NEW ISSUE - BOOK-ENTRY ONLY **RATINGS: See "RATINGS" herein**

In the opinion of Co-Bond Counsel, under current law and subject to the conditions described herein under the caption "TAX MATTERS," interest on the Series 2018C Bonds (a) will not be included in gross income for federal income tax purposes, (b) will not be an item of tax preference for purposes of the federal alternative minimum income tax, and (c) will be exempt from income taxation by the State of Georgia. A holder may be subject to other federal tax consequences as described herein under the caption "TAX MATTERS." See the proposed form of the approving opinion of Co-Bond Counsel in "APPENDIX D - FORM OF OPINION OF CO-BOND COUNSEL" attached hereto.

$288,900,000
CITY OF ATLANTA, GEORGIA
WATER AND WASTEWATER REVENUE REFUNDING BONDS, SERIES 2018C

Dated: Date of Delivery **Due: November 1, as shown on the inside front cover**

This Official Statement relates to the issuance by the City of Atlanta (the "City"') of $288,900,000 in aggregate principal amount of its Water and Wastewater Revenue Refunding Bonds, Series 2018C (the "Series 2018C Bonds") pursuant to that certain Master Bond Ordinance adopted on March 31, 1999, as previously supplemented and amended (the "Master Bond Ordinance"), and particularly as supplemented by that certain Series 2018C Bond Ordinance adopted on September 4, 2018 and approved by operation of law on September 13, 2018, as supplemented by that certain Series 2018C Supplemental Pricing Resolution adopted on October 24, 2018 (together, the "Series 2018C Bond Ordinance," and together with the Master Bond Ordinance are hereinafter collectively referred to as the "Bond Ordinance"). The Series 2018C Bonds are being issued for the purpose of: (a) refunding all of the City's outstanding Water and Wastewater Revenue Refunding Bonds, 2013A; and (b) paying the costs of issuance related to the Series 2018C Bonds. See "PLAN OF REFUNDING" and "ESTIMATED SOURCES AND USES OF FUNDS" herein. All capitalized terms used and not otherwise defined herein shall have the meanings assigned thereto in the Bond Ordinance. See "APPENDIX C - SUMMARY OF CERTAIN PROVISIONS OF THE BOND ORDINANCE" attached hereto.

The Series 2018C Bonds are initially being issued as fully registered bonds, without coupons, in denominations of $5,000 or any integral multiple thereof and initially will be registered in the name of Cede & Co., as nominee of The Depository Trust Company, New York, New York ("DTC"). Purchases of beneficial ownership interests in the Series 2018C Bonds will be made in book-entry form only and purchasers will not receive physical delivery of bond certificates representing the beneficial ownership interests in the Series 2018C Bonds so purchased. Payments of principal of, premium, if any, and interest on, any Series 2018C Bond will be made to Cede & Co., as nominee for DTC as registered owner of the Series 2018C Bonds, by U.S. Bank National Association, as bond registrar and paying agent, to be subsequently disbursed to the Beneficial Owners (as defined herein) of the Series 2018C Bonds. See "BOOK-ENTRY ONLY SYSTEM" herein.

Interest on the Series 2018C Bonds is payable semiannually on May 1 and November 1 of each year, commencing May 1, 2019. The Series 2018C Bonds will bear interest from the dated dates thereof at the rates and will be payable as to principal in the amounts and on the dates set forth on the inside front cover of this Official Statement. See "DESCRIPTION OF THE SERIES 2018C BONDS - General" herein.

The Series 2018C Bonds may be subject to redemption prior to maturity as more fully described under the caption "DESCRIPTION OF THE SERIES 2018C BONDS - Redemption Provisions" herein.

The Series 2018C Bonds are payable from and secured by a pledge of the Pledged Revenues (as defined herein) of the System on a parity basis with the Outstanding Senior Bonds (as defined herein) and with any additional revenue bonds of the City hereafter issued on a parity basis with the Outstanding Senior Bonds and the Series 2018C Bonds. See "SECURITY AND SOURCES OF PAYMENT FOR THE SERIES 2018C BONDS" herein.

The Series 2018C Bonds are special limited obligations of the City payable solely from and secured by a first priority pledge of and lien on the Pledged Revenues. The Series 2018C Bonds are not payable from and are not secured by a charge, lien, or encumbrance upon any funds or assets of the City other than the Pledged Revenues.

THE SERIES 2018C BONDS SHALL NOT BE DEEMED TO CONSTITUTE A DEBT OF THE CITY WITHIN THE MEANING OF ANY CONSTITUTIONAL LIMITATION ON DEBT NOR A PLEDGE OF THE FAITH AND CREDIT OF THE CITY. THE SERIES 2018C BONDS SHALL NOT BE PAYABLE FROM OR A CHARGE UPON ANY FUNDS OTHER THAN THE REVENUES AND AMOUNTS PLEDGED TO THE PAYMENT THEREOF, NOR SHALL THE CITY BE SUBJECT TO ANY PECUNIARY LIABILITY THEREON. NO OWNER OR OWNERS OF THE SERIES 2018C BONDS SHALL EVER HAVE THE RIGHT TO COMPEL ANY EXERCISE OF THE TAXING POWER OF THE CITY TO PAY THE SERIES 2018C BONDS OR THE INTEREST THEREON, NOR TO ENFORCE PAYMENT OF THE SERIES 2018C BONDS AGAINST ANY PROPERTY OF THE CITY; NOR SHALL THE SERIES 2018C BONDS CONSTITUTE A CHARGE, LIEN, OR ENCUMBRANCE, LEGAL OR EQUITABLE, UPON ANY PROPERTY OF THE CITY, EXCEPT FOR THE PLEDGED REVENUES AND ANY OTHER FUNDS PLEDGED TO SECURE THE SERIES 2018C BONDS.

This cover page contains certain limited information for quick reference only. It is not, and is not intended to be, a summary of the matters relating to the Series 2018C Bonds. Potential investors must read the entire Official Statement (including the cover page and all appendices attached hereto) to obtain information essential to the making of an informed investment decision.

The Series 2018C Bonds are being offered when, as, and if issued by the City and accepted by the Underwriters subject to prior sale and to withdrawal or modification of the offer without notice, and subject to the approving opinion of Hunton Andrews Kurth LLP, Atlanta, Georgia and The Kendall Law Firm, Atlanta, Georgia, Co-Bond Counsel. Certain legal matters will be passed upon for the City by the City's Department of Law. Certain legal matters will be passed upon for the City by Greenberg Traurig, LLP and Riddle and Schwartz, LLC, both of Atlanta, Georgia, Co-Disclosure Counsel. Certain legal matters will be passed on for the Underwriters by Hardwick Law Firm, LLC, New York, New York and Haley Law Firm LLC, Atlanta, Georgia, Co-Underwriters' Counsel. Hilltop Securities Inc., Dallas, Texas and Grant & Associates LLC, Marietta, Georgia are serving as Co-Financial Advisors to the City. The Series 2018C Bonds are expected to be delivered through the book-entry system of DTC in New York, New York on or about October 30, 2018.

Loop Capital Markets

Barclays **IFS Securities, Inc.**
Ramirez & Co., Inc. **Wells Fargo Securities**

October 24, 2018

MATURITIES, PRINCIPAL AMOUNTS, INTEREST RATES, YIELDS, PRICES AND INITIAL CUSIP NUMBERS†

$288,900,000
CITY OF ATLANTA, GEORGIA
WATER AND WASTEWATER REVENUE REFUNDING BONDS, SERIES 2018C

Maturity (November 1)	Principal Amount	Interest Rate	Yield	Price	Initial CUSIP No.†
2023	$11,885,000	5.000%	2.360%	112.388	047870 QU7
2024	14,495,000	5.000	2.460	114.094	047870 QV5
2025	13,180,000	5.000	2.570	115.482	047870 QW3
2026	13,830,000	5.000	2.660	116.767	047870 QX1
2027	16,200,000	5.000	2.780	117.574	047870 QY9
2028	15,300,000	5.000	2.870	116.793[C]	047870 QZ6
2029	16,050,000	5.000	2.950	116.104[C]	047870 RA0
2030	18,150,000	5.000	3.020	115.505[C]	047870 RB8
2031	17,730,000	5.000	3.080	114.995[C]	047870 RC6
2032	18,600,000	5.000	3.140	114.488[C]	047870 RD4
2033	20,395,000	5.000	3.190	114.067[C]	047870 RE2
2034	20,510,000	5.000	3.250	113.564[C]	047870 RF9
2035	21,525,000	5.000	3.310	113.064[C]	047870 RG7
2036	22,970,000	5.000	3.360	112.649[C]	047870 RH5
2037	23,580,000	4.000	3.790	101.589[C]	047870 RJ1
2038	24,500,000	4.000	3.820	101.360[C]	047870 RK8

† Initial CUSIP® numbers have been assigned to the Series 2018C Bonds by an organization not affiliated with the City or the Co-Financial Advisors and are included for the convenience of the owners of the Series 2018C Bonds only at the time of original issuance of the Series 2018C Bonds. CUSIP® is a registered trademark of the American Bankers Association. Neither the City, the Co-Financial Advisors nor the Underwriters or their agents or counsel is responsible for the selection, use or accuracy of the CUSIP® numbers nor is any representation made as to their correctness with respect to the Series 2018C Bonds as included herein or at any time in the future. The CUSIP® number for a specific maturity is subject to being changed after the issuance of the Series 2018C Bonds as a result of various subsequent actions including, but not limited to, a refunding in whole or in part or as a result of the procurement of secondary market portfolio insurance or other similar enhancement by investors that is applicable to all or a portion of certain maturities of the Series 2018C Bonds.

C Priced to the call date of November 1, 2027 at par.

CITY OF ATLANTA

ELECTED OFFICIALS

Mayor

Keisha Lance Bottoms

City Council

Felicia A. Moore, *President*

Carla Smith, *District 1*
Amir Farokhi, *District 2*
Ivory Lee Young, Jr., *District 3*
Cleta Winslow, *District 4*
Natalyn Mosby Archibong, *District 5*
Jennifer N. Ide, *District 6*
Howard Shook, *District 7*
J.P. Matzigkeit, *District 8*
Dustin Hillis, *District 9*
Andrea L. Boone, *District 10*
Marci Collier Overstreet, *District 11*
Joyce M. Sheperd, *District 12*
Michael Julian Bond, *Post 1, At-Large*
Matt Westmoreland, *Post 2, At-Large*
Andre Dickens, *Post 3, At-Large*

Finance/Executive Committee of the City Council

Howard Shook, *Chair*
Natalyn Mosby Archibong, *District 5*
Andrea L. Boone, *District 10*
Andre Dickens, *Post 3, At-Large*
Jennifer N. Ide, *District 6*
J.P. Matzigkeit, *District 8*
Matt Westmoreland, *Post 2, At-Large*

City Utilities Commission

J.P. Matzigkeit, *Chair*
Michael Julian Bond
Joyce M. Sheperd
Howard Shook
Carla Smith
Cleta Winslow
Ivory Lee Young, Jr.

APPOINTED OFFICIALS

Roosevelt Council, Jr., Chief Financial Officer
Richard Cox, Chief Operating Officer
Nina R. Hickson, Esquire, City Attorney
Marva Lewis, Chief of Staff
Kishia L. Powell, Commissioner of Watershed Management

CONSULTANTS TO THE CITY

Feasibility Consultant

Galardi Rothstein Group
Chicago, Illinois

Co-Bond Counsel

Hunton Andrews Kurth LLP
Atlanta, Georgia

The Kendall Law Firm
Atlanta, Georgia

Co-Disclosure Counsel

Greenberg Traurig, LLP
Atlanta, Georgia

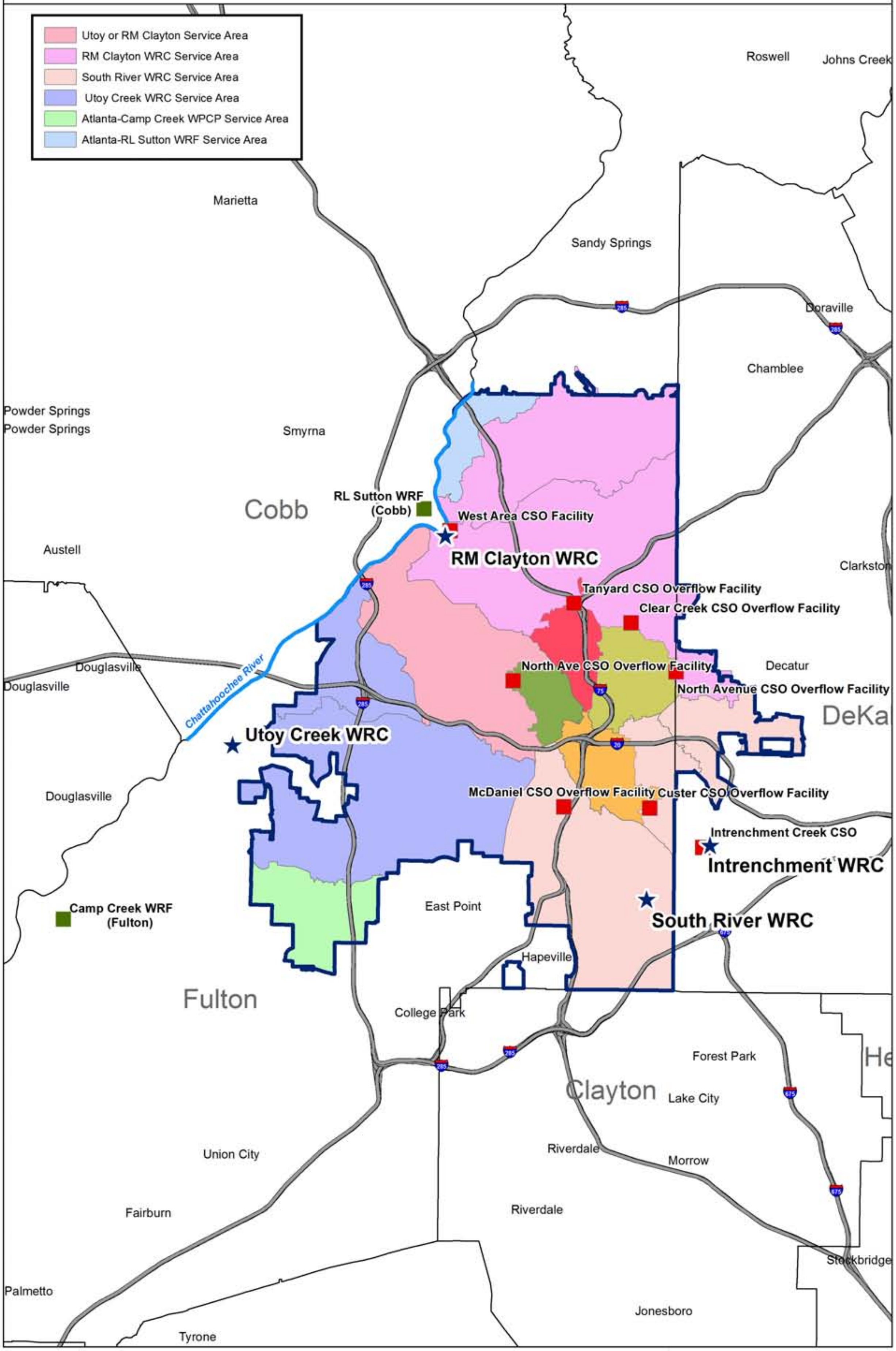
Riddle & Schwartz, LLC
Atlanta, Georgia

Co-Financial Advisors

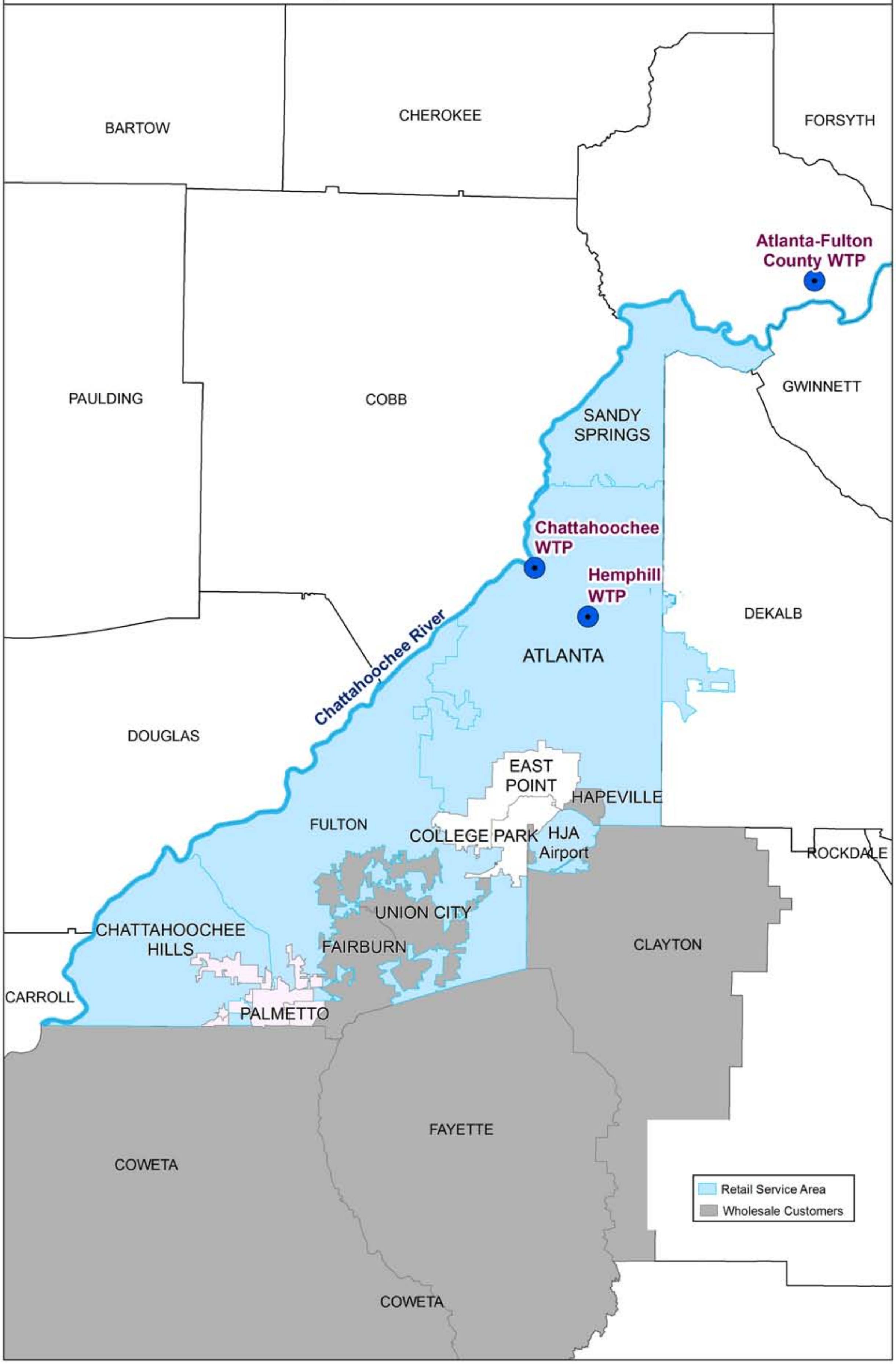
Hilltop Securities Inc.
Dallas, Texas

Grant & Associates LLC
Marietta, Georgia

Wastewater System Service Area



Water System Service Area



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This Official Statement does not constitute a contract between the City or the Underwriters and any one or more owners of the Series 2018C Bonds, nor does it constitute an offer to sell or the solicitation of an offer to buy the Series 2018C Bonds in any jurisdiction to any person to whom it is unlawful to make such an offer in such jurisdiction.

