed to reimburse the issuer for any amounts advanced under the Reserve Fund Credit Facility, including any amounts payable under any guaranty agreement relating to such amounts, together with reasonable related expenses incurred by the issuer of such Reserve Fund Credit Facility and any interest relating to such amounts.

(d) The next available money in the Revenue Fund shall be deposited to any reserve fund created pursuant to any resolution authorizing Parity Indebtedness in the manner provided in such resolution.

(e) The next available money in the Revenue Fund shall be used to pay liquidity fees, credit enhancement fees, remarketing agent fees and similar fees that are payable in connection with the issuance of Parity Indebtedness.

(f) The next available money in the Revenue Fund shall be used for the payment of all other payments to be made under the Parity Indebtedness not provided for in the preceding subsections including payments in connection with Hedge Agreements that are not Hedge Payments, including termination payments.

(g) The next available money in the Revenue Fund shall be used to pay principal of and interest on (including reasonable reserves therefor) any bonds, notes or obligations payable from the Revenues of the System, but junior and subordinate to the Parity Indebtedness and then for the purpose of the payment of liquidity fees, credit enhancement fees, remarketing agent fees and similar fees that are payable in connection with bonds, notes or other obligations payable from the Revenues of the System, but junior and subordinate to the Parity Indebtedness.

(h) The next available money in the Revenue Fund shall be used for the purpose of making payments in lieu of taxes and, to the extent not so used, may be used for any lawful purpose, including such reserve funds and other funds as the Board deems necessary and appropriate.

(i) Money on deposit in the Funds described above may be invested by the Board in such investments as shall be permitted by applicable law, as determined by an authorized representative of the Board, all such investments to mature not later than the date on which the money so invested shall be required for the purpose for which the respective Fund was created. All income derived from such investments shall be regarded as revenues of the System and shall be deposited in the Revenue Fund. Such investments shall at any time necessary be liquidated and the proceeds thereof applied to the purpose for which the respective Fund was created. The Board is authorized to enter into contracts with third parties for the investment of funds in any of the Funds described herein.

(j) The Revenue Fund and the Debt Service Fund shall be held and maintained by the Board and, when not invested, kept on deposit with a bank or financial institution regulated by and the deposits of which are insured by the Federal Deposit Insurance Corporation or similar federal agency. All moneys in such Funds so deposited shall at all times be secured to the extent and in the manner required by applicable State law.

(k) Notwithstanding the foregoing, the Board may deposit any amounts described in subparagraph (G) of the definition of Debt Service directly into the Debt Service Fund at the Board's option.

Investment of Funds

Moneys in the Debt Service Fund shall, to the fullest extent practicable and reasonable, be invested and reinvested by the Board solely in, and obligations credited to such Accounts shall be, investments specified in item (i), (ii), (iii), (iv), (v)(b), (vi) and (vii) of the definition of Investment Securities which shall mature or be subject to redemption at the option of the holder thereof on or prior to the respective dates when the moneys in such accounts will be required for the purposes intended.

Moneys in the Revenue Fund not required for immediate disbursement for the purpose for which said Fund is created shall, to the fullest extent practicable and reasonable, be invested and reinvested by the Board, to the extent allowed by law, solely in, and obligations deposited in said Fund shall be, Investment Securities which shall mature or be subject to redemption at the option of the holder thereof, not later than such times as shall be necessary to provide moneys when needed to provide payments from such Fund.