No dealer, salesman or any other person has been authorized by the City or the Underwriters to give any information or to make any representations, other than those contained in this Official Statement, in connection with the offering of the Series 2018C Bonds, and if given or made, such information or representations must not be relied upon as having been authorized by the City or any other person. The information and expressions of opinion in this Official Statement are subject to change without notice, and this Official Statement speaks only as of its date. Neither the delivery of this Official Statement nor any sale made hereunder will, under any circumstances, create the implication that there has been no change in the matters described herein since the date hereof. Except as otherwise indicated, the information contained in this Official Statement, including in the appendices attached hereto, has been obtained from representatives of the City, the Underwriters and from public documents, records and other sources considered to be reliable.

The Underwriters have provided the following sentence for inclusion in this Official Statement: The Underwriters have reviewed the information in this Official Statement in accordance with, and as part of their responsibilities under the federal securities laws as applied to the facts and circumstances of this transaction, but the Underwriters do not guarantee the accuracy or completeness of such information.

IN CONNECTION WITH THE OFFERING OF THE SERIES 2018C BONDS, THE UNDERWRITERS MAY OVERALLOT OR EFFECT TRANSACTIONS THAT STABILIZE OR MAINTAIN THE MARKET PRICE OF THE SERIES 2018C BONDS AT A LEVEL ABOVE THAT WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME.

THE SERIES 2018C BONDS HAVE NOT BEEN REGISTERED WITH THE SECURITIES AND EXCHANGE COMMISSION UNDER THE SECURITIES ACT OF 1933, AS AMENDED, NOR HAS THE BOND ORDINANCE BEEN QUALIFIED UNDER THE TRUST INDENTURE ACT OF 1939, AS AMENDED, IN RELIANCE UPON EXEMPTIONS CONTAINED IN SUCH ACTS. THE REGISTRATION OR QUALIFICATION OF THE SERIES 2018C BONDS IN ACCORDANCE WITH APPLICABLE PROVISIONS OF THE SECURITIES LAWS OF THE STATES, IF ANY, IN WHICH THE SERIES 2018C BONDS HAVE BEEN REGISTERED OR QUALIFIED AND THE EXEMPTION FROM REGISTRATION OR QUALIFICATION IN CERTAIN OTHER STATES CANNOT BE REGARDED AS A RECOMMENDATION THEREOF. NEITHER THESE STATES NOR ANY OF THEIR AGENCIES HAVE PASSED UPON THE MERITS OF THE SERIES 2018C BONDS OR THE ACCURACY OR COMPLETENESS OF THIS OFFICIAL STATEMENT. ANY REPRESENTATION TO THE CONTRARY MAY BE A CRIMINAL OFFENSE.

In making an investment decision, investors must rely on their own examination of the City, the System, and the terms of the offering, including the merits and risks involved. The

Series 2018C Bonds have not been recommended by any federal or state securities commission or regulatory authority. Any representation to the contrary may be a criminal offense.

The order and placement of information in this Official Statement, including the appendices attached hereto, are not an indication of relevance, materiality or relative importance, and this Official Statement, including the appendices attached hereto, must be read in its entirety. The captions and headings in this Official Statement are for convenience only and in no way define, limit or describe the scope or intent, or affect the meaning or construction, of any provision or section in this Official Statement.

THIS OFFICIAL STATEMENT IS BEING PROVIDED TO PROSPECTIVE PURCHASERS IN EITHER BOUND OR PRINTED FORMAT ("ORIGINAL BOUND FORMAT") OR IN ELECTRONIC FORMAT ON THE FOLLOWING WEBSITE: WWW.MUNIOS.COM. THIS OFFICIAL STATEMENT MAY BE RELIED ON ONLY IF IT IS IN ITS ORIGINAL BOUND FORMAT, OR IF IT IS PRINTED IN ITS ENTIRETY DIRECTLY FROM SUCH WEBSITE.

References to website addresses presented herein, including the City's website or any other website containing information about the City, are for informational purposes only and may be in the form of a hyperlink solely for the reader's convenience. Unless specified otherwise, such websites and the information or links contained therein are not incorporated into, and are not part of, this Official Statement for any purpose including for purposes of Rule 15c2-12.

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OFFICIAL STATEMENT

r*elating to*

$288,900,000
CITY OF ATLANTA, GEORGIA
WATER AND WASTEWATER REVENUE REFUNDING BONDS,
SERIES 2018C

INTRODUCTION

General

The purpose of this Official Statement, which includes the cover page and the appendices attached hereto, is to provide certain information in connection with the issuance and sale by the City of Atlanta (the "City") of $288,900,000 in aggregate principal amount of its Water and Wastewater Revenue Refunding Bonds, Series 2018C (the "Series 2018C Bonds").

This introduction is not a summary of this Official Statement and is intended only for quick reference. It is only a brief description of and guide to, and is qualified in its entirety by reference to, the more complete and detailed information contained in the entire Official Statement, including the cover page and the appendices attached hereto, and the documents summarized or described herein. A full review should be made of the entire Official Statement and of the documents summarized or described herein, if necessary. The offering of the Series 2018C Bonds to potential investors is made only by means of the entire Official Statement, including the appendices attached hereto. No person is authorized to detach this Introduction from this Official Statement or to otherwise use it without the entire Official Statement including the appendices attached hereto.

All capitalized terms used and not otherwise defined herein will have the meanings assigned thereto in the hereinafter defined Bond Ordinance. See "APPENDIX C - SUMMARY OF CERTAIN PROVISIONS OF THE BOND ORDINANCE" attached hereto.

The City

The City is a municipal corporation of the State of Georgia (the "State") created by an act of the General Assembly of the State in 1843. See "THE CITY" herein.

Authority for Issuance

The Series 2018C Bonds are being issued by the City pursuant to (a) that certain Master Bond Ordinance adopted on March 31, 1999, as previously supplemented and amended (the "Master Bond Ordinance"), and particularly as supplemented by that certain Series 2018C Bond Ordinance adopted on September 4, 2018 and approved by operation of law on September 13, 2018, as supplemented by that certain Series 2018C Supplemental Pricing Resolution adopted on October 24, 2018 (together, the "Series 2018C Bond Ordinance," and together with the Master Bond Ordinance are hereinafter collectively referred to as the "Bond Ordinance"); (b) the

Constitution of the State of Georgia; (c) the Revenue Bond Law (Article 3 of Chapter 82 of Title 36 of the Official Code of Georgia Annotated, as amended); and (d) the Charter of the City of Atlanta, as amended (the "Charter").

Purpose of the Series 2018C Bonds

The Series 2018C Bonds are being issued for the purpose of: (a) refunding all of the City's outstanding Water and Wastewater Revenue Refunding Bonds, 2013A (the "Series 2013A Bonds"); and (b) paying the costs of issuance related to the Series 2018C Bonds. See "PLAN OF REFUNDING" and "ESTIMATED SOURCES AND USES OF FUNDS" herein.

Security and Sources of Payment for the Series 2018C Bonds

The Series 2018C Bonds are payable from and secured by a pledge of the Pledged Revenues (as defined herein) of the City's water and wastewater system (the "System") on a parity basis with the Outstanding Senior Bonds (as defined herein) and with any additional revenue bonds of the City hereafter issued on a parity basis with the Outstanding Senior Bonds and the Series 2018C Bonds. The Series 2018C Bonds are special limited obligations of the City payable solely from and secured by a first priority pledge of and lien on the Pledged Revenues. The Series 2018C Bonds are not payable from and are not secured by a charge, lien, or encumbrance upon any funds or assets of the City other than the Pledged Revenues. See "SECURITY AND SOURCES OF PAYMENT FOR THE SERIES 2018C BONDS" herein.

THE SERIES 2018C BONDS SHALL NOT BE DEEMED TO CONSTITUTE A DEBT OF THE CITY WITHIN THE MEANING OF ANY CONSTITUTIONAL LIMITATION ON DEBT NOR A PLEDGE OF THE FAITH AND CREDIT OF THE CITY. THE SERIES 2018C BONDS SHALL NOT BE PAYABLE FROM OR A CHARGE UPON ANY FUNDS OTHER THAN THE REVENUES AND AMOUNTS PLEDGED TO THE PAYMENT THEREOF, NOR SHALL THE CITY BE SUBJECT TO ANY PECUNIARY LIABILITY THEREON. NO OWNER OR OWNERS OF THE SERIES 2018C BONDS SHALL EVER HAVE THE RIGHT TO COMPEL ANY EXERCISE OF THE TAXING POWER OF THE CITY TO PAY THE SERIES 2018C BONDS OR THE INTEREST THEREON, NOR TO ENFORCE PAYMENT OF THE SERIES 2018C BONDS AGAINST ANY PROPERTY OF THE CITY; NOR SHALL THE SERIES 2018C BONDS CONSTITUTE A CHARGE, LIEN, OR ENCUMBRANCE, LEGAL OR EQUITABLE, UPON ANY PROPERTY OF THE CITY, EXCEPT FOR THE PLEDGED REVENUES AND ANY OTHER FUNDS PLEDGED TO SECURE THE SERIES 2018C BONDS.

Description of the Series 2018C Bonds

The Series 2018C Bonds will be dated not later than the date on which they are issued and delivered, will be in the form of fully registered bonds, without coupons, in denominations of $5,000 or any integral multiple thereof, and will bear interest from the dated dates thereof, at the rates and will be payable as to principal in the amounts and on the dates set forth on the inside front cover of this Official Statement. The Series 2018C Bonds are being issued in book-entry form only and so long as The Depository Trust Company, a New York Corporation (the "DTC") or its nominee is the registered owner of the Series 2018C Bonds, U.S. Bank National

Association, as bond registrar (in that capacity, the "Bond Registrar") and paying agent (in that capacity, the "Paying Agent"), will make payments of the principal or redemption price of and interest on the Series 2018C Bonds to DTC in accordance with the Series 2018C Bond Ordinance and the Paying Agent will have no obligation to make payments to any Beneficial Owner (as defined herein). See "BOOK-ENTRY ONLY SYSTEM" herein. Interest on the Series 2018C Bonds is payable semiannually on May 1 and November 1 of each year, commencing May 1, 2019. See "DESCRIPTION OF THE SERIES 2018C BONDS - General" herein.

The Series 2018C Bonds may be subject to redemption prior to maturity as more fully described under the caption "DESCRIPTION OF THE SERIES 2018C BONDS - Redemption Provisions" herein.

Continuing Disclosure

In order to assist the Underwriters (as defined herein) in complying with Rule 15c2-12(b)(5) of the Securities and Exchange Commission (the "SEC") promulgated pursuant to the Securities Exchange Act of 1934, as in effect on the date hereof (the "Rule"), simultaneously with the issuance of the Series 2018C Bonds, the City, as an "obligated person" under the Rule, will enter into a Continuing Disclosure Agreement (the "Disclosure Agreement") with Digital Assurance Certification, L.L.C., as initial dissemination agent ("DAC"), under which the City will undertake to provide continuing disclosure with respect to the Series 2018C Bonds and the System for the benefit of the holders of the Series 2018C Bonds. See "CONTINUING DISCLOSURE" herein and "APPENDIX E - FORM OF CONTINUING DISCLOSURE AGREEMENT" attached hereto.

Other Information

This Official Statement speaks only as of its date, and the information contained herein is subject to change. This Official Statement and the appendices attached hereto contain brief descriptions of, among other matters, the City, the System, the Series 2018C Bonds, and the security and sources of payment for the Series 2018C Bonds, the Bond Ordinance, the Disclosure Agreement, and the Feasibility Study (as defined herein). Such descriptions and information do not purport to be comprehensive or definitive. The summaries of various constitutional provisions, statutes, the Bond Ordinance, the Disclosure Agreement, the Feasibility Study and other documents are intended as summaries only and are qualified in their entirety by reference to such documents, and references herein to the Series 2018C Bonds are qualified in their entirety to the form thereof included in the Bond Ordinance. Copies of the Bond Ordinance, the Feasibility Study, the Disclosure Agreement and other relevant documents and information are available, upon written request and payment of a charge for copying, mailing and handling, from the Chief Financial Officer, Department of Finance, 68 Mitchell Street, S.W., Suite 11100, South Tower, Atlanta, Georgia 30303, telephone (404) 330-6430.

PLAN OF REFUNDING

The proceeds of the Series 2018C Bonds, along with other available funds of the City will be used to: (a) refund all of the City's outstanding Series 2013A Bonds; and (b) paying the costs of issuance related to the Series 2018C Bonds. See "ESTIMATED SOURCES AND USES OF FUNDS" herein.

All of the outstanding Series 2013A Bonds will be refunded and redeemed with the proceeds of the Series 2018C Bonds on November 1, 2018 at a price equal to 100% of the principal amount thereof, plus accrued interest to the redemption date of such Series 2013A Bonds.

To effect the refunding of all of the outstanding Series 2013A Bonds, the City will deposit a portion of the proceeds of the Series 2018C Bonds and certain other available funds of the City into the Interest Subaccount and Principal Subaccount for the Series 2013A Bonds under the Payments Account created pursuant to the Bond Ordinance held by U.S. Bank National Association, as paying agent for the Series 2013A Bonds. Such monies will be applied to pay the principal of and accrued interest on all of the outstanding Series 2013A Bonds on November 1, 2018.

ESTIMATED SOURCES AND USES OF FUNDS

The proceeds of the Series 2018C Bonds, together with any additional funds made available by the City, are expected to be applied as follows:

Sources of Funds:	
Par Amount of Series 2018C Bonds	$288,900,000.00
Bond Premium	36,119,519.35
Contribution from Payments Account	1,383,501.58
Transfer from Debt Service Reserve Account	2,388,121.52
Total Sources of Funds:	$328,791,142.45
Uses of Funds:	
Deposit to Payments Account	$326,773,501.58
Costs of Issuance(1)	2,013,118.01
Other Uses of Funds	4,522.86
Total Uses of Funds:	$328,791,142.45

(1) Includes Underwriters' discount, legal and accounting fees, co-financial advisor and other consultant fees, initial fess of the Bond Registrar and Paying Agent, rating agency fees, printing costs, validation court costs, and other miscellaneous fees and costs.

DESCRIPTION OF THE SERIES 2018C BONDS

General

The Series 2018C Bonds will be dated as of their date of delivery and will bear interest from the dated dates thereof at the rates and will be payable as to principal in the amounts and on the dates set forth on the inside front cover of this Official Statement (based on a 360-day year comprised of twelve 30-day months), payable semiannually on each May 1 and November 1, commencing May 1, 2019. Subject to redemption as set forth below, the Series 2018C Bonds will mature on the dates and in the amounts set forth on the inside front cover of this Official Statement.

The principal of and interest on the Series 2018C Bonds will be payable upon the presentation and surrender of the Series 2018C Bonds at the principal corporate trust office of the Paying Agent.

The Series 2018C Bonds are issuable only as fully registered bonds, without coupons, in denominations of $5,000 or any integral multiple thereof. Purchases of beneficial ownership interests in the Series 2018C Bonds will be made in book-entry form, and purchasers will not receive certificates representing interests in the Series 2018C Bonds so purchased. If the book-entry system is discontinued, Series 2018C Bonds will be delivered as described in the Bond Ordinance, and Beneficial Owners will become the registered owners of the Series 2018C Bonds. See "BOOK-ENTRY ONLY SYSTEM" herein.

Redemption Provisions

Optional Redemption. The Series 2018C Bonds maturing on or before November 1, 2027 may not be called for optional redemption prior to maturity. The Series 2018C Bonds maturing on or after November 1, 2028 are subject to optional redemption prior to maturity at the option of the City on or after November 1, 2027, in whole or in part at any time in the manner and subject to the provisions of the Bond Ordinance, at a redemption price equal to the principal amount thereof, together with accrued interest to the redemption date and without premium. If less than all Series 2018C Bonds of like maturity shall be called for redemption, the particular Series 2018C Bonds, or portion of Series 2018C Bonds, to be redeemed shall be selected by lot by the City or in such other manner as the City in its sole discretion may deem proper.

Notice of Redemption

General. Notice of call of any Series 2018C Bonds for redemption will be given by mailing a copy of the redemption notice by first class mail, postage prepaid, to the registered owners of such Series 2018C Bonds or portions thereof to be redeemed, not less than 30 days nor more than 60 days prior to the redemption date, at their last addresses shown on the registration books of the City maintained by the Bond Registrar. While the Series 2018C Bonds are held in a book-entry only system of registration, notice of redemption will be sent to Cede & Co., as described below. If notice of redemption has been given in the manner provided in the Bond Ordinance, and moneys for payment of the redemption price are held by the Paying Agent as provided therein, the Series 2018C Bonds or portions thereof so called for redemption will, on the redemption date designated in such notice, become due and payable at the redemption price provided for redemption of such Series 2018C Bonds, and interest on such Series 2018C Bonds or portions thereof will cease to accrue on such date, such Series 2018C Bonds or portions thereof will cease to be entitled to any lien, benefit or security under the Bond Ordinance, and the holders of such Series 2018C Bonds or portions thereof will have no rights in respect thereof except to receive payment of the redemption price thereof.

Conditional Notice. Notwithstanding the foregoing, any notices of optional redemption of a Series 2018C Bond may state that (a) it is conditioned upon the deposit of moneys with the Paying Agent in an amount necessary to effect the redemption prior to the redemption date or (b) the City retains the right to rescind such notice on or prior to the scheduled redemption date, and such notice and optional redemption shall be of no effect if such moneys are not so deposited or if the notice is rescinded as described above.

Registration Provisions; Transfer and Exchange

The City has established a book-entry system of registration for the Series 2018C Bonds. Except as specifically provided otherwise in the Bond Ordinance, an agent will hold the Series 2018C Bonds on behalf of the Beneficial Owners. By acceptance of a confirmation of purchase, delivery, or transfer, the Beneficial Owners shall be deemed to have agreed to such arrangement. While the Series 2018C Bonds are in the book-entry system of registration, the Bond Ordinance provides special provisions relating to the Series 2018C Bonds that override certain other provisions of the Bond Ordinance. See "BOOK-ENTRY ONLY SYSTEM" herein.

The City shall cause the Bond Register for the registration and for the transfer of the Series 2018C Bonds as provided in the Bond Ordinance to be kept by the Bond Registrar. The Series 2018C Bonds shall be registered as to principal and interest on the Bond Register upon presentation thereof to the Bond Registrar which shall make notation of such registration thereon. The Series 2018C Bonds may be transferred by surrender for transfer at the principal corporate trust office of the Bond Registrar, duly endorsed for transfer or accompanied by an assignment duly executed by the registered owner or the registered owner's attorney duly authorized in writing. The City shall cause to be executed and the Bond Registrar shall authenticate and deliver in the name of the transferee or transferees a new Series 2018C Bond or Series 2018C Bonds of the same series, maturity, interest rate, aggregate principal amount, and tenor, of any authorized denomination or denominations, and bearing numbers not then outstanding.

The Bond Registrar shall not be required to transfer or exchange any Series 2018C Bond after notice calling such Series 2018C Bond for redemption has been given or during the period of 15 days (whether or not a business day for the Bond Registrar, but excluding the date of giving such notice of redemption and including such 15th day) immediately preceding the giving of such notice of redemption.

In any exchange or registration of transfer of any Series 2018C Bond, the owner of the Series 2018C Bond shall not be required to pay any charge or fee; provided, however, if and to whatever extent any tax or governmental charge is at any time imposed on any such exchange or transfer, the City or the Bond Registrar may require payment of a sum sufficient for such tax or charge. All Series 2018C Bonds surrendered for exchange or transfer of registration shall be cancelled and destroyed by the Bond Registrar in accordance with the Bond Ordinance.

BOOK-ENTRY ONLY SYSTEM

The information in this section concerning DTC and DTC's book-entry system has been obtained from DTC and neither the City nor the Underwriters make any representation or warranty or take any responsibility for the accuracy or completeness of such information.

DTC will act as securities depository for the Series 2018C Bonds. The Series 2018C Bonds will be issued as fully-registered securities registered in the name of Cede & Co. (DTC's partnership nominee) or such other name as may be requested by an authorized representative of DTC. One fully-registered Series 2018C Bond certificate will be issued for each maturity of the Series 2018C Bonds as set forth on the inside front cover of this Official Statement, each in the aggregate principal amount of such maturity and will be deposited with DTC.

DTC is a limited-purpose trust company organized under the New York Banking 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 U.S. and non-U.S. equity issues, corporate and municipal debt issues, and money market instruments that DTC's participants ("Direct Participants") deposit with DTC. DTC also facilitates the post-trade settlement among Direct Participants of sales and other securities transactions in deposited securities, through electronic computerized book-entry transfers and pledges between Direct Participants' accounts. This eliminates 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 is the holding company for DTC, National Securities Clearing Corporation and Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others such as both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, and clearing corporations that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly ("Indirect Participants" and, together with the Direct Participants, the "Participants"). The DTC Rules applicable to its Participants are on file with the SEC. More information about DTC can be found at www.dtcc.com.

Purchases of Series 2018C Bonds under the DTC system must be made by or through Direct Participants, which will receive a credit for the Series 2018C Bonds on DTC's records. The ownership interest of each actual purchaser of each Series 2018C Bond ("Beneficial Owner") is in turn to be recorded on the Participants' records. Beneficial Owners will not receive written confirmation from DTC of their purchase. Beneficial Owners are, however, 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 which the Beneficial Owner entered into the transaction. Transfers of ownership interests in the Series 2018C Bonds are to be accomplished by entries made on the books of Participants acting on behalf of Beneficial Owners. Beneficial Owners will not receive certificates representing their ownership interests in the Series 2018C Bonds, except in the event that use of the book-entry system for the Series 2018C Bonds is discontinued.

To facilitate subsequent transfers, all Series 2018C 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 Series 2018C Bonds with DTC and their registration in the name of Cede & Co. or such other DTC nominee do not effect any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners; DTC's records reflect only the identity of the Direct Participants to whose accounts such Series 2018C Bonds are credited, which may or may not be the Beneficial Owners. The Participants will remain responsible for keeping account of their holdings on behalf of their customers.

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 may wish to take certain steps to augment the transmission to them of notices of significant events with respect to the Series 2018C Bonds, such as redemptions, tenders, defaults, and proposed amendments to the Bond Ordinance. For example, Beneficial Owners may wish to ascertain that the nominee holding the Series 2018C Bonds for their benefit has agreed to obtain and transmit notices to Beneficial Owners. In the alternative, Beneficial Owners may wish to provide their names and addresses to the Bond Registrar and request that copies of the notices be provided directly to them.

Redemption notices will be sent to DTC. If less than all of the Series 2018C Bonds within a series or maturity of a series are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in such series or maturity to be redeemed.

Neither DTC nor Cede & Co. (nor any other DTC nominee) will consent or vote with respect to the Series 2018C 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 possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts Series 2018C Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Principal, premium, if any, and interest payments on the Series 2018C 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 City or the Paying Agent on the payment date in accordance with their respective holdings shown on DTC's records. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with 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 Paying Agent, or the City, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of principal, premium, if any, and interest on the Series 2018C Bonds, as applicable, to Cede & Co. (or such other nominee as may be requested by an authorized representative of DTC) is the responsibility of the City and/or the Paying Agent, disbursement of such payments to Direct Participants will be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners will be the responsibility of Participants.

DTC may discontinue providing its services as depository with respect to the Series 2018C Bonds at any time by giving reasonable notice to the City or Paying Agent. Under such circumstances, in the event that a successor depository is not obtained, Series 2018C Bond certificates are required to be printed and delivered.

The City may decide to discontinue use of the system of book-entry-only transfers through DTC (or a successor securities depository). In that event, Series 2018C Bond certificates will be delivered and registered in the name of the Beneficial Owner.

Neither the City nor the Paying Agent will have any responsibility or obligation to any Participant, or any Beneficial Owner with respect to (a) the Series 2018C Bonds; (b) the accuracy of any records maintained by DTC or any Participant; (c) the payment by DTC or any Participant of any amount due to any Beneficial Owner in respect of the principal of and premium, if any, and interest on the Series 2018C Bonds; (d) the delivery or timeliness of delivery by DTC or any Participant of any notice due to any Beneficial Owner which is required or permitted under the terms of the Bond Ordinance to be given to Beneficial Owners; or (e) any consent given or other action taken by DTC, or its nominee, Cede & Co., as owner.

SECURITY AND SOURCES OF PAYMENT FOR THE SERIES 2018C BONDS

Pledged Revenues

Under the terms of the Bond Ordinance, the Series 2018C Bonds are secured by a pledge of and senior lien on (a) revenues derived by the City from the ownership and operation of the System, (b) amounts held in the funds under the Bond Ordinance, except amounts to be used for arbitrage rebate payments to the United States government, and (c) certain investment earnings on the funds held under the Bond Ordinance and amounts payable by providers of Hedge Agreements (such as interest rate swap agreements) relating to bonds issued under the Bond Ordinance (collectively, the "Pledged Revenues"). The Bond Ordinance provides that this pledge (which may be expanded for additional parity bonds) ranks superior to all other pledges which may hereafter be made of any of the Pledged Revenues, except for pledges of the Pledged Revenues hereafter made by the City in Hedge Agreements (relating to bonds issued under the Bond Ordinance) to secure payments thereunder (other than termination, indemnity, and expense payments), which may rank on a parity with this pledge as to the related Hedged Bonds.

Municipal Option Sales Tax (MOST) Revenues

In 2004, the Georgia legislature enacted House Bill 709, codified as Official Code of Georgia Annotated, Section 48-8-200, *et seq.* (the "MOST Legislation"), which allowed the City to impose (subject to voter approval) a special one-percent sales and use tax, the revenues derived from which would be applied for, among other things, water and sewer projects and other related costs. Accordingly, the City Council of the City (the "City Council") authorized a referendum held on July 20, 2004 which provided for the imposition of a special one-percent sales and use tax, commonly referred to as the municipal option sales tax or the MOST (sometimes herein referred to as the "Sales Tax") which was approved on that date by a majority of the voters for the purpose of initially raising not more than $750,000,000 for water and sewer project costs. See "SYSTEM REVENUES - Municipal Option Sales Tax (MOST) Revenues" herein.

In December 2015, the City Council adopted Ordinance No. 14-O-1453 which allows dedication of up to ten percent of the proceeds of the Sales Tax for stormwater management related projects. Accordingly, Sales Tax funds for stormwater projects will be used to address structural and capacity deficiencies of the City's Municipal Separate Storm Sewer System (MS4). These projects will alleviate surface flooding and provide for water quantity control. Green infrastructure projects will also provide water quality improvement benefits.

The Sales Tax was reauthorized by voters in 2008, 2012 and again in 2016 by wide margins. In March 2016, voters approved the extension of the Sales Tax for an additional four years until October 2020. In May 2018, the Governor signed into law House Bill 929 which was enacted by the Georgia legislature in March 2018, amending the MOST Legislation, which allows for up to three additional referenda to enable extension of the Sales Tax beyond 2020. Consistent with the MOST Legislation, voter approvals for the Sales Tax will be required every four years beginning in 2020 with the potential to extend the Sales Tax through October 2032. Sales Tax revenues to be dedicated to the Department for such projects are projected to be $125,000,000 per annum over the forecast period (Fiscal Year 2024). In the event that reauthorization of the Sales Tax does not gain voter approval beyond March 2020 and March 2024, additional service rate increases will be required to preserve debt service coverage at target levels and provide sufficient financing capacity for projects relating to the Consent Decrees, the Consent Orders, the New Proposed Consent Orders (each as defined herein) and other critical System investment. See "SYSTEM REVENUES - Capital Financing Strategy Refinement" herein and "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Introduction - Capital Financial Strategy Refinement and - Financial Performance - Planning Scenario for MOST Expiration" attached hereto.

From its implementation in 2004 through Fiscal Year 2017, the Sales Tax has provided approximately $1.5 billion to support the Department's operation and maintenance of System assets and distribute costs of the compliance program associated with the Consent Decrees and Consent Orders regionally. Pursuant to the Bond Ordinance, Pledged Revenues do not include the proceeds from the Sales Tax, but such proceeds may be taken into account for purposes of determining compliance with the City's rate covenant and additional bonds test under the Bond Ordinance. See "SYSTEM REVENUES - Municipal Option Sales Tax (MOST) Revenues" herein.

Expenses of Operation and Maintenance

Under the Bond Ordinance, the term "Expenses of Operation and Maintenance" is defined generally to include all expenses reasonably incurred in connection with the operation and maintenance of the System. Under the Bond Ordinance, however, the term "Expenses of Operation and Maintenance" is defined to exclude Franchise and Pilot Payments in an amount not to exceed the sum of (a) five percent of the Operating Revenues for the preceding Fiscal Year (as defined herein) and (b) the ad valorem property taxes that would have been due to the City in the current calendar year, if title to the System were vested in an entity subject to ad valorem taxation, assuming that the fair market value of the System equaled the Book Value for purposes of determining the assessed value of the System. Such expenses also exclude expenses described above to the extent that the same were or are reasonably expected to be paid with taxes levied or imposed and in effect on or before the date of calculation. Such taxes include the proceeds to be received by the City from the Sales Tax to fund water and sewer projects and costs described under the section "SYSTEM REVENUES - Municipal Option Sales Tax (MOST) Revenues" herein.

Flow of Funds

The Bond Ordinance creates and requires the City to maintain the following funds:

(a) the Revenue Fund;

(b) the Sinking Fund and therein the following two accounts:

(i) Payments Account, and

(ii) Debt Service Reserve Account;

(c) the Renewal and Extension Fund;

(d) the Rebate Fund; and

(e) the Project Fund.

Under the terms of the Bond Ordinance, moneys in the funds and accounts established thereunder must be invested in permissible investments under Georgia law which have (or are collateralized by obligations which have) a rating by any rating agency then rating any bonds issued under the Bond Ordinance which is equal to or greater than the third highest long-term rating category or the second highest short-term rating category of such rating agency. Such investments may contain such maturities as are deemed suitable by the City and must be valued at fair market value on each interest payment date.

Revenue Fund. The Bond Ordinance requires the City to deposit and continue to deposit all operating revenues of the System in the Revenue Fund from time to time as and when received. Under the terms of the Bond Ordinance, moneys in the Revenue Fund are to be applied by the City from time to time to the following purposes and, prior to the occurrence and continuation of an event of default under the Bond Ordinance, in the order of priority determined by the City in its sole discretion: (a) to pay Expenses of Operation and Maintenance of the System, (b) to deposit into the Sinking Fund the amounts described below, (c) to deposit into the Rebate Fund the amounts required to make provision for arbitrage rebate payments to the United States government, (d) to pay any amounts due to any issuer (a "Credit Issuer") of a credit facility (such as an insurance policy, letter of credit, guaranty, surety bond, standby bond purchase agreement, or line of credit) providing credit or liquidity support for any Senior Bonds (as defined herein) or bonds that are junior and subordinate in lien and right of payment to the Senior Bonds ("Subordinate Bonds") issued under the Bond Ordinance, (e) to pay any amounts due any Reserve Account Credit Facility Provider (as defined herein), (f) to make provision for the payment of debt service on Subordinate Bonds and the payment of amounts due to providers of hedge agreements (such as interest rate swap agreements) relating to Subordinate Bonds, and (g) to pay any amounts required to be paid with respect to any other obligations issued by the City to finance or refinance the System.

In addition, the Bond Ordinance allows the City from time to time to deposit into the Renewal and Extension Fund any moneys and securities held in the Revenue Fund in excess of 30 days' estimated Expenses of Operation and Maintenance of the System.

Payments Account. The Bond Ordinance requires the City to deposit sufficient moneys in periodic installments from the Revenue Fund into the Payments Account for the purpose of paying debt service on the Senior Bonds when due and for the purpose of paying amounts (other than termination, indemnity, and expense payments) due to providers of hedge agreements (such as interest rate swap agreements) relating to Senior Bonds.

Debt Service Reserve Account. The Bond Ordinance requires the City to maintain the Debt Service Reserve Account at an amount determined from time to time by the City as a reasonable reserve for the payment of debt service on the Senior Bonds. The City initially determined this amount to be the maximum annual Debt Service Requirement (as defined herein) with respect to Senior Bonds in the then current or any succeeding Fiscal Year (the "Current Debt Service Reserve Amount"). Notwithstanding the foregoing, the terms of the Bond Ordinance permit the City, in its sole discretion, to change, reduce, or increase the Current Debt Service Reserve Amount, without the consent of the owners of the Series 2018C Bonds or other Senior Bonds, but in no event may the City reduce the Current Debt Service Reserve Amount below (a) the greater of (i) 50% of the average annual Debt Service Requirement with respect to Senior Bonds in the then current or any succeeding Fiscal Year or (ii) the maximum annual Debt Service Requirement with respect to the City's Water and Wastewater Revenue Bonds, Series 1999A Bonds (the "Series 1999A Bonds") and Water and Wastewater Revenue Bonds, Series 1999B in the then current or any succeeding Fiscal Year, and (b) unless each rating agency rating the Senior Bonds indicates in writing to the City that such reduction will not, by itself, result in a reduction or withdrawal of its current rating on the Senior Bonds. The City is in compliance with the Bond Ordinance provisions relating to the Debt Service Reserve Requirement and the Debt Service Reserve Account is fully funded at the Current Debt Service Reserve Amount.

In connection with the issuance of Parity Bonds, the Bond Ordinance permits the City to fund any increase in the required balance of the Debt Service Reserve Account by making deposits thereto over a period not exceeding 60 months from the date of issuance of such Parity Bonds in equal monthly amounts. The Bond Ordinance allows the City to satisfy in whole or in part the required balance of the Debt Service Reserve Account by means of a letter of credit, insurance policy, line of credit, or surety bond issued by a provider (a "Reserve Account Credit Facility Provider") with a credit rating not less than the then current rating on the related series of Senior Bonds.

As of October 19, 2018, the status of the Debt Service Reserve Account prior to the issuance and delivery of the Series 2018C Bonds is set forth below.

Source	Value Credited to the Debt Service Reserve Account[1]
FSA GIC[2]	$ 10,088,256.25
BOA GIC	70,488,659.00
Money Market, Mutual Funds, Agencies and U.S. Treasuries	136,287,472.59
Cash on Deposit in Debt Service Reserve Account	4,427.43
Total	$216,868,815.27

(1) Values are as of October 19, 2018.
(2) Guaranteed investment contract with FSA (now Assured Guaranty Municipal) yielding 4.81%.

Source: City of Atlanta, Department of Finance.

Upon the issuance and delivery of the Series 2018C Bonds, and the release of funds on deposit in the Debt Service Reserve Account in the amount of $2,388,121.52 to repay a portion of the Series 2013A Bonds, it is expected that approximately $214,480,693.75 will be on deposit in the Debt Service Reserve Account, which amount equals or exceeds the Current Debt Service Reserve Amount required to be maintained in the Debt Service Reserve Account. See "ESTIMATED SOURCES AND USES OF FUNDS" herein.

Renewal and Extension Fund. In addition to the deposits to be made to the Renewal and Extension Fund described above, the Bond Ordinance requires the City to deposit in the Renewal and Extension Fund all termination payments received under any hedge agreements relating to Senior Bonds or Subordinate Bonds. Whenever, for any reason the amount in the Interest Subaccount or Principal Subaccount is insufficient to pay all interest or principal falling due on the Senior Bonds within the subsequent seven days, the City shall first make up the deficiency by transfers from the Renewal and Extension Fund. Under the terms of the Bond Ordinance, amounts held in the Renewal and Extension Fund must be used first to prevent default in the payment of debt service on the Senior Bonds when due and then will be applied by the City from time to time, as and when the City shall determine, to the following purposes and, prior to the occurrence and continuation of an event of default under the Bond Ordinance, in the order of priority determined by the City in its sole discretion: (a) for the purposes for which moneys held in the Revenue Fund may be applied as described above, (b) to pay any amounts which may then be due and owing under any hedge agreement relating to Senior Bonds or Subordinate Bonds (including termination payments, fees, expenses, and indemnity payments), (c) to pay any governmental charges and assessments against the System or any part thereof which may then be due and owing, (d) to make acquisitions, betterments, extensions, repairs, or replacements or other capital improvements (including the purchase of equipment) to the System deemed necessary by the City (including payments under contracts with vendors, suppliers, and contractors for the foregoing purposes), (e) to acquire Senior Bonds by redemption or by purchase in the open market at a price not exceeding the callable price, and (f) to make optional annual transfers to the General Fund of the City, on or after December 15 of each year, of an amount not to exceed the sum of (i) 5% of the gross operating revenues of the System for the preceding Fiscal Year of the City and (ii) the ad valorem property taxes that would be due to the City (and not to any other governmental body) in the current calendar year, if title to the System were vested in an entity subject to ad valorem taxation, assuming that the fair market value of the System equaled its book value for purposes of determining the assessed value of the System.

The gross revenues derived by the City from the ownership and operation of the System may be used only in accordance with the provisions of the Bond Ordinance described above and, except as described above, may not be transferred to either the General Fund or any other fund of the City.

Repayment of Amounts Due by General Fund to System Enterprise Fund. As of October 19, 2018, the City's General Fund owed the City's Enterprise Fund relating to the System (the "System Enterprise Fund") $16,198,594 for expenditures made for General Fund purposes with revenues of the System Enterprise Fund. In December 2008, the City's Department of Finance and the Department executed an Inter-Departmental Memorandum of Understanding (the "MOU"), which the City Council ratified by ordinance on June 1, 2009, formalizing arrangements for repayment to the Department of an aggregate of $116.2 million obligation of the City's General Fund. This obligation is attributable to use of the City's cash pool to address historical operating deficits of the City's Solid Waste, Emergency 911, and capital financing funds. The City has addressed operational issues with the City's Solid Waste and E911 funds and restructured financing of the public safety and rolling stock acquisitions. Accordingly, the General Fund has been paying and can reasonably be expected to continue to repay the aggregate principal and simple interest on outstanding balances. Under the original terms of the MOU, the City's General Fund is to repay the System Enterprise Fund in annual installments in the amount of $10,000,000 per year, bearing interest at 3% per annum, commencing on July 1, 2009 and continuing to be due on each July 1 thereafter, until the obligation described above is fully repaid. Specifically, the terms of the MOU call for principal reduction of $10,000,000 annually for an 11-year period and a final principal payment of $6,199,000 in Fiscal Year 2021 (July 1, 2020). Under a subsequent restructuring of the MOU in May 2013, the City Council approved a reduction in the interest rate from 3% to 1.25% for the remainder of the repayment period. Payments of principal plus accrued interest have been made consistently in accordance with the terms of the restructured MOU. The Department expects to receive a total of $26,806,464 from the City's General Fund from Fiscal Year 2019 through Fiscal Year 2021, which includes accrued interest. The final payment under the MOU is due in Fiscal Year 2021, at which point the terms of the MOU will be fulfilled and all obligations thereunder terminated.