Combined Systems

Notwithstanding anything elsewhere provided in the Resolution, nothing contained in the Resolution shall prevent the Board from combining any or all of the Board's utility systems into a single unified operation (the "Combined System") and commingling the revenues of the systems so combined in the Combined System without keeping separate accounts of the funds of each of such systems, provided payments from the funds of the Combined System are required to be made into the Debt Service Fund created under the Resolution from time to time in amounts sufficient to comply with provisions thereof and in amounts sufficient to pay the principal of and interest on the Outstanding Parity Indebtedness as such principal and interest becomes due. Bonds, notes and other obligations ("Parity Combined System Obligations") payable from revenues of the Combined System may be issued on a parity with Outstanding Parity Indebtedness provided at the time of the issuance of any such Parity Combined System Obligations, the following conditions have been complied with. The Net Revenues of the Combined System, for a period of twelve consecutive months (hereinafter sometimes called the "Combined Twelve-Month Period") out of the eighteen months immediately preceding the issuance of such Parity Combined System Obligations shall be equal to at least 1.2 times the Maximum Annual Aggregate Debt Service on all Outstanding Parity Indebtedness and the obligations proposed to be issued; or if within twelve months prior to the issuance of the Parity Combined System Obligations a revised schedule of rates for the Combined System or any part thereof shall have been put into effect, then the Net Revenues of the Combined System for the Twelve-Month Period, as certified by a Consulting Engineer or Financial Adviser, that would have resulted from such revised rates had they been in effect for the Twelve-Month Period, may be used in lieu of the actual Net Revenues for such Twelve-Month Period.

Separate System

Nothing contained in the Resolution shall prevent the Board from acquiring a separate wastewater transmission or distribution system or any combination thereof, or any other system, facilities or equipment which municipalities in Tennessee operating wastewater distribution systems are authorized to own, operate or finance, and nothing therein shall prevent the issuance of bonds, notes, warrants, certificates or other obligations or evidences of indebtedness, to acquire any such system or facilities. Any facilities or system acquired by the Board, at the election of the Board, may be operated as a separate and

independent system or be merged into the System and operated as a single unified system with the System (the "Merged Systems"). Revenues of the Merged Systems may be commingled without keeping separate accounts of the funds of each of the systems, provided all Revenues of the Merged Systems are applied in accordance with the Resolution, including the payment of principal of and interest on all bonds, notes or other obligations of the acquired system. All Outstanding Parity Indebtedness and any bonds, notes and other obligations of the acquired system outstanding upon the merger of the systems designated by the Board may be payable from revenues of the Merged Systems on a parity and equality of lien with each other, provided the Net Revenues of the Merged Systems, for a period of twelve consecutive months (hereinafter sometimes called the "Twelve-Month Period") out of the eighteen months immediately preceding the merger of the systems shall be equal to at least 1.2 times the Maximum Annual Aggregate Debt Service on all Outstanding Parity Indebtedness, all bonds, notes and obligations of the acquired system then outstanding and any additional indebtedness to be then issued; or if within twelve months prior to any such calculation, the Board shall have put into effect a revised schedule of rates for the Merged Systems or any part thereof, then the Net Revenues of the Merged Systems, as certified by a Consulting Engineer or Financial Adviser, that would have resulted from such revised rates had they been in effect for the Twelve-Month Period, may be used in lieu of the actual Net Revenues for such Twelve-Month Period.

Rate Covenant

The Board covenants and agrees that it shall fix, establish, maintain and collect rates and charges for the services or facilities furnished or supplied by the Wastewater System or which shall be any part thereof, which rates, tolls, rents and charges shall be sufficient in each Fiscal Year to produce Revenues in such Fiscal Year which together with other moneys which lawfully may be applied to the purpose, will be equal to at least the sum of (A) Debt Service on all Bonds and Original Bonds in such Fiscal Year, (B) the necessary expenses of operating, maintaining, renewing and replacing the Wastewater System and (C) the additional amounts, if any, required to pay all other charges or liens whatsoever payable from the Revenues in such Fiscal Year; provided, however, that such rates, tolls, rents, and other charges shall be sufficient to produce in any Fiscal Year Net Revenues at least equal to one and twenty-hundredths (1.20) times Debt Service on all Bonds and Original Bonds in such Fiscal Year.