The MOU does not constitute a binding obligation of the City enforceable by the owners of the Series 2018C Bonds and may be rescinded, repealed, or modified at any time by the City in its sole discretion.

Rebate Fund. The City established the Rebate Fund under the terms of the Bond Ordinance to hold amounts to be paid to the United States government as arbitrage rebate payments.

Project Fund. The City established the Project Fund under the terms of the Bond Ordinance to hold proceeds of the sale of Senior Bonds and Subordinate Bonds. The Bond Ordinance requires amounts held in the Project Fund to be applied to the payment of costs related to the acquisition, construction, reconstruction, improvement, betterment, extension, or equipping of the System.

Rate Covenant

The City has covenanted in the Bond Ordinance to prescribe, fix, maintain, and collect rates, fees, and other charges for the services, facilities, and commodities furnished by the System fully sufficient at all times to (a) provide for 100% of the Expenses of Operation and Maintenance of the System and for the accumulation in the Revenue Fund of a reasonable reserve therefor, and (b) produce net operating revenues of the System in each Fiscal Year of the City which (together with investment earnings on the funds held under the Bond Ordinance):

(a) will equal at least 110% of the Debt Service Requirement on all Senior Bonds then outstanding for the year of computation and 100% of the Debt Service Requirement on all Subordinate Bonds then outstanding for the year of computation;

(b) will enable the City to make all required payments, if any, into the Debt Service Reserve Account and the Rebate Fund and to any Credit Issuer, any Reserve Account Credit Facility Provider, and any provider of a hedge agreement relating to Senior Bonds or Subordinate Bonds;

(c) will enable the City to accumulate an amount to be held in the Renewal and Extension Fund, which in the judgment of the City is adequate to meet the costs of major renewals, replacements, repairs, additions, betterments, and improvements to the System, necessary to keep the same in good operating condition or as is required by any governmental agency having jurisdiction over the System; and

(d) will remedy all deficiencies in required payments into any of the funds and accounts mentioned in the Bond Ordinance from prior Fiscal Years of the City.

If the City fails to prescribe, fix, maintain, and collect rates, fees, and other charges, or to revise such rates, fees, and other charges, as described above, the Bond Ordinance allows the owners of not less than 25% in aggregate principal amount of the Senior Bonds then outstanding, without regard to whether any event of default thereunder shall have occurred, to institute and prosecute in any court of competent jurisdiction an appropriate action to compel the City to prescribe, fix, maintain, or collect such rates, fees, and other charges, or to revise such rates, fees, and other charges, in accordance with the requirements of the Bond Ordinance described above.

"Debt Service Requirement" is defined in the Bond Ordinance to mean the total principal and interest coming due, whether at maturity or upon mandatory redemption, in any specified period. If any bonds outstanding or proposed to be issued under the Bond Ordinance bear interest at a variable rate, the interest coming due in any specified future period will be determined as if the variable rate in effect at all times during such future period equaled, at the option of the City, either (a) the average of the actual variable rates which were in effect (weighted according to the length of the period during which each such variable rate was in effect) for the most recent twelve-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 twelve-month period), or (b) the current average annual long-term fixed rate of interest on securities of similar quality having a similar maturity date as certified by a financial advisor to the City. If any compound interest bonds are outstanding or proposed to be issued under the Bond Ordinance, the total principal and interest coming due in any specified period will be determined, with respect to such compound interest bonds, by the supplemental ordinance of the City authorizing such compound interest bonds. With respect to any Senior Bonds or Subordinate Bonds secured by a credit facility, Debt Service Requirement will include (a) any commission or commitment fee obligations with respect to such credit facility, (b) unreimbursed draws or advances on such credit facility and interest thereon, (c) any additional interest owed on Senior Bonds or Subordinate Bonds owned by a Credit Issuer while they are so owned, except that as otherwise permitted by the Bond Ordinance, amounts on deposit in the Debt Service Reserve Account shall not be used to pay Additional Interest or accelerated interest or principal payments on certain Index Rate Bonds, and (d) any Remarketing Agent fees. With respect to any Senior Bonds or Subordinate Bonds hedged by a hedge agreement, the interest on such hedged bonds, for so long as the provider of the related hedge agreement has not defaulted on its payment obligations thereunder, will be calculated by adding (x) the amount of interest payable by the City on such hedged bonds pursuant to their terms and (y) the amounts (other than termination, indemnity, and expense payments) payable by the City under the related hedge agreement and subtracting (z) the amounts (other than termination, indemnity, and expense payments) 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 on the related hedged bonds will be the interest calculated as if such hedge agreement had not been executed. In determining the amounts (other than termination, indemnity, and expense payments) payable or receivable under a hedge agreement which are not fixed (i.e., which are variable), payable or receivable for any future period, such payments or receipts for any period of calculation (the "Determination Period") will 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 twelve-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 twelve-month period). For the purpose of calculating the Debt Service Requirement on Balloon Bonds (as defined herein) (a) which are subject to a commitment to refinance or (b) which do not have a Balloon Date (as defined herein) within 12 months from the date of calculation, such bonds will 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 at an assumed interest rate (which shall be the interest rate certified by a financial advisor to the City to be the interest rate at which the City could reasonably expect to borrow the same amount by issuing bonds with the same priority of lien as such Balloon Bonds and with a 20-year term); provided, however, that if the maturity of such bonds (taking into account the term of any commitment to refinance) is in excess of 20 years from the date of issuance, then such bonds will 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 bonds to maturity (including the commitment to refinance) and at the interest rate applicable to such bonds. For the purpose of calculating the Debt Service Requirement on Balloon Bonds (a) which are not subject to a commitment to refinance and (b) which have a Balloon Date within 12 months from the date of calculation, the principal payable on such bonds on the Balloon Date will be calculated as if paid on the Balloon Date. The principal of and interest on Senior Bonds and Subordinate Bonds and payments under hedge agreements relating thereto will be excluded from the determination of Debt Service Requirement to the extent that the same were or are expected to be paid with amounts on deposit on the date of calculation (or bond proceeds to be deposited on the date of issuance of proposed bonds) in the Project Fund, the Sinking Fund, or a similar fund for Subordinate Bonds. The Bond Ordinance defines (a) "Balloon Bonds" to mean any series of Senior Bonds or Subordinate Bonds 25% or more of the original principal amount of which (i) is due (whether at maturity or by mandatory redemption) in any 12-month period or (ii) may, at the option of the registered owners, be required to be redeemed, prepaid, purchased directly or indirectly by the City, or otherwise paid in any 12-month period, and (b) "Balloon Date" to mean any date on which more than 25% of the original principal amount of related Balloon Bonds mature or are subject to mandatory redemption or could, at the option of the registered owners, be required to be redeemed, prepaid, purchased directly or indirectly by the City, or otherwise paid.

Additional Parity Obligations

The Series 2018C Bonds will be equally and ratably secured on a parity basis with the Outstanding Senior Bonds and with any additional revenue bonds of the City hereafter issued on a parity basis with the Outstanding Senior Bonds and the Series 2018C Bonds. The Outstanding Senior Bonds, the Series 2018C Bonds and any additional revenue bonds of the City hereafter issued under the Bond Ordinance on a parity basis with the Outstanding Senior Bonds are collectively referred to as the "Senior Bonds" herein. See "OUTSTANDING SYSTEM OBLIGATIONS - Senior Bonds - *Proposed Issuance of Additional Senior Bonds*" herein.

Limited Obligations

The Series 2018C Bonds are special limited obligations of the City payable solely from and secured by a first priority pledge of and lien on the Pledged Revenues. The Series 2018C Bonds are not payable from and are not secured by a charge, lien, or encumbrance upon any funds or assets of the City other than the Pledged Revenues.

THE SERIES 2018C BONDS SHALL NOT BE DEEMED TO CONSTITUTE A DEBT OF THE CITY WITHIN THE MEANING OF ANY CONSTITUTIONAL LIMITATION ON DEBT NOR A PLEDGE OF THE FAITH AND CREDIT OF THE CITY. THE SERIES 2018C BONDS SHALL NOT BE PAYABLE FROM OR A CHARGE UPON ANY FUNDS OTHER THAN THE REVENUES AND AMOUNTS PLEDGED TO THE PAYMENT THEREOF, NOR SHALL THE CITY BE SUBJECT TO ANY PECUNIARY LIABILITY THEREON. NO OWNER OR OWNERS OF THE SERIES 2018C BONDS SHALL EVER HAVE THE RIGHT TO COMPEL ANY EXERCISE OF THE TAXING POWER OF THE CITY TO PAY THE SERIES 2018C BONDS OR THE INTEREST THEREON, NOR TO ENFORCE PAYMENT OF THE SERIES 2018C BONDS AGAINST ANY PROPERTY OF THE CITY; NOR SHALL THE SERIES 2018C BONDS CONSTITUTE A CHARGE, LIEN, OR ENCUMBRANCE, LEGAL OR EQUITABLE, UPON ANY PROPERTY OF THE CITY, EXCEPT FOR THE PLEDGED REVENUES AND ANY OTHER FUNDS PLEDGED TO SECURE THE SERIES 2018C BONDS.

OUTSTANDING SYSTEM OBLIGATIONS

Senior Bonds

Outstanding Senior Bonds. Upon the issuance of the Series 2018C Bonds and the refunding of the Series 2013A Bonds, the following will be the Senior Bonds Outstanding under the Bond Ordinance, all of which are secured by a first priority pledge of, and lien on, the Pledged Revenues (the "Outstanding Senior Bonds"):

Senior Bonds	**Original Aggregate Principal Amount**[1]	**Outstanding Principal Amount**[1]
Water and Wastewater Revenue and Revenue Refunding Bonds, Series 2018C	$ 288,900,000	$ 288,900,000
Water and Wastewater Revenue and Revenue Refunding Bonds, Series 2018B (the "Series 2018B Bonds")	289,730,000	289,730,000
Water and Wastewater Revenue Refunding Bonds, Series 2018A (the "Series 2018A Bonds")	51,210,000	51,210,000
Water and Wastewater Revenue Refunding Bonds, Series 2017A	226,175,000	226,175,000
Water and Wastewater Revenue Refunding Bonds, Series 2015 (the "Series 2015 Bonds")	1,237,405,000	1,235,150,000
Water and Wastewater Revenue Refunding Bonds, Series 2013B (the "Series 2013B Bonds")	200,140,000	164,560,000
Water and Wastewater Revenue Bonds, Series 2009A (the "Series 2009A Bonds")	750,000,000	38,270,000
Water and Wastewater Revenue Bonds, Series 2009B	448,965,000	185,825,000
Water and Wastewater Revenue Bonds, Series 2004 (the "Series 2004 Bonds")	849,330,000	134,110,000
Water and Wastewater Revenue Bonds, Series 2001A (the "Series 2001A Bonds")	415,310,000	85,055,000
Water and Wastewater Revenue Bonds, Series 1999A	1,096,140,000	174,700,000
Total Outstanding Senior Bonds	$5,853,305,000	$2,873,685,000

(1) Numbers may not add up due to rounding.

Source: City of Atlanta, Department of Finance.

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Proposed Issuance of Additional Senior Bonds. The Series 2018C Bonds are part of a financing plan which the City approved that also contemplated the issuance of the Series 2018A Bonds, the Series 2018B Bonds and the issuance of its not to exceed $125,000,000 City of Atlanta Water and Wastewater Revenue Commercial Paper Notes, Series 2018 (the "2018 Commercial Paper Notes") to implement a new commercial paper program supported by an irrevocable, direct-pay letter of credit issued by Wells Fargo Bank, National Association to facilitate anticipated capital project encumbrances during the forecast period (the "2018 Commercial Paper Program") along with the planned issuance of $110,000,000* in aggregate principal amount of additional Senior Bonds in early Fiscal Year 2022 for the purpose of repaying the 2018 Commercial Paper Notes. See "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Financial Performance - Forecasted Senior Lien Debt" attached hereto.

In addition, the City may issue additional Senior Bonds in connection with financing or refinancing opportunities that: (a) lower costs of borrowing and/or maximize savings in accordance with long term planning objectives, and/or (b) provide funding for projects approved by the City Council.

Subordinate Bonds

As of October 19, 2018, no Subordinate Bonds were Outstanding under the Bond Ordinance.

Proposed Issuance of Subordinate Bonds. In addition to the additional Senior Bonds referenced above, the financing plan approved by the City also contemplates the planned issuance of its Water and Wastewater Environmental Impact Subordinate Lien Revenue Bonds (Proctor Creek Watershed Project), Series 2018D in an aggregate principal amount of $13,300,000* (the "2018 Environmental Impact Bonds") in Fiscal Year 2019, the proceeds of which will be used primarily to fund various green infrastructure projects.

In addition, the City may issue Subordinate Bonds in connection with financing or refinancing opportunities that: (a) lower costs of borrowing and/or maximize savings in accordance with long term planning objectives, and/or (b) provide funding for projects approved by the City Council.

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* Preliminary; subject to change.

Other System Obligations

Outstanding Other System Obligations. As of October 19, 2018, the following will be the Other System Obligations outstanding under the Bond Ordinance:

Other System Obligations	**Original Aggregate Principal Amount**[1]	**Outstanding Principal Amount**[1]
2018 Commercial Paper Notes	$125,000,000	$ -[2]
Outstanding GEFA Loans	250,324,702	198,824,824[2]
Capital Leases/Installment Purchase Obligations	132,439,788	128,917,689[2]
Total Other System Obligations	$507,764,490	$327,742,513

[1] Numbers may not add up due to rounding.
[2] Reflects outstanding principal amount as of October 19, 2018.

Source: City of Atlanta, Department of Finance.

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Outstanding Commercial Paper Notes. As of October 19, 2018, the City does not have commercial paper outstanding under its 2018 Commercial Paper Program.

Outstanding Georgia Environmental Facilities Authority Loans. The Georgia Environmental Facilities Authority ("GEFA") is an instrumentality of the State authorized to accept capitalization grants disbursed under the Federal Water Pollution Control Act, as amended by the Water Quality Act of 1987 and, with such grants, to establish a revolving fund to assist local governments in the construction of publicly-owned sewer systems and other treatment works. Pursuant to its authority, GEFA established the State Revolving Loan Fund ("SRLF") and entered into a capitalized grant agreement with the United States Environmental Protection Agency (the "EPA").

As of October 19, 2018, the City had 11 outstanding loans from GEFA in an aggregate principal amount of $198,824,824 (the "Outstanding GEFA Loans"). The Outstanding GEFA Loans are general obligation debts of the City payable from the Pledged Revenues but are not secured by a pledge of, or lien on, the Pledged Revenues.

Outstanding Capital Leases/Installment Purchase Obligations. In 2017, the Department executed the following contracts to advance its resource recovery - energy management objectives: (a) a contract with Ostara for a turnkey, fully financed, nutrient recovery system; (b) a contract with NORESCO to implement three energy conservation measures ("ECMs"); and (c) a contract with Schneider Electric to implement 17 ECMs. Each of the resource recovery and energy management initiatives described above include annual lease obligations associated with new equipment, financed over 12- and 15-year terms. The annual lease on the Ostara nutrient recovery project will be $1.1 million per year starting in Fiscal Year 2019. The NORESCO project initiative will require interim payments of $0.7 million until Fiscal Year 2021 when project construction is completed. Thereafter, annual lease payments of $7.2 million are required. The lease payment on the Schneider Electric project will begin in Fiscal Year 2020 and is $3.1 million annually. These contracts are in addition to the installment purchase agreement with U.S. Bancorp for the purchase of certain heavy equipment in the amount of $7.1 million in 2016 pursuant to which annual lease obligations of $1.8 million began in Fiscal Year 2018 and will end in Fiscal Year 2021. Total lease obligations and installment purchase obligations are expected to total $3.7 million in Fiscal Year 2019 and increase to $11.4 million by Fiscal Year 2024.

Proposed Issuance of Additional Other System Obligations. The City may, as part of its capital financing strategy, incur loans from GEFA in the aggregate amount of $50 million per year to leverage alignment of planned capital projects with GEFA program priorities.

The City is not currently contemplating any additional Capital Leases.

The City may issue additional Other System Obligations in connection with financing or refinancing opportunities that: (a) lower costs of borrowing and/or maximize savings in accordance with long term planning objectives, and/or (b) provide funding for projects approved by the City Council.

Hedge Agreements

On December 5, 2001, the City entered into an ISDA Master Agreement and related Schedule to the Master Agreement and related ISDA Credit Support Annex to the Schedule to the Master Agreement (collectively, the "Series 2001 Swap Agreement") with UBS AG (the "Swap Provider"), as supplemented by: (a) a Confirmation of Swap Transaction dated December 5, 2001 ("Confirmation #3") relating to $335,640,000 in aggregate principal amount of the Water and Wastewater Revenue Bonds, Series 2001B maturing on November 1, 2038 and (b) a Confirmation of Swap Transaction dated December 28, 2001, relating to $105,705,000 in aggregate principal amount of the Water and Wastewater Revenue Bonds, Series 2001C maturing on November 1, 2041, which was terminated in May 2018.

In connection with the issuance of the Series 2013A Bonds, the City (a) terminated the designation as Hedged Bonds under the Master Bond Ordinance of the Bonds then associated with the Series 2001 Swap Agreement, as supplemented by Confirmation #3 and (b) designated not to exceed $328,735,000 in aggregate principal amount of the Series 2013A Bonds as Hedged Bonds pursuant to the Master Bond Ordinance (the "Series 2013A Hedged Bonds").

In accordance with the City's Hedge Management Plan, the City has determined that it is in its best interests to attempt to unwind the Series 2001 Swap Agreement prior to its maturity. Consistent with this determination, the City's swap advisor has been monitoring the Series 2001 Swap Agreement against movements in the market and has recommended that the City approve certain amendments, terminations and/or supplements to all or part of the Series 2001 Swap Agreement and associated confirmations and other related documents (collectively, the "Amendments to Transaction") and make certain payments to the Swap Provider. Accordingly, the City Council, based on the recommendation of the City's swap advisor, has authorized the Mayor and the Chief Financial Officer of the City to execute and deliver the Amendments to Transaction and to make certain termination or other payments to the Swap Provider in connection with the Series 2001 Swap Agreement. Accordingly, in anticipation of the issuance of the Series 2018C Bonds and the refunding and defeasance of the Series 2013A Bonds, on October 23, 2018 the City terminated the portion of the Series 2001 Swap Agreement relating to $326,010,000 of the Series 2013A Hedged Bonds and made a termination payment to the Swap Provider in the amount of $65,690,000 which payment was funded from funds allocated for such purpose by the City Council (the "Swap Termination Fund"). With the termination of the portion of the Series 2001 Swap Agreement related to the Series 2013A Hedged Bonds, the City has now unwound all of the transactions under the Series 2001 Swap Agreement and the Swap Provider and the City have cancelled and terminated all of their respective obligations thereunder.