Additional Covenants

To Maintain the Properties of the Wastewater System in Good Repair. The City shall (i) maintain, preserve, and keep, or cause to be maintained, preserved and kept, the properties of the Wastewater system and all additions and betterments thereto and extensions thereof, and every part and parcel thereof in good repair, working order and condition, (ii) from time to time make, or cause to be made, all necessary and proper repairs, renewals, replacements, additions, extensions and betterments thereto, so that at all times the business carried on in connection therewith shall be properly and advantageously conducted, and (iii) comply, or cause to be complied with the terms and conditions of any permit or license for the Wastewater System or any part thereof issued by any federal or state governmental agency or body and with any federal or state law or regulation applicable to the construction, operation, maintenance and repair of the Wastewater System or requiring a license, permit or approval therefor.

Sale, Lease or Other Disposition of Properties of the Wastewater System. The City shall not sell, mortgage, lease or otherwise dispose of the properties of the Wastewater System except as provided below.

(1) The City may sell, lease, or otherwise dispose of the properties comprising the Wastewater System upon compliance with the provisions of the Original Resolution so long as Original

Bonds are outstanding and if simultaneously with such sale or other disposition thereof provision is made for the payment of all Bonds then outstanding and such Bonds are no longer deemed outstanding within the meaning of the Resolution.

(2) The City may sell, lease or otherwise dispose of any part of the properties comprising the Wastewater system if an Authorized Officer of the Board shall certify in writing that such terms and conditions of the proposed sale, lease or other disposition of any such properties are fair and reasonable, and that the estimated Revenues to be derived from the remaining properties of the Wastewater System, after taking into consideration the use by the Board of the proceeds of such proposed sale, lease or other disposition of such properties, will be sufficient to enable the City to comply with all covenants and conditions of the Resolution Proceeds of any sale, lease or other disposition of any portion of the properties of the Wastewater System shall be paid: (i) if such proceeds are not in excess of \$100,000, into the Revenue Fund, or (ii) if such proceeds are in excess of \$100,000, (A) into the Bond Retirement Account in the Bond Fund and applied to the purchase or redemption of Bonds or (B) into the Revenue Fund and applied by the Board for the purpose of constructing extensions, betterments or improvements to the Wastewater System, as the Board shall determine.

(3) The City may sell, lease, or otherwise dispose of surplus lands, crops, timber, buildings and any other portion of the works, plant and facilities of the Wastewater System and real and personal property comprising a part thereof, which, in the opinion of the Board, shall have become unserviceable, inadequate, obsolete, worn out, or unfit to be used in the operation of the Wastewater System, or no longer necessary material to, or useful in such operation. Proceeds of any such sale, lease or other disposition of any portion of the properties of the Wastewater System shall be paid into the Revenue Fund.

(4) If permitted by the laws of the State of Tennessee, the City may transfer without consideration the properties comprising the Wastewater System to a public corporation or political subdivision of the State of Tennessee, provided such corporation or subdivision assumes all of the City's obligations and duties under the Resolution.

(5) In the event that any part of the properties comprising the Wastewater System shall be transferred from the City through the operation of law (including condemnation), any moneys received by the City as a result thereof shall be paid (i) if such proceeds are not in excess of \$100,000, into the Revenue Fund, or (ii) if such proceeds are in excess of \$100,000, (A) into the Bond Retirement Account in the Bond Fund and applied to the purchase or redemption of Bonds or (B) into the Revenue Fund and applied by the Board for the purpose of constructing extensions, betterments or improvements to the Wastewater System, as the Board shall determine.

Insurance. (A) Except as provided in paragraph (B) below, the City shall keep, or cause to be kept, the works, plants, and facilities comprising the properties of the Wastewater System and the operations thereof insured to the extent available at reasonable cost with responsible insurers, with policies payable to the Board, against risks of direct physical loss, damage to or destruction of the Wastewater System, or any part thereof, at least to the extent that similar insurance is usually carried by utilities operating like properties against accidents, casualties or negligence, including liability insurance and employer's liability; provided, however, that any time while any contractor engaged in constructing any part of the Wastewater System shall be fully responsible therefor, the City shall not be required to keep such part of the System insured. All policies of insurance shall be for the benefit of the holders of the Bonds and the Board as their respective interests may appear.

In the event of any loss or damage to the properties of the Wastewater System covered by insurance, the Board will (1) with respect to each such loss, promptly repair and reconstruct to the extent

necessary to the proper conduct of the operations of the Wastewater System the lost or damaged portion thereof and shall apply the proceeds of any insurance policy or policies covering such loss or damage for that purpose to the extent required therefor, unless, in case of loss or damage involving \$100,000 or more the Board shall determine that such repair and reconstruction not be undertaken, and (2) if the Board shall not use the entire proceeds of such insurance to repair or reconstruct such lost or damaged property, the proceeds of such insurance policy or policies or any portion thereof not used for such repair or reconstruction, as the case may be, shall be paid into the Revenue Fund.

(B) If the Board elects to self-insure or fails to carry insurance against any of the risks normally insured against by operators of facilities similar to the Wastewater System, it must secure the concurrence of the Consulting Engineer or independent consultant having an expertise in the insurance of utilities. In making its decision whether to concur in such self insurance, the Consulting Engineer or independent consultant shall (i) make an estimate of the added financial risks, if any, assumed by the City as a result of the self-insurance, (ii) consider the availability of commercial insurance, the terms upon which such insurance is available and the costs of such available insurance, and the effect of such terms and costs upon the City's costs and charges for its services, (iii) determine whether the added financial risk, if any, being assumed by the City is prudent in light of the savings to be realized from such self-insurance or in light of the general availability of insurance.

Consulting Engineer. In the event that the City has not complied with its rate covenant, the Board shall retain and appoint, as Consulting Engineer, an independent consulting engineer or engineering firm or corporation having special skill knowledge and experience in analyzing the operations of wastewater systems, preparing rate analyses, forecasting the loads and revenues of wastewater systems, preparing feasibility reports respecting the financing of wastewater systems and advising on the operation of wastewater facilities. Such Consulting Engineer shall no later than 90 days following its retention make an examination of and report on the properties and operations of the Wastewater System. Each such report shall be in sufficient detail to show whether the City has satisfactorily performed and complied with the covenants, agreements and conditions set forth in the Resolution with respect to the management of the business of the Wastewater System, the sufficiency of the amount being charged and collected for services under the requirements of the Resolution, the proper maintenance of the Wastewater System, and the making of repairs, renewals, replacements, modifications, additions and betterments necessary or desirable to improve operating reliability or reduce costs and recommendations thereof. A copy of each such report shall be filed with the Board and sent to any Bondholder filing with the Board a written request for a copy thereof. On the filing of such report, the Board shall undertake a review of the management of the business of the Wastewater System and shall cause the prompt taking of such action as shall be necessary to fully perform and comply with the covenants, agreements and conditions as to which the report specified such failure of performance or compliance.

Books of Account; Annual Audit. The Board shall maintain and keep proper books of account relating to the Wastewater System and in accordance with generally accepted accounting principles. Within one hundred twenty (120) days after the end of each Fiscal Year, the Board shall cause such books of account to be audited by an independent certified public accountant. A copy of each audit report and financial statements prepared in conformity with generally accepted accounting principles shall be filed promptly with the Board and sent to any Bondholder filing with the Board a written request for a copy thereof.

Not to Furnish Free Service; Enforcement of Accounts Due. So long as any Bonds issued pursuant to the Resolution are outstanding and unpaid, the Board will not furnish or supply any service or facility furnished by it or in connection with the operation of the Wastewater System, free of charge to any person, firm or corporation, public or private, and the Board will promptly enforce the payment of

any and all accounts owing to the Board by reason of the ownership and operation of the Wastewater System.

Not to Issue Additional Bonds Under the Original Resolution. The City shall not issue any additional Bonds under the Original Resolution except bonds issued to refund Original Bond.

Amendment of Original Resolution. The City will not hereafter consent to or agree to any supplement, change, amendment or modification of the Original Resolution which would materially prejudice or adversely affect the rights or interests of the holders of the Bonds except as otherwise expressly provided in the Resolution.