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PRINCIPAL AND INTEREST REQUIREMENTS

The following table presents the estimated annual debt service obligations of the City on the outstanding long-term indebtedness of the System upon the issuance and delivery of the Series 2018C Bonds and excludes the debt service on the Series 2013A Bonds. For information relating to Subordinate Bonds and Other System Obligations, including the Outstanding GEFA Loans, see "OUTSTANDING SYSTEM OBLIGATIONS" herein.

Fiscal Year Ending June 30	Outstanding Senior Bonds Debt Service[(1)]	Series 2018C Bonds[(1)] Principal	Series 2018C Bonds[(1)] Interest	Series 2018C Bonds[(1)] Debt Service	Total Senior Bonds Debt Service[(1)(2)]	Outstanding GEFA Loans Debt Service[(1)]	Total System Debt Service[(1)(2)]
2019	$ 199,538,555	-	$ 7,020,889	$ 7,020,889	$ 206,559,444	$ 9,533,756	$ 216,093,200
2020	200,516,494	-	13,964,200	13,964,200	214,480,694	14,380,682	228,861,375
2021	199,942,019	-	13,964,200	13,964,200	213,906,219	14,380,682	228,286,900
2022	199,952,331	-	13,964,200	13,964,200	213,916,531	14,380,681	228,297,213
2023	200,201,994	-	13,964,200	13,964,200	214,166,194	14,380,682	228,546,875
2024	184,422,406	$ 11,885,000	13,667,075	25,552,075	209,974,481	14,140,539	224,115,021
2025	184,752,531	14,495,000	13,007,575	27,502,575	212,255,106	14,060,491	226,315,598
2026	186,464,400	13,180,000	12,315,700	25,495,700	211,960,100	14,060,491	226,020,591
2027	186,772,069	13,830,000	11,640,450	25,470,450	212,242,519	14,060,491	226,303,010
2028	187,087,256	16,200,000	10,889,700	27,089,700	214,176,956	14,060,491	228,237,448
2029	186,017,131	15,300,000	10,102,200	25,402,200	211,419,331	14,060,491	225,479,823
2030	186,355,613	16,050,000	9,318,450	25,368,450	211,724,063	14,060,491	225,784,554
2031	174,718,800	18,150,000	8,463,450	26,613,450	201,332,250	14,060,491	215,392,741
2032	171,284,075	17,730,000	7,566,450	25,296,450	196,580,525	14,060,491	210,641,016
2033	171,644,350	18,600,000	6,658,200	25,258,200	196,902,550	13,642,920	210,545,470
2034	182,142,275	20,395,000	5,683,325	26,078,325	208,220,600	13,479,891	221,700,491
2035	169,687,563	20,510,000	4,660,700	25,170,700	194,858,263	12,897,736	207,755,999
2036	170,209,928	21,525,000	3,609,825	25,134,825	195,344,753	10,529,834	205,874,587
2037	170,651,306	22,970,000	2,497,450	25,467,450	196,118,756	8,738,484	204,857,241
2038	171,147,188	23,580,000	1,451,600	25,031,600	196,178,788	4,434,766	200,613,554
2039	171,732,828	24,500,000	490,000	24,990,000	196,722,828	-	196,722,828
2040	185,171,922	-	-	`-	185,171,922	-	185,171,922
2041	75,556,988	-	-	-	75,556,988	-	75,556,988
2042	83,295,838	-	-		83,295,838	-	83,295,838
2043	56,833,713	-		-	56,833,713	-	56,833,713
2044	56,776,688	-	-	-	56,776,688	-	56,776,688
2045	18,113,750	-	-	-	18,113,750	-	18,113,750
2046	18,113,750	-	-	-	18,113,750	-	18,113,750
2047	18,113,750	-	-	-	18,113,750	-	18,113,750
2048	18,111,750	-	-	-	18,111,750	-	18,111,750
	$4,385,329,258	$288,900,000	$184,899,839	$473,799,839	$4,859,129,097	$257,404,584	$5,116,533,681

(1) Numbers may not add up due to rounding.

(2) Does not include the debt service on the proposed 2018 Environmental Impact Bonds. See "OUTSTANDING SYSTEM OBLIGATIONS – Subordinate Bonds - *Proposed Issuance of Subordinate Bonds*" herein.

Source: Hilltop Securities Inc. and City of Atlanta, Department of Finance.

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THE CITY

City Administration and Elected Officials

Under the Charter, all legislative powers of the City are vested in the City Council and all executive and administrative powers of the City are vested in the Mayor.

The City Council consists of 15 members who serve four-year terms of office. The City is divided into 12 City Council districts. Twelve members of the City Council are elected by district, and three members of the City Council are elected at-large. The three at-large members of the City Council are required to reside, respectively, in District No. 1, 2, 3 or 4; District No. 5, 6, 7 or 8; and District No. 9, 10, 11 or 12.

The Charter establishes the office of the President of the City Council. The President of the City Council is elected from the City at-large for a term of four years. The President of the City Council presides at meetings, but is not a member of the City Council, and votes only in the case of a tie vote of the City Council. Under the Charter, the President of the City Council exercises all powers and discharges all duties of the Mayor in the case of a vacancy in the Office of the Mayor or during the disability of the Mayor. Under the Charter, the Mayor is elected from the City at-large for a term of four years. The Charter does not allow any Mayor who has been elected for two consecutive terms to be eligible to be elected for the next succeeding term. The Mayor is the chief executive officer of the City and has the power to direct and supervise the administration of all departments of the City. The Charter grants the Mayor the power to veto any ordinance or resolution adopted by the City Council, which veto may be overridden only upon the vote of two-thirds of the total membership of the City Council. The Charter also grants the Mayor the power to veto any item or items of any ordinance or resolution making appropriations, which veto may be overridden only upon the vote of two-thirds of the total membership of the City Council. The current fiscal year of the City is the 12-month period beginning on July 1 and ending on June 30 (the "Fiscal Year").

The City is required to have actuarial estimates produced for its pension and other post-employment benefits ("OPEB") liabilities. Actuarial estimates are "forward looking" information that reflect the judgment of the fiduciaries of the pension plans and are based upon a variety of assumptions, one or more of which may prove to be inaccurate or be changed in the future and will change with the future experience of the pension plans. Further, this summary of the City's pension and OPEB information is designed to provide an overview of such matters, and is qualified, in its entirety, by the pension plan documents (available as provided below), the pension plan and OPEB valuations and the audited basic financial statements of the City which are available on the Electronic Municipal Market Access system ("EMMA").

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Pension

Overview of the City's Pension Plans. The City maintains the following separately administered pension plans:

Plan Type	Plan Name
Agent multiple-employer, defined benefit	The General Employees' Pension Plan
Single employer, defined benefit	Firefighters' Pension Plan
Single employer, defined benefit	Police Officers' Pension Plan
Single employer, defined contribution	General Employees' Defined Contribution Plan

Source: City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

The information noted below is from the City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017. In December 2017, the City of Atlanta adopted legislation to combine the Boards of Trustees for its three separate pension plans in order to improve administrative efficiency, governance and investment returns. The City consolidated and set minimum requirements for the Boards of Trustees of the three Pension Plans in order to optimize investment returns, establish national leadership in pension management best practices, and increase City revenues available for compensation of active employees.

A stand-alone audited financial report is issued for each of the three defined benefit plans and can be obtained at the below address. The defined contribution plan does not have separately issued financial statements.

City of Atlanta
68 Mitchell Street, S.W.
Suite 1600
Atlanta, Georgia 30335

The valuation date for the three defined benefit plans is July 1, 2015, with the results rolled forward to the measurement date of June 30, 2016. The allocation of the pension liability is based upon Fiscal Year 2016 contributions from the various departments. The City is presenting net pension liability as of June 30, 2016 for the Fiscal Year 2017 financial statements.

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Membership. As of the beginning of the Fiscal Year ended June 30, 2016, pension plan membership consisted of the following:

	General Employees' - the City	Firefighters'	Police Officers'
Inactive plan members or beneficiaries currently receiving benefits	3,834	992	1,446
Inactive plan members entitled to, but not yet receiving benefits	241	21	55
Active plan members	3,307	1,042	2,023
Total membership	7,382	2,055	3,524

Source: City of Atlanta, Actuarial Reports for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

Plan Description

The General Employees' Pension Plan. The General Employees' Pension Plan is an agent multiple-employer defined benefit plan and was established by a 1924 Act of the State of Georgia Legislature to provide retirement benefits for full time permanent employees of the City, excluding sworn personnel of the Police and Fire Rescue Departments, and the employees of the Atlanta Board of Education (the "School System") who are not covered under the Teachers Retirement System of Georgia. Until 1983, the Georgia Legislature established all requirements and policies of the General Employees' Pension Plan. By a constitutional amendment, effective July 1983, control over all aspects of the General Employees' Pension Plan transferred to the City under the principle of Home Rule. The types of benefits offered by the General Employees' Pension Plan are: retirement, disability, and pre-retirement death benefits. Classified employees and certain nonclassified employees pay grade 18 and below not covered by either the Firefighters' Pension Plan or Police Officers' Pension Plan, and employees hired after September 1, 2005 are required to become members of the General Employees' Pension Plan. A detailed description of the General Employees' Pension Plan benefits terms can be found in the audited basic financial statements of the City which are available on EMMA.

The funding methods and determination of benefits payable were established by the legislative acts creating the General Employees' Pension Plan, as amended, and in general, provide that funds are to be accumulated from employee contributions, City and School System contributions, and income from the investment of accumulated funds.

The General Employees' Pension Plan is administered as an agent multiple-employer defined benefit pension plan by the Board of Trustees (the "Board"). The members of the Board include the Mayor or her designee, the City's Chief Financial Officer, a member of the City Council, two active City employee representatives, one retired City representative, one active School System representative, and one retired School System representative. All modifications to the General Employees' Pension Plan must be supported by actuarial analysis and receive the recommendations of the City Attorney, the City's Chief Financial Officer, and the Board. Each pension law modification must be adopted by at least two-thirds vote of the City Council and approved by the Mayor.

The Firefighters' Pension Plan and the Police Officers' Pension Plan. Firefighters' (FPP) and Police Officers' (PPP) Pension Plans are single-employer defined-benefit plans. They were established by a 1924 Act of the State of Georgia Legislature to provide retirement benefits for full-time sworn firefighters and police officers of the City Fire Rescue Department and the Police Department. Until 1983, the Georgia Legislature established all requirements and policies of the Firefighters' Pension Plan and the Police Officers' Pension Plan. By a constitutional amendment, effective July 1983, control over all aspects of the Firefighters' Pension Plan and the Police Officers' Pension Plan transferred to the City under the principle of Home Rule. The types of benefits offered by the Firefighters' Pension Plan and the Police Officers' Pension Plan are: retirement, disability, and pre-retirement death benefits. Participants should refer to the Atlanta, Georgia, Code of Ordinances, Section 6 (Plan agreement) for more complete information. Under the principle of Home Rule and the Atlanta Code of Ordinances, Section 6, the Board has the authority to establish and amend benefit terms and contributions. A detailed description of the Firefighters' Pension Plan and the Police Officers' Pension Plan benefits terms can be found in the audited basic financial statements of the City which are available on EMMA.

The Firefighters' Pension Plan and the Police Officers' Pension Plan are administered as a single-employer defined-benefit plan by separate boards of trustees with each board of trustees including an appointee of the Mayor or her designee, the City's Chief Financial Officer, a member of City Council, two active employee representatives and one retired employee representative. All modifications to the Firefighters' Pension Plan and the Police Officers' Pension Plan must be supported by actuarial analysis input and receive the recommendations of the City Attorney, the City's Chief Financial Officer, and the pertinent board of trustees. Each pension law modification must be adopted by at least two thirds vote of the City Council and approved by the Mayor.

Contribution requirements of the General Employees' Pension Plan

The General Employees' Pension Plan. Under the Georgia Legislature principle of Home Rule and the Atlanta Code of Ordinances, Section 6, the Board has the authority to administer the General Employees' Pension Plan. The funding methods and determination of benefits payable were established by the Atlanta Code of Ordinances, Part 1, Section 6 legislative acts creating the General Employees' Pension Plan, as amended, and in general, provide that funds are to be accumulated from employee contributions, City contributions, and income from the investment of accumulated funds.

Employees hired on or after September 1, 2011 who are below pay grade 19 or its equivalent are required to participate in a hybrid defined benefit plan with a mandatory defined-contribution component. The defined-benefit portion of the General Employees' Pension Plan includes a 1% multiplier, which includes a mandatory employee contribution of 3.75% of salary which is matched 100% by the City.

Additionally, these employees may voluntarily contribute up to an additional 4.25% of salary, which is also matched 100% by the City. Employees vest in the amount of the City's contributions at a rate of 20% per year and become fully vested in the City's contribution after five years of participation.

Beginning on November 1, 2011, employees participating in the General Employees' Pension Plan and hired before September 1, 2011, or after January 1, 1984, had an increase of 5% in their mandatory contributions into the General Employees' Pension Plan fund in which they participate. The contribution is such that the new contribution is 12% of salary (without a designated beneficiary) or 13% of salary (with a designated beneficiary).

There is a cap on the maximum amount of the City's contribution to the General Employees' Pension Plan measured as a percentage of payroll. The City's annual contribution to the General Employees' Pension Plan may not exceed 35% of payroll of the participants in the City's three defined benefit plans, which include General Employees', Firefighters' and Police Officers' Pension Plans. In the event that this 35% cap is reached, the City will fund any overage for the first 12-month period from its reserves. During that period, the City's management must agree on an alternative method to reduce the overage. If no alternative is reached, beginning in the second 12-month period, the City and the participants will equally split the cost of the coverage, subject only to a provision that employee contributions may not increase more than 5%. Contribution requirements may be amended by the Board under the authority of the City ordinance, but the employer contribution requirement is subject to State minimums. During Fiscal Year 2017, the City had an actuarial assessment conducted to review the pay cap. The assessment determined the City was at 21.1%, which is well within the cap. The 35% cap is not projected to be reached until fiscal year 2039 based on the updated results projected forward with Pension Reform. During the Fiscal Year ended June 30, 2017, the City contributions were $53,817,000.

The Firefighters' Pension Plan and the Police Officers' Pension Plan. Under the Georgia Legislature principle of Home Rule and the Atlanta Code of Ordinances, Section 6, the Board has the authority to administer the Firefighters' Pension Plan and the Police Officers' Pension Plan including establishing and amending contribution requirements. The funding methods and determination of benefits payable were established by the Atlanta Code of Ordinances, Section 6 legislative acts creating the Firefighters' Pension Plan and the Police Officers' Pension Plan, as amended, and in general, provide that funds are to be accumulated from employee contributions, City contributions, and income from the investment of accumulated funds.

Sworn personnel employed by the Fire Rescue Department and Police Department are required to contribute to the Firefighters' Pension Plan and the Police Officers' Pension Plan. Employees must contribute either 8% of base pay, if hired after August 31, 2011, 12% of base pay if hired before September 1, 2011 without an eligible beneficiary, or 13% of base pay if hired before September 1, 2011 with an eligible beneficiary.

Contribution requirements may be amended by the Board under the authority of the City ordinance, but the employer contribution requirement is subject to State minimums.

On November 1, 2011, the sworn personnel of the Fire Rescue Department and Police Department participating in the Firefighters' Pension Plan and the Police Officers' Pension Plan and hired before September 1, 2011, or after January 1, 1984, had an increase of 5% in their mandatory contributions into the Firefighters' Pension Plan and the Police Officers' Pension Plan. The contribution is such that the new contribution is 12% of salary (without a designated beneficiary) or 13% of salary (with a designated beneficiary).

Beginning in Fiscal Year 2012, there is a cap on the maximum amount of the City's contribution to the defined benefit pension funds measured as a percentage of payroll. The City's annual contribution to the funds may not exceed 35% of payroll of the participants in the General Employees' Pension Plan, the Firefighters' Pension Plan and the Police Officers' Pension Plan. In the event that this 35% cap is reached, the City will fund any overage for the first 12-month period from its reserves. During that period, the City's management must agree on an alternative method to reduce the overage. If no alternative is reached, beginning in the second 12-month period, the City and the participants will equally split the cost of the overage, subject only to a provision that employee contributions may not increase more than five percent. During Fiscal Year 2015 the City had an actuary assessment conducted to review the pay cap. The assessment determined the City was at 26.9%, well within the cap.

Employees hired on or after September 1, 2011 who are sworn members of the Fire Rescue Department and Police Department are required to participate in a hybrid defined benefit plan with a mandatory defined contribution component. The defined benefit portion of this plan includes a 1% multiplier. The retirement age increased to age 57 for participants in the Firefighters' Pension Plan and the Police Officers' Pension Plan. Early retirement age is changed from any age (as long as vested) with penalty to age 52 for hires after September 1, 2011. Upon retirement, these participants will receive an annually calculated cost of living increase to their pension benefit that may not exceed 1% and is based upon the Consumer Price Index. Sick and vacation leave are no longer applied to retirement benefits for hires after September 1, 2011.

Contributions to the Firefighters' Pension Plan and the Police Officers' Pension Plan during the year ended June 30, 2017 were $17,901,000 and $27,493,000, respectively.

The Defined Benefit Pension Plans' Investments. The investments for the Defined Benefit Pension Plans are made within the Public Retirement Systems Investment Authority Law of the Georgia Code (O.C.G.A. § 47-20-80). The Board has been granted the authority by City Ordinance to establish and amend the investment policy. The Board is responsible for making all decisions with regard to the administration of their Plan, including the management of the Defined Benefit Pension Plans assets, establishing the investment policy and carrying out the policy on behalf of the Plan.

The Plan's investments are managed by various investment managers under contract with the board of trustees who have discretionary authority over the assets managed by them and within the Plans' investment guidelines as established by the board. The investments are held in trust by the Plans' custodian in the Plan's' name. These assets are held exclusively for the purpose of providing benefits to members of the respective Plans' and their beneficiaries.

State of Georgia Code and City statutes authorize the Defined Benefit Pension Plans to invest in U.S. government obligations, U.S. government agency obligations, State of Georgia obligations, obligations of a corporation of the U.S. government, the Georgia Fund 1 (a government investment pool maintained by the State of Georgia), and alternative investments. The Plans invest in repurchase agreements only when they are collateralized by U.S. government or agency obligations. The Plans are also authorized to invest in collateralized mortgage obligations (CMOs) to maximize yields. These securities are based on cash flows from interest payments on underlying mortgages. CMOs are sensitive to prepayment by mortgagees, which may result from a decline in interest rates. For example, if interest rates decline and mortgagees refinance their mortgages, thereby prepaying the mortgages underlying these securities, the cash flows from interest payments are reduced and the value of these securities declines. Likewise, if mortgagees pay on mortgages longer than anticipated, the cash flows are greater and the return on the initial investment would be higher than anticipated.

In the development of the current asset allocation plan, the Board reviews the long-term performance and risk characteristics of various asset classes, balancing the risks and rewards of market behavior, and reviewing state legislation regarding investments options. There were no changes to the policy in Fiscal Year 2017. The policy may be amended by the Board with a majority vote of its members.

The long term expected rate of return on pension 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 pension 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. Estimates of real rates of return for each major asset class included in the Plan's target asset allocation as of June 30, 2017, are summarized in the tables below.