Tax Covenant

The City has covenanted that throughout the term of the Bonds and through the date that the final rebate, if any, must be made to the United States in accordance with Section 148 of the Internal Revenue code of 1986, as amended (the "Code") it will comply with the provisions of Sections 103 and 141 through 150 of the Code, and the regulations adopted or promulgated under said Section that must be satisfied in order that interest on the Bonds shall be, and continue to be, excluded from gross income for federal income tax purposes under said Section 103.

Amendment of Resolution

The Resolution may be amended without the consent of or notice to the holders of the Parity Indebtedness for the purposes of (i) curing any ambiguity or formal defect or omission in the Resolution; (ii) making such amendments as are necessary to prevent interest on any Parity Indebtedness from being included in gross income of the holders thereof for federal income tax purposes; (iii) adding to the covenants and agreements of the City or the Board or surrendering or limiting any right or power of the City or the Board; or (iv) making such amendments as are necessary for any Parity Indebtedness to be held or continue to be held in book-entry form.

In addition to the amendments to the Resolution without the consent of the holders as referred to above, the Resolution may be amended from time to time if such amendment shall have been consented to by the holders of not less than a majority in principal amount of Outstanding Parity Indebtedness (not including in any case any Bonds or Parity Indebtedness which may then be held or owned by or for the account of the City or Board); but the Resolution may not be so amended (without the consent of all affected holders of Outstanding Parity Indebtedness) in such manner as to:

(i) make any change in the maturity or interest rate (other than in accordance with its terms) of the Parity Indebtedness, or modify the terms of payment of principal of or interest on Parity Indebtedness or impose any conditions with respect to such payment; or

(ii) to make any Parity Indebtedness redeemable other than in accordance with its terms; or

(iii) to create a preference or priority of any Parity Indebtedness over, any other Parity Indebtedness; or

(iv) reduce the percentage of the principal amount of Parity Indebtedness the consent of the holders of which is required to effect a further amendment.

Whenever the City shall propose to amend the Resolution under the provisions of the Resolution, the Board shall cause notice of the proposed amendment to the holders of the Parity Indebtedness by sending a summary of such proposed amendment to such holders and shall state that a copy of the proposed amendatory resolution is on file in the office of the Secretary of the Board. The holders of Parity Indebtedness shall be determined by the registration records of the City or the Board or any registration agent therefor or in such other manner as is commercially reasonable.

Whenever at any time within one year from the date of the mailing of such notice there shall be filed with the Secretary an instrument or instruments executed by the holders of at least a majority aggregate principal amount of the Outstanding Parity Indebtedness, which instrument or instruments shall refer to the proposed amendatory resolution described in such notice and shall specifically consent to and approve the adoption thereof, then the Board and/or the City may adopt such amendatory resolution and such resolution shall become effective and binding upon the holders of all Parity Indebtedness.

Any consent given by the holder of Parity Indebtedness shall be irrevocable for a period for one year from the date of the instrument evidencing such consent and shall be conclusive and binding upon all future holders of the same Parity Indebtedness during such period. Such consent may be revoked at any time after one year from the date of such instrument by the holder who gave such consent or by a successor in title by filing notice of such revocation with the Secretary.

For purposes of determining the aggregate principal amount of Parity Indebtedness outstanding for purposes of amendments, whether the holders of a sufficient percentage in aggregate principal amount of Bonds and Parity Indebtedness have consented to any amendment, the Board may make such determination at any time while a request for consents to such amendment is outstanding and may include any Parity Indebtedness issued during such period in making such determination. The Accreted Value of any Capital Appreciation Debt as of the time of any such determination shall be used in making any such determination.

The fact and date of the execution of any instrument relative to amendments may be proved by the certificate of any officer in any jurisdiction who by the laws thereof is authorized to take acknowledgments of deeds within such jurisdiction, that the person signing such instrument acknowledged before him the execution thereof, or may be proved by an affidavit of a witness to such execution sworn to before such officer. In the event that any Parity Indebtedness is held in book-entry form, any consent to an amendment may be executed by any beneficial owner of such Parity Indebtedness, which beneficial ownership may be proved by an affidavit of the beneficial owner.