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General Employees' Pension Plan

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Domestic equity	50%	6.7%
International equity	20	8.1
Fixed income	25	2.1
Alternative investments	5	6.2
	100%	

Firefighters' and Police Officers' Pension Plans

Asset Class	Target Allocation	Long-Term Expected Real Rate of Return
Broad equity market	7%	6.01%
Domestic large-cap equity	30	6.91
Domestic mid-cap equity	15	8.91
Domestic small-cap equity	9	5.01
International equity	9	3.31
Fixed income	25	0.81
Alternative investments	5	7.51
	100%	

Source: City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

For the year ended June 30, 2017, the annual money-weighted rate of return for General Employees', Firefighters and Police Officers' Pension Plan investments, net of pension plan investment expense was 13.32%, 13.15%, and 14.19%, respectively. The money-weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Net Pension Liability. The total pension liability is based on the July 1, 2015 actuarial valuation rolled forward to June 30, 2016 using standard roll-forward techniques (table shows dollars in thousands):

	General Employees' - the City	Firefighters'	Police Officers'	Total
Total pension liability	$1,915,577	$861,493	$1,317,840	$4,094,910
Plan fiduciary net position	(1,122,786)	(612,637)	(950,415)	(2,685,838)
Net pension liability	$ 792,791	$248,856	$ 367,425	$1,409,072
Plan fiduciary net position as a percentage of the total pension liability	58.61%	71.11%	72.12%	65.59%

Source: City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

The net pension liability of the General Employees' (the City), Firefighters' and Police Officers' Plans allocated among the general government, the Department of Aviation, the Department of Watershed Management and Other Non-major Enterprise Funds as June 30, 2017 (dollars in thousands):

	General Employees'	Percent Allocated	Firefighters'	Percent Allocated	Police Officers'	Percent Allocated	Total[1]
General Government	$385,296	48.6%	$188,384	75.7%	$338,766	92.1%	$ 912,446
Department of Airport	91,092	11.5	60,472	24.3	28,659	7.9	180,223
Department of Watershed	-	-	-	-	-	-	-
Management	259,718	32.7	-	-	-	-	259,718
Other Non-Major							
Enterprise	56,685	7.2	-	-	-	-	56,685
Total	$792,791	100.0%	$248,856	100.0%	$367,425	100.0%	$1,409,072

(1) Numbers may not add due to rounding.

Source: City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

Changes in Net Pension Liability. The City is presenting net pension liability for the year ending June 30, 2017 based on the June 30, 2016 measurement date, as follows (tables show dollars in thousands):

General Employees' - the City	**Increase (Decrease)**		
	Total Pension Liability	**Plan Net Position**	**Net Pension Liability**
Balances at June 30, 2015	$1,873,213	$1,153,715	$719,498
Changes for the year:			
Service Cost	20,230	-	20,230
Interest Expense	136,155	-	136,155
Demographic experience	1,610	-	1,610
Contributions - employer	-	54,236	(54,236)
Contributions - employee	-	19,173	(19,173)
Net investment income	-	12,257	(12,257)
Benefit payments and refunds	(115,631)	(115,631)	-
Administrative expenses	-	(964)	964
Net changes	42,364	(30,929)	73,293
Balances at June 30, 2016	$1,915,577	$1,122,786	$792,791

Source: City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

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Firefighters'

	Increase (Decrease)		
	Total Pension Liability	**Plan Net Position**	**Net Pension Liability**
Balances at June 30, 2015	$853,690	$644,649	$209,041
Changes for the year:			
Service Cost	12,013	-	12,013
Interest Expense	62,584	-	62,584
Demographic experience	(22,794)	-	(22,794)
Contributions - employer	-	16,454	(16,454)
Contributions - employee	-	5,667	(5,667)
Net investment income	-	(9,895)	9,895
Benefit payments and refunds	(44,000)	(44,000)	-
Administrative expenses	-	(238)	238
Net changes	7,803	(32,012)	39,815
Balances at June 30, 2016	$861,493	$612,637	$248,856

Source: City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

Police Officers'

	Increase (Decrease)		
	Total Pension Liability	**Plan Net Position**	**Net Pension Liability**
Balances at June 30, 2015	$1,294,907	$983,385	$311,522
Changes for the year:			
Service Cost	21,573	-	21,573
Interest Expense	95,436	-	95,436
Demographic experience	(34,253)	-	(34,253)
Contributions - employer	-	25,441	(25,441)
Contributions - employee	-	11,825	(11,825)
Net investment income	-	(10,177)	10,177
Benefit payments and refunds	(59,823)	(59,823)	-
Administrative expenses	-	(236)	236
Net changes	22,933	(32,970)	55,903
Balances at June 30, 2016	$1,317,840	$950,415	$367,425

Source: City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

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Discount Rate. The discount rates used to measure the total pension for the Plans is as indicated below. The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the actuarial determined contributions rates from employers and employees. 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. The following table presents the discount rates as of June 30, 2016:

General Employees' Plan			
City	**School System**	**Firefighters**	**Police Officers**
7.50%	7.50%	7.41%	7.41%

Source: City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

Sensitivity of the Net Pension Liability to Changes in the Discount Rate. The following table presents the net pension liability of the Plans, calculated using the discount rates for each Plan as of June 30, 2016, as well as what Plan net pension liability would be if it were calculated using a discount rate that is 1-percentage point lower or 1-percentage point higher than the current rate (table shows dollars in thousands):

	1% Decrease 6.50%	**Current discount rate 7.50%**	**1% Increase 8.50%**
General Employees - the City	$1,010,358	$792,791	$609,869
General Employees - School System	559,931	500,583	449,684
	6.41%	7.41%	8.41%
Firefighters' Pension	$ 357,411	$248,856	$159,048
Police Officers' Pension	547,233	367,425	220,715

Source: City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

Actuarial Assumptions. The total pension liability was determined by an actuarial valuation as of July 1, 2015 rolled forward to the June 30, 2016 measurement date, using the following actuarial assumptions, applied to all periods included in the measurement.

	Inflation	**Salary Increases**	**Investment Rate of Return**
General Employees'	2.75%	3.5%	7.50%
Firefighters'	2.25	4.0	7.41
Police Officers'	2.25	4.0	7.41

Source: City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

The General Employees' Pension Plan last experience study was conducted in 2017. The assumed interest (or discount) rate for the future was decreased from 7.5 percent per annum to 7.25 percent per annum. The Firefighters' and Police Officers' last experience study was conducted in 2011. The assumed interest (or discount) rate was decreased from 7.75 percent per annum to 7.41 percent per annum for the Firefighters' Pension Plan and the Police Officers' Pension Plan.

The actuarially determined contribution rates are calculated as of June 30, one year prior to the end of the Fiscal Year in which contributions are reported. The following actuarial methods and assumptions were used to determine the most recent contribution rates are as follows:

	General Employees' - the City	**Firefighters'**	**Police Officers'**
Valuation Date	July 1, 2015	July 1, 2015	July 1, 2015
Actuarial cost method	Entry age normal	Entry age normal	Entry age normal
Amortization method	Level percentage, closed	Level percentage, closed	Level percentage, closed
Remaining amortization period	25 years	26 years	26 years
Asset valuation method	Market value	Market value	Market value

Source: City of Atlanta Pension Actuarial Reports dated July 1, 2017 and City of Atlanta Department of Finance.

For the General Employees' Pension Plan, the mortality rates were based on the RP-2000 Combined Healthy Mortality Table set to reasonably reflect future mortality improvement based on a seven and a half year review of mortality experience for the 2003 - 2011 period. The mortality will be assessed again at the time of the next review, and further adjustment or expected improvement in life expectancy will be made if warranted.

The Firefighters' Pension Plan and the Police Officers' Pension Plan mortality rates were based on the sex-distinct rates set forth in the RP-2000 Mortality Table projected to 2015 by Scale AA, as published by the Internal Revenue Code (IRC) Section 430; future generational improvements in mortality have not been reflected.

General Employees' Defined Contribution Plan. Atlanta, Georgia Code of Ordinances Section 6-2(c) sets forth the City's General Employees' Defined Contribution Plan. The Plan provides funds at retirement for employees of the City and in the event of death, provides funds for their beneficiaries, through an arrangement by which contributions are made to the General Employees' Defined Contribution Plan by employees and the City. The current contribution of the City is 6% of employee payroll. Employees also make a mandatory pretax contribution of 6% plus have the option to contribute amounts up to the amount legally limited for retirement contributions.

Each employee directs how the funds in their retirement account shall be invested. The employee may direct lump sum distributions from their retirement account upon separation from the City, death, disability (pursuant to the City's disability retirement provisions), or retirement. There are no assets in a Trust accumulated to pay benefits.

City of Atlanta has a contract with ING Life Insurance and Annuity Company (now Voya Financial Inc.) for managing the 401(a) Defined Contribution Plan, 457(b) and 457 Roth Deferred Compensation Plans (collectively, the "Pension Plans"). Under the current contract, Voya uses an Accumulation Unit Value (AUV) pricing of investments instead of the Net Asset Value (NAV). Both are units of value used to determine the daily worth of participant accounts. NAV is the measure of value for shares of a mutual fund, while AUV is the measure of value for units of a Separate Account.

All modifications to the General Employees' Defined Contribution Plan, including contribution requirements, must receive the recommendations and advice from the offices of the City's Chief Financial Officer and the City Attorney, respectively. Each pension law modification must be adopted by at least two-thirds vote of the City Council and approved by the Mayor.

All new employees, hired after July 1, 2001, who previously would have been enrolled in the General Employees' Defined Benefit Plan, were enrolled in the General Employees' Defined Contribution Plan.

During 2002, persons employed prior to July 1, 2001 were given the option to transfer to the General Employees' Defined Contribution Plan.

Effective September 1, 2005, classified employees and certain non-classified employees pay grade 18 and below then enrolled in the General Employees' Defined Contribution Plan had the one-time option of transferring to the General Employees' Pension Plan. Classified employees and certain non-classified employees pay grade 18 and below, not covered by either the Police Officers' or Firefighters' Pension Plans, hired after September 1, 2005 are required to become members of the General Employees' Pension Plan.

Amendments to Defined Contribution Plan

Employees hired on or after September 1, 2011, who are either sworn members of the police department or the Fire Rescue Department, or who are below payroll grade 19 or its equivalent, are required to participate in the mandatory defined contribution component which includes a mandatory employee salary contribution of 3.75% and is matched 100% by the City. Additionally, these employees may voluntarily contribute up to an additional 4.25% of salary which is also matched 100% by the City. Employees vest in the amount of the City's contributions at a rate of 20% per year and become fully vested in the City's contribution after 5 years of participation.

As of June 30, 2017, there were 1,733 participants in the General Employees' Defined Contribution Plan. The covered payroll for employees in the General Employees' Defined Contribution Plan was approximately $128,606,000. Employer contributions for the year ended June 30, 2017, were approximately $11,056,000 and employee contributions were approximately $10,979,000, totaling 17.2% of covered payroll. In addition, there were another 3,267 Defined Contribution Plan participants in the hybrid plans.

Condensed financial statement information for the General Employees' Defined Contribution Plan for the year ended June 30, 2017 is shown below (table shows dollars in thousands):

Current assets:	
Investment	
Domestic fixed income securities	$ 37,317
Domestic equities	29,509
Alternative partnerships	-
Commingled funds	70,281
Other assets	8,054
Total	$145,161
Current Liabilities:	
Accounts Payable	26
Total net position held in trust for pension benefits	$145,135
Additions:	
Employer contributions	$ 11,056
Employee contributions	10,979
Refunds and other	12,686
Total additions	$ 34,721
Deductions:	
Benefits payments	$ 8,168
Administrative expenses	48
Total deductions	$ 8,216
Change in Net Assets held in trust for pension benefits	$ 26,505

Source: City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

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Schedule of Changes in Net Pension Liability for the General Employees' Pension Plan for the years ended June 30
(Dollars in thousands)
(Unaudited)

	General Employees'			Firefighters'			Police Officers'		
	2016	**2015**	**2014**	**2016**	**2015**	**2014**	**2016**	**2015**	**2014**
Total pension liability	$1,915,577	$1,873,213	$1,832,883	$861,493	$853,690	$846,325	$1,317,840	$1,294,907	$1,270,494
Plan fiduciary net position	1,122,786	1,153,715	1,145,333	612,637	644,649	658,508	950,415	983,385	987,507
Employers net pension liability	$ 792,791	$ 719,498	$ 687,550	$248,856	$209,041	$187,817	$ 367,425	$ 311,522	$ 282,987
Plan fiduciary net position as a percentage of total pension liability	58.61%	61.59%	62.49%	71.11%	75.51%	77.81%	72.12%	75.94%	77.73%
Covered-employee payroll	$ 151,625	$ 145,654	$ 142,494	$ 46,918	$ 47,181	$ 44,508	$ 92,965	$ 93,836	$ 91,840
Percentage of covered-employee payroll	522.86%	493.98%	482.51%	530.41%	443.06%	421.98%	395.23%	331.99%	308.13%

Sources: City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

Note: Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

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Schedule of Changes in Net Pension Liability
for the General Employees' Pension Plan
for the years ended June 30
(Dollars in thousands)
(Unaudited)

	2016	2015	2014
Total pension liability:			
Service cost	$ 20,230	$ 20,191	$ 19,644
Interest	136,155	133,276	130,279
Demographic experience	1,610	-	-
Differences between expected and actual experience	-	(1,399)	-
Benefit payments, including refunds of member contributions	(115,631)	(111,738)	(108,175)
Net change in total pension liability	42,364	40,330	41,748
Total pension liability - beginning	1,873,213	1,832,883	1,791,135
Total pension liability - ending	$1,915,577	$1,873,213	$1,832,883
Plan fiduciary net position:			
Contributions - employer	54,236	48,015	42,145
Contributions - member	19,173	16,975	17,366
Net investment income	12,257	56,575	188,381
Benefit payments, including member refunds	(115,631)	(111,738)	(108,175)
Administrative expenses	(964)	(1,445)	(8,813)
Net change in plan fiduciary net position	(30,929)	8,382	130,904
Plan fiduciary net position - beginning	1,153,715	1,145,333	1,014,429
Plan fiduciary net position - ending	1,122,786	1,153,715	1,145,333
Plan net pension liability - ending	$ 792,791	$ 719,498	$ 687,550

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Schedule of Changes in Net Pension Liability
for the Firefighters' Pension Plan
for the years ended June 30
(Dollars in thousands)
(Unaudited)

	2016	2015	2014
Total pension liability:			
Service cost	$ 12,013	$ 12,612	$ 13,783
Interest	62,584	60,396	59,473
Differences between expected and actual experience	-	-	10,092
Demographic experience	(22,794)	(23,053)	-
Changes of assumptions	-	-	16,251
Benefit payments, including refunds of member contributions	(44,000)	(42,590)	(41,629)
Net change in total pension liability	7,803	7,365	57,970
Total pension liability - beginning	853,690	846,325	788,355
Total pension liability - ending	$861,493	$853,690	$846,325
Plan fiduciary net position:			
Contributions - employer	16,454	20,866	20,656
Contributions - member	5,667	5,637	5,670
Net investment income (loss)	(9,895)	2,651	112,374
Other	150	4	
Benefit payments, including member refunds	(44,000)	(42,590)	(41,268)
Administrative expenses	(388)	(427)	(374)
Net change in plan fiduciary net position	(32,012)	(13,859)	97,058
Plan fiduciary net position - beginning	644,649	658,508	561,450
Plan fiduciary net position - ending	612,637	644,649	658,508
Plan net pension liability - ending	$248,856	$209,041	$187,817

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Schedule of Changes in Net Pension Liability
for the Police Officers' Pension Plan
for the years ended June 30
(Dollars in thousands)
(Unaudited)

	2016	2015	2014
Total pension liability:			
Service cost	$ 21,573	$ 22,387	$ 23,755
Interest	95,436	91,326	89,442
Changes of benefit terms	(34,253)	(33,047)	
Differences between expected and actual experience			36,363
Changes of assumptions			13,373
Benefit payments, including refunds of member contributions	(59,823)	(56,253)	(51,070)
Net change in total pension liability	22,933	24,413	111,863
Total pension liability - beginning	1,294,907	1,270,494	1,158,631
Total pension liability - ending	$1,317,840	$1,294,907	$1,270,494
Plan fiduciary net position:			
Contributions - employer	25,441	32,693	30,197
Contributions - member	11,825	11,224	11,157
Net investment income	(10,177)	8,734	168,964
Other	193	4	
Benefit payments, including member refunds	(59,823)	(56,253)	(51,299)
Administrative expenses	(429)	(524)	(327)
Net change in plan fiduciary net position	(32,970)	(4,122)	158,692
Plan fiduciary net position - beginning	983,385	987,507	828,815
Plan fiduciary net position - ending	950,415	983,385	987,507
Plan net pension liability - ending	$ 367,425	$ 311,522	$ 282,987

Source: City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

Note: Schedule is intended to show information for 10 years. Additional years will be displayed as they become available.

Schedule of Employer Contributions for the years ended June 30
(Dollars in thousands)
(Unaudited)

General Employees'	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**2008**
Actuarily determined contributions	$ 53,817	$ 54,236	$ 48,015	$ 42,145	$ 38,688	$ 35,237	$ 46,068	$ 51,762	$ 69,991	$ 59,780
Contributions in relation to the actuarily determined contribution	53,817	54,236	48,015	42,145	38,688	35,237	46,068	51,762	69,991	59,780
Contribution deficiency (excess)	-	-	-	-	-	-	-	-	-	-
Covered-employee payroll	171,107	151,625	145,654	142,494	133,069	139,107	135,636	142,597	150,312	179,982
Contributions as a percentage of covered-employee payroll	31.5%	35.8%	33.0%	29.6%	29.1%	25.3%	34.0%	36.3%	46.6%	33.2%
Firefighters'	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**2008**
Actuarily determined contributions	$ 17,901	$ 16,454	$ 20,866	$ 20,656	$ 17,491	$ 21,092	$ 24,912	$ 25,865	$ 28,752	$ 26,373
Contributions in relation to the actuarily determined contribution	17,901	16,454	20,866	20,656	17,491	21,092	24,912	25,865	28,752	26,373
Contribution deficiency (excess)	-	-	-	-	-	-	-	-	-	-
Covered-employee payroll	47,479	46,918	47,181	44,508	42,797	39,482	42,963	43,910	43,275	45,561
Contributions as a percentage of covered-employee payroll	37.7%	35.1%	44.2%	46.4%	40.9%	53.4%	58.0%	58.9%	66.4%	57.9%
Police Officers'	**2017**	**2016**	**2015**	**2014**	**2013**	**2012**	**2011**	**2010**	**2009**	**2008**
Actuarily determined contributions	$ 27,493	$ 25,441	$ 32,693	$ 30,197	$ 26,525	$ 33,748	$ 19,568	$ 40,422	$ 41,213	$ 44,434
Contributions in relation to the actuarily determined contribution	27,493	25,441	32,693	30,197	26,525	33,748	19,568	40,422	41,213	44,434
Contribution deficiency (excess)	-	-	-	-	-	-	-	-	-	-
Covered-employee payroll	104,788	92,965	93,836	91,840	88,297	73,688	83,551	78,519	82,030	84,015
Contributions as a percentage of covered-employee payroll	26.2%	27.4%	34.8%	32.9%	30.0%	45.8%	23.4%	51.5%	50.2%	52.9%

Source: City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

Other Post-Employment Benefits

Plan Description. The City of Atlanta Retiree Healthcare Plan (Plan)is a single-employer defined benefit healthcare plan which provides Other Post-Employment Benefits (OPEB) to eligible retirees, dependents and their beneficiaries. The Plan was established by legislative acts and functions in accordance with existing City laws. OPEB of the City includes health, dental, and vision care and life insurance. Separate financial statements are not prepared for the Plan.