Notwithstanding anything in the Resolution to the contrary, the Board and/or the City may adopt amendments to the Resolution that do not become effective until the payment or defeasance of any Parity Indebtedness outstanding on the date such amendments are adopted.

Defaults and Remedies

A Bondholders' Committee or any Bondholder shall have authority to exercise each right and remedy granted in the Resolution only to the extent that the exercise of such right or remedy will not impair the rights of the holders of the Original Bonds.

The following events shall be Events of Default under the Resolution:

(1) Default shall be made in the due and punctual payment of the principal of and premium, if any, on any of the Bonds or Original Bonds when the same shall become due and payable, either at maturity or by proceedings for redemption or otherwise;

(2) Default shall be made in the due and punctual payment of any installment of interest on any Bond or Original Bond, or any sinking fund installment for Bonds when and as such installment of interest or sinking fund installment shall become due and payable;

(3) The City shall default in the observance and performance of any other of the covenants, conditions and agreements on the part of the City contained in the Resolution and such default or defaults shall have continued for a period of ninety (90) days, after written notice thereof to the City from the holders of not less than twenty-five percent (25%) in principal amount of the bonds then Outstanding; provided, however, that if such failure shall be such that it cannot be, corrected within such ninety day period, it shall not constitute an Event of Default if corrective action is instituted within such period and diligently pursued until the failure is corrected;

(4) An order, judgment or decree shall be entered by any court of competent jurisdiction with the consent or acquiescence of the City, or if such order, judgment or decree, having been entered without the consent or acquiescence of the City, shall not be vacated, set aside, discharged or stayed (or in case custody or control is assumed by said order, such custody or control shall not otherwise be terminated) within ninety days after the entry thereof, and if appealed, shall not thereafter be vacated or discharged: (a) appointing a receiver, trustee or liquidator for the City under the provisions of Chapter IX of an Act to establish a Uniform Law on the Subject of Bankruptcies, II U.S.C. 901-946, (c) granting relief to, the City under any amendment to said Bankruptcy Act or under any other applicable bankruptcy act which shall give relief substantially similar to that afforded by said Chapter IX, or (d) assuming custody or control of the Wastewater System or any part thereof under the provisions of any other law for the relief or aid of debtors.

(5) The City shall (a) admit in writing its inability to pay its debts generally as they become due, (b) file a petition in bankruptcy or seeking a composition of indebtedness, (c) make an assignment for the benefit of its creditors, (d) consent to the appointment of a receiver of the whole or any substantial part of the Wastewater System, (e) file a petition or an answer seeking relief under said Bankruptcy Act as the same may be amended or any other applicable bankruptcy act which shall give relief substantially the same as that afforded by said chapter, or (f) consent to the assumption by any court of competent jurisdiction under the provisions of any other law for the relief or aid of debtors of custody or control of the City or of the whole or any substantial part of the Wastewater System.

If an event of Default shall have happened and shall not have been remedied, the books of record and account of the Board relating to the Wastewater System and all other records relating thereto shall at all times be subject to the inspection and use of any persons holding at least twenty-five percent (25%) of the principal amount of Bonds outstanding and of their respective agents and attorneys or of any committee thereof.

If an Event of Default shall have happened and shall not have been remedied, upon demand of a Bondholders' Committee, the Board shall pay over to the Bondholders' Committee and cause any construction fund trustee to pay over to the Bondholders Committee (i) forthwith, all moneys, securities and funds then held by the Board and pledged under the Resolution, and moneys, securities and funds then held by any construction fund trustee, and (ii) as promptly as practicable after receipt thereof, all Revenues.