Funding Policy. The City is not required by law or contractual agreement to provide funding for OPEB other than the pay-as-you-go amounts necessary to provide current benefits to retirees, eligible dependents and beneficiaries. For the Fiscal Year ended June 30, 2017, the City made $48.9 million in "pay-as-you-go" payments on behalf of the Plan. Retiree contributions vary based on the plan elected, dependent coverage and Medicare eligibility. Eligible retirees receiving benefits contributed $41.7 million through their required contributions.

Annual OPEB Cost and Net OPEB Obligation. The City's annual OPEB cost (expense) is calculated based on the annual required contribution of the employer (ARC); an amount actuarially determined using the Entry Age Normal actuarial method. The ARC represents a level of funding that, if paid on an ongoing basis, is projected to cover normal cost each year and amortize any unfunded actuarial liabilities over a period not to exceed thirty years.

The following table presents the elements of the City's OPEB cost for the year, the amount actually contributed on behalf of the Retiree Healthcare Plan, and changes in the City's net OPEB obligation to the Retiree Healthcare Plan for the Fiscal Year ended June 30, 2017 (table shows dollars in thousands):

	City-Wide	DWM	DOA	Other Business Type	General Government
Annual Required Contribution	$ 81,414	$ 14,820	$10,389	$ 4,321	$ 51,884
Interest on Net OPEB Obligation	17,924	3,262	2,287	951	11,424
Adjustment to Annual Required Contribution	(21,338)	(3,884)	(2,723)	(1,132)	(13,599)
Annual OPEB Cost (expense)	78,000	14,198	9,953	4,140	49,709
"Pay As You Go" Payments made	(48,947)	(8,261)	(6,258)	(5,179)	(29,249)
Increase in Net OPEB Obligation	29,053	5,937	3,695	(1,039)	20,460
Net OPEB Obligation - Beginning of Year	448,099	106,924	60,465	27,501	253,209
Net OPEB Obligation - End of Year	$477,152	$112,861	$64,160	$26,462	$273,669

Source: City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

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The City's annual OPEB cost, the percentage of annual OPEB cost contributed to the Plan, and the net OPEB obligation for the Fiscal Years ended June 30, 2015 - 2017 were as follows (dollars in thousands):

Fiscal Year Ended	Annual OPEB Cost	Percentage of Annual OPEB Cost Paid	Net OPEB Obligation
June 30, 2015	$74,141	58.4%	$415,658
June 30, 2016	76,158	57.4	448,099
June 30, 2017	78,000	62.8	477,152

Source: City of Atlanta, Georgia Comprehensive Annual Financial Report for the Twelve Months Ended June 30, 2017 and City of Atlanta, Department of Finance.

Funded Status and Funding Progress. As of July 1, 2016, the most recent actuarial valuation date, the Retiree Healthcare Plan was not funded. The unfunded actuarial accrued liability ("UAAL") for benefits was $1.14 billion. The covered payroll was $384.5 million, and the ratio of the UAAL to the covered payroll was 297.36%. The Retiree Healthcare Plan membership as of July 1, 2016, was 14,898; consisting of 7,603 current retirees, beneficiaries and dependents and 7,295 current active participants. There are no terminated participants entitled but not yet eligible.

Actuarial valuations of an ongoing plan involve estimates of the value of reported amounts and assumptions about the probability of occurrence of events far into the future. The determined actuarial valuations of OPEB provided under the Plan incorporated the use of various assumptions including demographic and salary increases among others. Amounts determined regarding the funded status of the Plan and the annual required contributions of the City are subject to continual revisions as actual results are compared with past expectations and new estimates are made about the future.

The schedule of funding progress, shown as required supplementary information following the notes to the financial statements, presents multi-year trend information on the actuarial value of plan assets relative to the actuarial accrued liability for benefits. Under the provisions of GASB 45, Accounting and Financial reporting by employers for postemployment benefits other than pensions, the City elected to use the June 30, 2016, actuarial report as the basis for determining the current year ARC requirement.

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

In the June 30, 2016, actuarial valuation, the Entry Age Normal Actuarial Cost Method was used. It is amortized as a level percent of payroll over a 21-year period and a closed amortization method. The actuarial assumptions included 4.0 percent investment rate of return and an annual medical cost trend rate of 7 percent initially, graded down to 4.5 percent over five years. Both rates include a three percent inflation assumption. Currently there are no assets set aside that are legally held exclusively for OPEB.

See the audited basic financial statements of the City which are available on EMMA.

THE DEPARTMENT OF WATERSHED MANAGEMENT

General

The Department was created in 2002 to oversee the City's comprehensive approach to providing water, watershed protection and wastewater services (including selected watershed protection services) to residential, commercial, industrial and governmental ratepayers across its service area. In Fiscal Year 2017, the Department implemented a reorganization that was incorporated into its Fiscal Year 2018 budget and calls for an authorized staffing level of 1,732 positions. As of the beginning of Fiscal Year 2019, the Department had 1,410 filled operating positions and 322 vacancies. The departmental reorganization was undertaken to focus on customer delivery and to substantially improve customer service, as well as to ensure proper attention is given to Consent Decrees and compliance with all regulatory requirements. In addition, the senior team has been enhanced with the creation of the Chief Administrative Officer and Assistant Commissioner positions to assure dedicated attention to project delivery as well as the Department's daily administrative and operational needs, thereby allowing the Commissioner to be more attentive to strategic planning and policy issues. The functions and staffing of the Department have been structured as follows:

Office of the Commissioner. The Commissioner's Office is responsible for setting the strategic direction for the Department and providing leadership in all areas of operations and management. It has ultimate responsibility for regulatory compliance, management of the System's infrastructure assets, customer service and management of human and financial resources. Its priorities are provision of high quality customer service, environmental compliance and operational efficiency. The Fiscal Year 2019 budget provides for funding of 107 positions in the Commissioner's Office, inclusive of seven funded positions within the Commissioner's Office itself and seven functional reporting areas, as described below.

Policy and Intergovernmental Affairs. The Policy and Intergovernmental Affairs functional area is responsible for planning, drafting and coordinating legislative, regulatory and strategic initiatives on behalf of the Department to address issues at the municipal, state and national levels. This area coordinates with other municipalities, regulatory agencies, and national and regional industry organizations to guide policy decisions that are in the City's best interest. The Policy and Intergovernmental Affairs team reports directly to the Commissioner. The Fiscal Year 2019 budget provides for funding of five positions.

Communications and Community Relations. The Communications and Community Relations functional area coordinates the Department's engagement with key community groups including the City's Neighborhood Planning Units. This group develops and coordinates publication of informational materials on Department programs and initiatives and is the designated point of contact with local media. This functional area also has responsibility for coordinating departmental communications through internal newsletters and employee briefings, as well as serving as a liaison to the Mayor's Office. This functional area reports to the Chief Administrative Officer, a position within the Office of the Commissioner. The Fiscal Year 2019 budget provides for funding of 22 positions.

Performance and Accountability. The Performance and Accountability functional area coordinates the development and evaluation of performance measures to institutionalize accountability for System performance and support continuous improvement efforts. This area is responsible for reporting on progress related to the Department's priorities, currently oriented toward improved customer service, workplace safety and loss prevention, regulatory compliance and environmental protection and efficient operations. This area also includes the Department's Internal Audit function responsible for evaluation of internal controls and business processes. This team reports to the Chief Administrative Officer. The Fiscal Year 2019 budget provides for funding of 13 positions.

Office of Safety, Security & Emergency Management. The Office of Safety, Security & Emergency Management has responsibility for implementing and monitoring compliance with the Department's workplace safety programs, ensuring compliance with U.S. Department of Homeland Security regulations related to system safety and security measures, and emergency preparedness planning and training initiatives. This functional area reports to the Chief Administrative Officer. The Fiscal Year 2019 budget provides for funding of 62 positions.

Asset Accountability Management. The Asset Accountability Management team is responsible for maintenance of the Department's approximately 1,200 services vehicles and heavy equipment, seven warehouses and three inventory control service centers. The fleet services staff works in collaboration with the Department of Public Works (Fleet Services) to ensure all vehicles and equipment are fully operational. This team reports to the Chief Administrative Officer. The Fiscal Year 2019 budget provides for funding of 50 positions.

Facilities Management. The Facilities Management team is responsible for maintenance of the Department's 117 facilities and grounds. Facilities Management coordinates with the Mayor's Office of Enterprise Asset Management for facility capital improvement needs and the maintenance and upkeep of the Department's Headquarters at 72 Marietta Street. This team reports to the Chief Administrative Officer. The Fiscal Year 2019 budget provides for funding of 61 positions.

Atlanta Information Management (AIM). The Atlanta Information Management team is a component of the centralized City-wide Information Technology organization and provides IT solutions and services including application development and support, technology Quality Assurance / Quality Control services, and end user support. The area coordinates acquisition and updating of IT and communication resources across the Department to promote compatibility of applications, facilitate data warehousing and sharing, and promote operating efficiencies. This team provides technology support for ongoing business process evaluation and redesign initiatives. The Fiscal Year 2019 budget provides for funding of 61 positions.

Clean Water Atlanta. The Clean Water Atlanta initiative team, which is comprised of personnel from other Department offices, is responsible for planning, design, and construction of improvements to the City's drinking water and wastewater systems, as well as environmental compliance reporting, to comply with the City's consent decrees and administrative orders. The Clean Water Atlanta team reports to the Assistant Commissioner within the Office of the Commissioner. The Fiscal Year 2019 budget provides for funding of 15 positions.

Office of Financial Administration. The Office of Financial Administration is responsible for the preparation, evaluation and monitoring of the Department's budget, updating of the Department's strategic financial plan, support of its capital financing program, and capitalization of fixed assets. It is responsible for accounting functions including recording of revenues and expenses, and support of the annual external audit as well as cash collections, payroll, and billing of inter-jurisdictional partners. The Fiscal Year 2019 budget provides for funding of 64 positions.

Office of Customer Care and Billing Services. The Office of Customer Care and Billing Services manages the Department's customer service operation, including management of the customer service billing system, call centers and walk-in customer service functions. In addition, the Office coordinates investigation of small metering issues as well as service cuts and repairs. The Fiscal Year 2019 budget provides for funding of 147 positions.

Office of Engineering Services. The Office of Engineering Services is responsible for the capital program related to the Department's Consent Decree compliance, as well as in-house project design, construction, project and asset management, Geographic Information System (GIS), leak detection and water loss programs, inter-governmental agency agreements, surveying, master planning, hydraulic modeling and utility locates. The Fiscal Year 2019 budget provides for funding of 206 positions.

Office of Water Treatment and Reclamation. The Office of Water Treatment and Reclamation is responsible for drinking water production and wastewater treatment. Drinking water production involves operation and maintenance of the water supply intakes, three water treatment plants (WTPs), finished water storage and distribution system pumping, including system pressure management and provision of fire flows. Wastewater treatment involves operation and maintenance of four wastewater treatment facilities, six permitted combined sewer discharge sites, and sewage pumping stations. The Office of Water Treatment and Reclamation is responsible for complying with all applicable regulatory requirements including the federal and State Safe Drinking Water Acts ("SDWAs") and Federal Clean Water Act on which it reports to the Georgia Environmental Protection Division (the "EPD"). The Office of Water Treatment and Reclamation also includes a Division of Automation and Sustainability oriented toward enhancing efficiency and environmental performance of Office operations, in part through the implementation of new automation technologies. The Fiscal Year 2019 budget provides for funding of 319 positions.

Office of Linear Infrastructure Operations. The Office of Linear Infrastructure Operations is responsible for all aspects of the management, operation and maintenance of the Department's over 2,800 miles of water distribution lines and 2,150 miles of sanitary sewer pipe, including all City-owned storm sewers and structures. The Office of Linear Infrastructure

Operations provides 24/7 incident and request response, performs both preventive and reactive maintenance and repairs of System assets (including pipelines, valves, hydrants and other appurtenances) and tests, repairs and replaces service meters throughout the System. The movement of the dispatch function within this Office enables efficient deployment of field service personnel and improved customer service by facilitating "one-stop" field work order resolution. The Fiscal Year 2019 budget provides for funding of 534 positions.

Office of Watershed Protection. The Office of Watershed Protection leads the Department's holistic approach to integrated water resource management. It manages water policy initiatives, leads the development of watershed plans (including: Basin Assessments, Watershed Protection Plans, Watershed Improvement Plans, Total Maximum Daily Load (TMDL) Implementation Plans), and guides ecosystem restoration capital improvements. The Office of Watershed Protection performs wastewater flow monitoring, inter-jurisdictional flow metering as well as floodplain modeling and management activities. In addition, the Office of Watershed Protection has responsibility for the Department's stormwater compliance programs; fats, oil and grease management; industrial pre-treatment permitting and inspections, and manages the Department's laboratories, providing analytical services related to treatment plant performance.

The Office of Watershed Protection has responsibility for ensuring, monitoring and reporting compliance with all pertinent State and federal environmental regulations. By providing analytical and compliance monitoring services independently of the Department's offices responsible for treatment plant and linear infrastructure operations, a segregation of duties has been put in place to provide improved assurance of compliance with all applicable environmental regulations. The Fiscal Year 2019 budget provides for funding of 165 positions.

Appointed Officials and Key Personnel

The following are brief resumes of certain key personnel of the Department involved in the administration and operation of the System.

Kishia L. Powell was appointed to serve as Commissioner of the Department in June 2016. With expertise in sustainable infrastructure management and utility operations, Ms. Powell has leveraged 19 years of experience in both the public and private sectors to successfully serve municipalities across the United States and London, England. As Commissioner, Ms. Powell is responsible for oversight of the Department's budget, and its five-year capital improvement plan including the Water Supply Program and the Clean Water Atlanta program. Prior to joining the City, Ms. Powell served as the Public Works Director for the City of Jackson, Mississippi where she was responsible for developing a programmatic strategy and master plan for Jackson's Municipal Special Sales Tax-funded infrastructure improvements program, including the "Greening the Gateways" initiative which led to the award of a $16.5 million TIGER Grant in October 2015.

In 2008, Ms. Powell was appointed Bureau Head of Water and Wastewater for the City of Baltimore to lead a 1,900-person agency serving 1.8 million customers with an annual operating budget of $300 million and a six-year capital improvement program of $2.2 billion. Based upon her work in Baltimore, she was named the 2010 Maryland Water Environment

Federation's Water Hero. Ms. Powell's private sector experience includes time spent as business development lead for an international firm to market services for stormwater program management and other support services in the Chesapeake Bay region to municipalities faced with Chesapeake Bay Total Maximum Daily Load (TMDL) and State watershed implementation plans.

Ms. Powell is a member of the Water Environment Federation and the American Water Works Association. She was most recently elected to serve on the Board of the National Association of Clean Water Agencies, and served on the Metropolitan North Georgia Water Planning District's Governing Board on behalf of the City. Under Ms. Powell's leadership as a Global Water Leader, the Department was recognized in the inaugural class of Leading Utilities of the World in April 2017. Ms. Powell's water sector leadership role includes serving on the management committee for the U.S. Water Alliance Value of Water Campaign. Ms. Powell has been a licensed Professional Engineer in Maryland, Virginia and the District of Columbia and she holds a Bachelor of Science degree in Civil Engineering from Morgan State University's Clarence M. Mitchell, Jr. School of Engineering.

Andrada Butler serves as the Department's Chief Administrative Officer. Ms. Butler manages the day-to-day administrative operations of the Department including: the development and implementation of the Department's strategic plan, instructional leadership for Department managers and development of administrative policy. In her role, Ms. Butler also provides leadership over the Department's Offices of Communications and Community Relations, Performance and Accountability, Assets Management, and Safety, Security and Emergency Management.

Prior to joining the Department, she served as the Deputy Director for the Department of Public Works of the City of Jackson, Mississippi. As Deputy Director, she assisted in the planning, directing, managing and overseeing the day-to-day operations of the Department of Public Works.

Ms. Butler has a Bachelor of Science in Criminal Justice and a Master of Public Policy and Administration from Jackson State University.

Mohamed Balla serves as the Department's Deputy Commissioner of the Office of Financial Administration. In his role, Mr. Balla provides leadership over the Department's financial services including financial planning, analysis, budgeting and reporting, capital financial management and auditing, revenue operations and management, accounts receivable and collections, accounts payables, fixed asset and inventory management, accounting services, and payroll.

Mr. Balla has over 13 years of experience in investment banking, corporate finance, and public finance. Mr. Balla joined the City in April 2011 and has been with the Department since August 2012. Prior to joining the Department, Mr. Balla served as a key member of the City's pension reform team responsible for restructuring the City's pension plan. Mr. Balla also served as the City's Cash and Investment Manager overseeing the City's cash and investment portfolio.

Before joining the City, Mr. Balla worked as an investment banking professional at Citigroup Corporate and Investment Bank and Wachovia Securities. Mr. Balla earned his B.A. in Business Administration from Morehouse College with a concentration in Finance and an M.B.A from the Stephen M. Ross School of Business at the University of Michigan.

The following are brief resumes of certain key personnel of the City involved in the administration and operation of the System.

Richard Cox serves as the City's Chief Operating Officer. Mr. Cox previously lead a team at Dealer.com that focused on evolving the client experience. Previously, Mr. Cox was responsible for business, customer and consumer operations; analytics; and overall customer experience for Autotrader, Dealer.com and Kelley Blue Book. All three brands are part of Cox Automotive, a division of Cox Enterprises, Inc. Prior to joining Cox Automotive, Mr. Cox held operational leadership positions with several organizations including Worldspan, Jones International University and Orbitz. Mr. Cox began his career at Worldspan, an Atlanta-based travel technology and content provider, where he held several positions during his 11-year tenure including Director of Worldwide Operations. Mr. Cox also served as President and Chief Operating Officer for Jones International University (JIU), a Denver online-based university. Prior to joining JIU, Mr. Cox served as Vice President of Customer Experience at Orbitz Worldwide, a leading online travel company, where he provided organizational strategy and was responsible for customer care, quality assurance, vendor and workforce management.

Mr. Cox also served on the Atlanta Board of Directors for Year Up and serves on the Cox Automotive Diversity Council. Mr. Cox holds a M.B.A. in Management Information Systems from Kennesaw State University.

Roosevelt Council, Jr. serves as the City's Chief Financial Officer. Previously, Mr. Council served as Airport General Manager at Hartsfield-Jackson Atlanta International Airport (the "Airport"). In that role, Mr. Council oversaw Airport operations as well as a multibillion-dollar capital improvement program. Prior to January 2017, he was the Airport Deputy General Manager and Chief Financial Officer. In that role, he directed all accounting, budgeting, financial analysis and forecasting, procurement and treasury operations at the Airport. Mr. Council has more than 25 years of experience as a financial professional in public accounting, communications, transportation logistics and the public sector. He joined the City in 2009 as Budget and Fiscal Policy Chief and later served as Deputy Chief Financial Officer.

Prior to joining the Airport team, he served as interim CFO for the City under the leadership of then-Mayor Kasim Reed. Before his employment with the City, Mr. Council was CFO of the Georgia Technology Authority, where he was responsible for general accounting, budget, cost accounting, financial reporting, payroll and strategic planning.

Mr. Council serves on the Board of Advisers for the Metro Atlanta Chamber and the board of directors for the Atlanta Convention and Visitors Bureau and Atlanta Technical College. He also is a member of 100 Black Men of Atlanta, Inc.