During the continuance of an Event of Default as defined in items 1 and 2 above or of any other Event of Default resulting in an Event of Default as defined in items 1 and 2, the Revenues received by a Bondholders' Committee as the result of the taking of possession of the business and properties of the Wastewater System, shall be applied by the Bondholder Committee, subject to the provisions of the

Original Resolution so long as the Original Bonds are outstanding thereunder, firstly to the payment of all necessary and proper Operation and Maintenance Expenses of the Wastewater System and all other proper disbursements or liabilities made or incurred by the Bondholders' Committee, secondly, to the then due and overdue payments to the Bond Fund including the making up of deficiencies therein; and lastly, for any lawful purpose in connection with the Wastewater System.

In the event that at any time the funds held by the Bondholders' Committee shall be insufficient for the payment of the principal of and premium, if any, and interest then due on the Bonds, such funds (other than funds held for the payment or redemption of particular Bonds or coupons which have theretofore become due at maturity or by call for redemption) and all Revenues and other moneys received or collected for the benefit or for the account of Holders of the Bonds, subject to the provisions of the Original Resolution so long as the Original Bonds are outstanding thereunder, shall be applied as follows:

- (1) Unless the principal of all of the Bonds shall have become due and payable,

FIRST, to the payment of all necessary and proper operating expenses of the Wastewater System and all other proper disbursements or liabilities made or incurred by the Bondholders' Committee;

SECOND, to the payment to the persons entitled thereto of all installments of interest (including any interest on overdue principal) then due in the order of the maturity of such installments, earliest maturities first, and, if the amount available shall not be sufficient to pay in full any installment or installments of interest maturing on the same date, then to the payment thereof ratable, according to the amounts due thereon, to the persons entitled thereto, without any discrimination or preference; and

THIRD, to the payment to the persons entitled thereto of the unpaid principal and premium, if any, due and unpaid upon the Bonds at the time of such payment, ratably, according to the amounts of principal and premium, if any, due on such date to the persons entitled thereto, without any discrimination or preference.

- (2) If the principal of all of the Bonds shall have become due and payable,

FIRST, to the payment of all necessary and proper operating expenses of the Wastewater System and all other proper disbursements or liabilities made or incurred by the Bondholders' Committee;

SECOND, to the payment of the principal and interest then due and unpaid upon the Bonds without preference or priority of principal over interest or of interest over principal, or of any installment of interest over any other installment of interest over any other installment of interest, or of any Bond over any other Bond, ratably, according to the amounts due respectively for principal and interest, to the persons entitled thereto without any discrimination or preference.

Upon the occurrence of an Event of Default and while such Event of Default shall be continuing, a Bondholders' Committee representing the holders of not less than a majority of the Bonds at the time outstanding, as a matter of right against the City, without the notice or demand, and without regard to the adequacy of the security for the Bonds, shall, but only if and to the extent then permitted by law and the Original Resolution be entitled to take possession and control of the business and properties of the Wastewater System and upon taking such possession, such Bondholders' Committee shall operate and maintain the Wastewater System, make any necessary repairs, renewals and replacements in respect thereof, prescribe rates and charges for services furnished through the facilities of the Wastewater System and collect the Revenues of the Wastewater System.

Upon the occurrence of an Event of Default and at any time while an Event of Default shall be continuing, the holders of twenty-five percent (25%) or more in principal amount of the Bonds then outstanding or any committee therefore shall, but only if and to the extent then permitted by law and the Original Resolution, be entitled to the appointment of a receiver to take possession of the Wastewater System, to manage, and receive and apply the Revenues.

If an Event of Default shall happen and shall not have been remedied, a Bondholders' Committee is empowered to proceed forthwith to institute such suits, actions and proceedings to protect and enforce its rights and the rights of the holders of the Bonds under the Resolution or, to file such proof of debt, amendment of proof of debt, claim, petition or other document as may be necessary or advisable in order to have the claims of the holders of the Bonds allowed in any equity receivership, insolvency, bankruptcy, liquidation, readjustment, reorganization or other similar proceedings.

The holders of not less than a majority in principal amount of the Bonds at the time outstanding shall be authorized and empowered (1) to direct the time, method, and place of conducting any proceeding for any remedy available to the holders of the Bonds; or (2) on behalf of the holders of the Bonds then outstanding, to consent to the waiver of any Event of Default or its consequences.

Any holder of any of the Bonds shall have the right to institute any suit, action or proceeding at law or in equity for the enforcement of any provision of the Resolution or the execution of any trust under the Resolution or for any remedy under the Resolution.

Defeasance

The obligations of the City under the Resolution and the liens, pledges, charges, trusts, covenants and agreements of the City therein made or provided for, shall be fully discharged and satisfied as to any Bond and such Bond shall no longer be deemed to be outstanding thereunder, (i) when such Bond shall have been canceled, or shall have been surrendered for cancellation or is subject to cancellation, or shall have been purchased from moneys held under the Resolution; or (ii) when payment of the principal of and premium, if any, on such Bond, plus interest on such principal to the due date thereof (whether such due date be by reason of maturity or upon redemption or prepayment, or otherwise) either (a) shall have been made or caused to be made in accordance with the terms thereof, or (b) shall have been provided for by irrevocably depositing with a Trustee, in trust, and irrevocably appropriating and setting aside exclusively for such payment, either (1) moneys sufficient to make such payment or (2) Refunded Municipal Obligations or Investment Securities which shall include only those obligations described in items (i) and (ii) of the definition of Investment Securities above maturing as to principal and interest in such amounts and at such times as will insure the availability of sufficient moneys to make such payment, whichever the City deems to be in its best interest, and all necessary and proper fees, compensation and expenses of such Trustee with respect to which such deposit is made shall have been paid or the payment thereof provided for to the satisfaction of said Trustee and proper notice of such redemption or prepayment shall have been previously published in accordance with the Resolution or provision shall have been irrevocably made for the giving of such notice.

Swap Contracts

If the City enters into an interest rate swap or other interest rate hedging transaction with respect to the payment of interest with respect to the Bonds, the amounts that the City pays or receives under such interest rate swap or other hedging transaction shall be taken into account in determining interest or the interest requirements on such Bonds for all purposes under the Resolution. Such payments shall be made or such funds received at such times and in such amounts as shall be established by a Supplemental Resolution authorizing the interest rate swap or other hedging transaction. In the case of variable rate

issues in which financial covenants are based on the synthetic fixed rate under a swap, utilization of the synthetic fixed rate under a swap for purposes of performing any required calculations under the applicable legal documentation shall be permitted only if such documentation and the applicable swap satisfy the following requirements:

(i) The swap provider must be rated least A-/A3 or better by Standard & Poor's and Moody's (the "Initial Rating Requirement").

(ii) Assuming satisfaction of the Initial Rating Requirement, and thereafter as long as the long-term indebtedness of the swap provider or the claims paying ability of the swap provider does not fall below Baa2 or BBB by either Standard & Poor's or Moody's (the "Minimum Rating Requirement"), all interest rate assumptions for purposes of establishing or demonstrating compliance with financial covenants (e.g., rate covenant, additional bonds test) may be based upon the synthetic fixed interest rate under the swap.

(iii) Failure to maintain a swap provider holding the Minimum Rating Requirement or, if the issuer elects, failure to replace any such swap provider by another swap provider which holds the Initial Rating Requirement within ten business days, will have the following effects: (1) compliance with any required rate covenant for the preceding Fiscal Year will be based on the actual interest paid on the Variable Rate Indebtedness during such Fiscal Year without regard to the swap; and (2) any "forward-looking" financial covenant based upon debt service will be based upon the variable rate.

(iv) For short-dated swaps having terms or weighted average maturities of ten years or less, whereupon related bonds automatically convert to a pre-set fixed rate, the embedded swap provider must meet the Initial Rating Requirement. With respect to financial covenants, the synthetic fixed rate based on the swap may be utilized for purposes of demonstrating or establishing compliance with the applicable covenant. Failure to maintain a swap provider holding the Minimum Rating Requirement during the embedded swap period will require replacement of the Swap provider within ten business days. Failure to replace will require recalculation of the applicable financial covenants as described above.