Mr. Council is a graduate of Memphis State University, the Harvard University Executive Leadership Program and the Georgia Leadership Council. Mr. Council also achieved

International Airport Professional status, the highest designation bestowed upon an airport executive after completion of a rigorous program developed by Airports Council International and the International Civil Aviation Organization.

Tina Wilson serves as the City's Deputy Chief Financial Officer. Ms. Wilson has more than 23 years of experience in accounting, business and finance. Her experience includes strategic finance and business planning, audit and internal control, accounting, budgeting and forecasting, information systems and financial modeling, for small, mid-sized, and Fortune 500 corporations. Prior to joining the City as Deputy Chief Financial Officer, she spent 12 years at Hartsfield-Jackson Atlanta International Airport focusing on the two major, multi-year, multi-billion-dollar capital improvement programs, most recently as the Director of Capital Finance. Ms. Wilson earned a Bachelor of Business Administration (Accounting) degree from Mercer University, a Master of Business Administration (Finance) degree from Georgia State University and holds an active Certified Public Accountant (CPA) license in the state of Georgia.

John Gaffney serves as the City's Deputy Chief Financial Officer. Mr. Gaffney has more than 25 years of experience in banking, finance and accounting roles. His experience base includes strategic planning, mergers and acquisitions, business development, financial reporting, budgeting, and accounting across small, midsized, Fortune 50 corporations and large government. Prior to joining the City, Mr. Gaffney worked with BellSouth Corporation in Atlanta where he held roles of progressive responsibility ranging from Accountant to Director of Finance. He has been with the City since 2010 when he was recruited to help with a turn-around of the City's finance department practices and policies and procedures. Mr. Gaffney has served the City as the Director of Financial Reporting, Controller, Interim Chief Financial Officer, and in his current role as Deputy Chief Financial Officer. Mr. Gaffney earned a Bachelor of Science in Business Administration (Finance) degree from Auburn University and holds an active Certified Public Accountant (CPA) license in the state of Georgia.

Scott G. Fairclough serves as the City's Interim Chief of the Office of the Treasurer. Mr. Fairclough has over 30 years' experience in capital markets, investment banking and financial risk management. His experience includes trading and managing risks in large trading portfolios, transaction execution/structuring, banking, marketing, new business development and management. Prior to joining the City, Mr. Fairclough held senior positions at INTL FCStone, Topstone Capital Advisors, Lehman Brothers, First Union, BNP Paribas, and Dexia. Mr. Fairclough earned a B.A. in Finance from the State University of New York at Albany.

Nina R. Hickson, Esquire, serves as the City's City Attorney. Previously, Ms. Hickson served as Vice President and General Counsel of Atlanta BeltLine Inc. (ABI) where she was responsible for all legal matters including general corporate transactions, corporate governance, compliance and risk management and a wide variety of real estate-related matters including transactional work and negotiations. Prior to serving as Vice President and General Counsel of ABI, Ms. Hickson served as the Ethics Officer for the City. In that role, Ms. Hickson was responsible for educating all City officials and employees of the requirements for conducting City business in compliance with the City's Code of Ethics. Ms. Hickson also oversaw the City's financial disclosure process and prosecuted violations of the Ethics Code. Immediately prior to serving as the City's Ethics Officer, Ms. Hickson served as Interim City Manager for the City of East Point where she had been the City Attorney for six years. Prior to assuming the role of City

Attorney for the City of East Point, Ms. Hickson held prominent legal positions within the Atlanta Judicial Circuit and the Fulton County Justice System. Before these appointments, Ms. Hickson practiced law for 15 years in a variety of capacities including Assistant United States Attorney for the Northern District of Georgia, General Counsel for the Atlanta Housing Authority, General Counsel and Vice President for Atlanta Life Insurance Company, and Vice President and Associate General Counsel to Primerica Financial Services, a subsidiary of the Citigroup Corporation.

Ms. Hickson's extensive community involvements have included membership on various boards and civic organizations in metropolitan Atlanta and her commitment to community service has resulted in her receiving numerous awards and recognition. Ms. Hickson received her Bachelor of Arts degree, magna cum laude, in Journalism from Howard University in Washington, D.C. and her Doctor of Law degree from Emory University of Atlanta.

THE SYSTEM

General

The System consists of a Water System and a Wastewater System (all as hereinafter described). The "Water System" is comprised of facilities which include three WTPs with a combined treatment capacity of 246.4 million gallons per day (mgd), one of which (along with a raw water intake) is jointly owned with Fulton County. The City's distribution system includes a network of more than 2,800 miles of water distribution pipelines, four finished water pump stations, three re-pump stations, 11 booster pump locations (eight of which are in reserve), two raw water pump stations, one reservoir emergency draw-down pump station, four surge tanks and 12 ground and elevated storage tanks. The "Wastewater System" is comprised of facilities which encompass more than 2,150 miles of sanitary and combined sewers, three permitted water reclamation centers (WRCs), two permitted combined sewer overflow (CSO) Water Quality Control Facilities (WQCF), four permitted CSO Control Facilities, and 16 pump stations. The Wastewater System has a total treatment capacity of 220 mgd and is permitted to discharge up to 188 mgd, based on a monthly average, under a combined permit.

For more information regarding the Water System and the Wastewater System, see "THE SYSTEM - Water System" and "- Wastewater System" herein and "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Wastewater System and - Water System" attached hereto.

The Water System operates under permits issued by the State of Georgia Department of Natural Resources (the "DNR"), the EPD, requirements of the federal and State SDWAs, and is subject to two Administrative Consent Orders issued in 1997 and 2003 by the EPD related to the water treatment and distribution system (the "Consent Orders") and the New Proposed Consent Orders, which require the City to increase the Water System's reliability and to meet the demands of a growing regional population base. The Wastewater System operates pursuant to environmental permits pursuant to the Clean Water Act and the Georgia Water Quality Control Act and is subject to the federally ordered Consent Decrees, which specify operational and capital improvements that the City is required to make within specified timeframes to its wastewater collection and treatment systems and CSO Control Facilities in order to resolve all outstanding requirements of the Consent Decrees.

For more information, see "THE SYSTEM - Water System Regulatory Matters" and "- Wastewater System Regulatory Matters" herein and "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Wastewater System and - Water System" attached hereto.

Service Area

The service area for the Wastewater System is regional and is bordered on the west by the Chattahoochee River and extends into northwest DeKalb County, a small portion of Clayton County and parts of north and south Fulton County. Together, the City's WRCs serve a total area of 225 square miles, with the City's WQCFs and CSO Control Facilities providing supplemental capacity for a total area of approximately 11 square miles.

The retail water service area of the Water System includes the City, unincorporated areas of Fulton County (South of the City), the areas located within the cities of Sandy Springs and Chattahoochee Hills and portions of incorporated areas located in South Fulton. The City's wholesale customers include three cities in Fulton County (Hapeville, Fairburn and Union City) and the counties of Coweta (Coweta County Water and Sewerage Authority), Clayton (Clayton County Water Authority) and Fayette. The City supplies all water needed by the wholesale cities and a limited portion of the total water needed by the wholesale counties; while these customer counties continue to have active wholesale water meters, their water demands are limited to exceptional circumstances reflecting recent demand patterns and their respective development of alternative water supply arrangements. The cities of College Park, East Point and Palmetto are supplied with water independent of the City and Fulton County.

Service area growth through territory acquisition or purchase or new significant wholesale customers is possible but not anticipated.

Water System

The Water System obtains its drinking water from the Chattahoochee River through two raw water intakes located downstream of Lake Lanier, a multi-purpose water reservoir owned and operated by the U.S. Army Corps of Engineers (the "Corps"). The City is currently permitted to withdraw a combined total of approximately 225 mgd. The raw water is treated at the City's three WTPs, one of which (along with a raw water intake) is jointly owned with Fulton County. The WTPs have a combined treatment capacity of 246.4 mgd. The City's distribution system includes more than 2,800 miles of water distribution pipelines, four finished water pump stations, three re-pump stations, 11 booster pump locations (eight of which are in reserve), two raw water pump stations, one reservoir emergency draw-down pump station, four surge tanks and 12 ground and elevated storage tanks. The Water System serves over 162,000 active water accounts. See "THE SYSTEM - Service Area" for a description of the service area of the Water System.

Water Quality. The Water System is in compliance with all of its applicable permits. The water treated and delivered by the Water System meets or exceeds all drinking water standards established by the EPA and no maximum contaminant level has been exceeded. The

City meets all current water quality standards of the federal and State SDWAs as regulated by the EPA and the EPD, respectively, and has never been cited for a water quality violation.

Water Supply. In Fiscal Year 2017, the average daily water production for the Water System was 97.57 mgd. The City currently is permitted to withdraw 180 mgd (monthly average) of raw water for the Hemphill and Chattahoochee plants, and 45 mgd for the Atlanta-Fulton County Water Treatment Plant. The City currently has a raw water storage capacity of approximately 550 million gallons at the Hemphill facility, 800 million gallons of capacity shared with Fulton County at the Atlanta-Fulton County North Area Water Treatment Plant and a combined finished water storage capacity of approximately 37 million gallons. The Hemphill facility has two raw water reservoirs one of which has recently undergone repairs and was restored to service in 2017.

The Chattahoochee River, the raw water supply source for the City, is regulated by several federal dam projects. The most important of these projects for the City is Buford Dam, which impounds the river to create Lake Lanier and is operated by the Corps. The City's raw water intake sits downstream of this project along the Chattahoochee River. As such, the City depends upon the Corps to operate Buford Dam to regulate the flow of the river to ensure a sufficient water supply is available. The operation of Buford Dam and Lake Lanier were the subject of protracted litigation over 20 years known eventually as the Tri-State Water Rights litigation, which proceeding is discussed in detail under the caption "THE SYSTEM - Water System Regulatory Matters - *Water Supply Litigation*" herein. The City currently withdraws water from the Chattahoochee River under a surface water withdrawal permit issued by the EPD and with a term that runs to November 1, 2021. Future withdrawal permits will be required to be consistent with future regional and State water plans. The City provides return flows of its water withdrawals to the Chattahoochee River via the City's WRCs and it does not withdraw water from the Flint, Apalachicola, Alabama, Coosa or Tallapoosa River basins.

As mandated under legislation enacted by the Georgia General Assembly in 2004, the EPD developed a Comprehensive State-wide Water Management Plan (the "State-wide Water Management Plan"), which was adopted by the Georgia General Assembly in 2008. Pursuant to the State-wide Water Management Plan, ten regional water plans were officially adopted in November 2011 which require basin management plans to be developed. These regional water plans: (a) outline management practices to meet future water needs, (b) address both water quantity and water quality challenges, (c) include forecasts of future water supply and wastewater treatment needs, and (d) identify practices to ensure that future needs can be met. Prior to the statewide efforts, the Metropolitan North Georgia Water Planning District (the "District"), of which the City is a part, was formed in 2001 and engaged in a comprehensive two-year planning process for stormwater, wastewater and water supply and water conservation. The District issued its first water resource management plan documents in 2003. At that time, the District issued three separate plans: Water Supply and Water Conservation, Wastewater Management and Watershed Management. These plans were updated by the District in 2009. In 2012, the District combined the three separate plan documents into one comprehensive plan (the "Regional Water Resource Management Plan") to highlight the interrelationships between approaches to water, wastewater and watershed management. The District's planning efforts provide local jurisdictions and state officials with recommended actions, policies and investments for water supply and water conservation, wastewater management and watershed management activities. The Regional Water Resource Management Plan was developed to meet State laws, local needs and District goals. The Regional Water Resource Management Plan describes existing conditions and projects future conditions of the region's water resources and its water, wastewater and watershed management infrastructure, and promotes the protection of water resources for the purposes of supply, quality and recreation in the region and downstream.

Water Treatment Plants. The Water System has three WTPs serving more than one million people in the metropolitan Atlanta region, providing approximately 100 mgd of water each day within a 650-square-mile service area. The Chattahoochee and Hemphill WTPs obtain water from the City owned Chattahoochee River Intake and Raw Water Pump Station under a combined surface water withdrawal permit for the two treatment plants. The Atlanta-Fulton County North Area WTP also obtains water from the Chattahoochee River, but at a different, jointly owned location and under a separate surface water withdrawal permit. The Chattahoochee River Intake is the source of raw water for the Chattahoochee and Hemphill WTPs and operates under a permit, which was renewed on November 6, 2013, that allows for the withdrawal of up to 180 mgd (monthly average). Absent revocation pursuant to the Georgia Water Quality Control Act, the permit will be in effect until November 1, 2021. The Chattahoochee WTP has a maximum capacity of 64.9 mgd and provides approximately 40 percent of the drinking water for the City and parts of Fulton County. The current permitted capacity of the Hemphill WTP is 136.5 mgd. This plant supplies approximately 48 percent of drinking water to retail, residential, commercial, industrial and institutional customers within the City and portions of Fulton County south of the Chattahoochee River, and to the City's wholesale water customers. The Atlanta-Fulton County North Area WTP is a high-rate surface water filtration plant located on the Chattahoochee River in Alpharetta and is permitted to withdraw up to 90 mgd of raw water at this location which is withdrawn at the jointly owned Atlanta-Fulton County Raw Water Intake.

Water Production, Connections, Demand and Revenues. The following tables summarize certain information concerning water production, connections, demand and revenues for the last five Fiscal Years and water connections, percentage water demand and percentage water revenues by customer class for the last five Fiscal Years:

Maximum and Average Daily Water Production[(1)]
(millions of gallons)

	Fiscal Year				
	2014	**2015**	**2016**	**2017**	**2018**
Maximum Daily Production	131.52	118.62	124.50	131.87	116.89
Average Daily Production	90.90	92.96	96.93	97.57	96.84

(1) The System includes a raw water supply with a permitted withdrawal amount of 225 mgd and a combined treatment capacity of 246 mgd as of June 30, 2018 (unaudited).

Source: City of Atlanta, Department of Watershed Management.

Water Connections, Demand and Revenues by Customer Class
(Unaudited)
Water Connections by Customer Class

Fiscal Year	Residential[1]	Commercial	Industrial	Total[2]
2014	139,690	12,123	149	151,962
2015	139,752	12,243	143	152,138
2016	141,204	12,548	140	153,892
2017	146,186	12,987	145	159,318
2018	148,421	13,036	137	161,594

Percentage Water Demand by Customer Class

Fiscal Year	Residential	Commercial	Industrial	Wholesale	Government
2014	56	34	2	5	3
2015	55	35	2	4	4
2016	55	35	2	4	4
2017	56	34	2	4	4
2018	54	36	2	5	3

Percentage Water Revenues by Customer Class

Fiscal Year	Residential	Commercial	Industrial	Wholesale	Government
2014	55	38	2	3	2
2015	55	39	2	2	2
2016	55	40	1	2	2
2017	54	40	2	2	2
2018	53	40	2	3	2

(1) Includes apartment complexes, which are served by single connection.
(2) Does not include government or wholesale customers. In Fiscal Year 2018, there were 1,037 government customers and six wholesale customers, with 52 wholesale accounts, in these two categories (unaudited).

Source: City of Atlanta, Department of Watershed Management.

Distribution System. Potable drinking water is delivered to the City's retail and wholesale customers through a network of approximately 2,800 miles of water mains and pipelines. Water is piped to customers through pipelines ranging in diameter from two to 96 inches. The City's distribution system contains 12 storage tanks (below ground, ground and elevated) and 11 booster station locations dispersed throughout the System to manage instantaneous water demand and pressure fluctuations in the service area. In addition, there are four surge tanks protecting the finished water system.

Customers. In Fiscal Year 2018, the City's five largest water customers in the aggregate accounted for approximately 3.40% of the City's total billings of $197,670,609 for Fiscal Year 2018. The City has experienced a decrease in demand over the last decade in large part due to successful water conservation efforts, including the imposition of water use restrictions. This decrease in demand was more pronounced between 2007 and 2009 as a consequence of a prolonged drought and mandatory outdoor watering restrictions. The following table shows the five largest retail water customer billings for the Fiscal Year 2018. No independent investigation has been made of, and consequently no representation can be made as to, the stability or financial condition of any of the customers listed below or that such customers will continue to maintain their status as major customers of the Water System.

Five Largest Water Users
(dollars in thousands)

Customers	Billings(1)	% of Total Billings(2)
QTC Quaker, Tropicana, Gatorade	$2,820	1.43%
Quality Technology Services	1,145	0.58
City of Union City	957	0.48
Energy Systems Group	912	0.46
Coca-Cola Company USA	898	0.45

(1) Billings for the period beginning July 1, 2017 and ending June 30, 2018 (unaudited).
(2) Based on total billings of $197,670,609 for the period beginning July 1, 2017 and ending June 30, 2018 (unaudited).

Source: City of Atlanta, Department of Watershed Management.

Wholesale Water and Wastewater Agreements Generally. The City provides water and wastewater service on a wholesale basis to counties and municipalities outside of the City's boundaries. Generally, these services are provided under long-term inter-jurisdictional (IJ) agreements of 30 years or longer. The City is operating under wastewater service agreements with DeKalb and Fulton counties and the municipalities of College Park, East Point and Hapeville. The DeKalb, East Point and Hapeville wastewater agreements expire in 2029 while the Fulton and College Park agreements expire in 2022 and 2028, respectively. The City is operating under wholesale water service agreements with the Coweta County Water and Sewerage Authority, Clayton County Water and Sewer and the City of Hapeville that will expire in 2021, 2020, and 2020, respectively. Wholesale water services are also provided to Fayette County and the cities of Fairburn and Union City under current wholesale rates but the City does not have wholesale water service agreements with these entities.

Under the current terms of the wastewater agreements, the City provides conveyance and treatment services for wastewater flow volumes. The contracting governmental entities which currently include Fulton and DeKalb counties as well as the cities of College Park, East Point, and Hapeville (collectively, "IJ Partners") pay their share of associated operational costs and are required to implement and enforce sewer use regulations that are no less restrictive than those imposed by the City. The IJ Partners share in capital costs based on the capacity they have reserved in City facilities pursuant to the relevant agreements. Treatment plant monthly operating costs are based on the IJ Partners' proportionate share of flows entering facilities in which they have reserved capacity. In addition, the IJ Partners are obligated to pay a pro rata share of wastewater transmission and collection operations and maintenance costs based on the portion of the System from which they benefit. Alternatively, some IJ Partners can elect to pay a wholesale wastewater rate, as defined in the relevant agreements. Capital cost payments are billed according to IJ Partners' share of costs for particular capital projects in the Wastewater System. Long-term wholesale water service contracts with IJ Partners provide for water sales at bulk wholesale rates set by the City, pursuant to the Rate Ordinance (as defined herein). The City may adjust rates at its discretion; System-wide rate adjustments over the last decade have been applied to wholesale service rates. In Fiscal Year 2015, the Department continued its focused collection strategy with wastewater IJ Partners to resolve questions related to outstanding balances for their cost participation in selected System assets from prior periods. These efforts led to the collection of over $40 million in past-due IJ capital contributions in Fiscal Year 2015.

Water Supply and Wastewater Treatment Disputes. Georgia law requires coordinated and comprehensive planning and service delivery by counties and municipalities and specifically the execution of local government service delivery strategy agreements ("SDS Agreements") to delineate the responsible governments and/or authorities for the provision of various governmental services within each particular county on a per county basis. One of the primary purposes of the SDS Agreements is to minimize the inefficiencies resulting from duplication of services and competition among local governments. Further, among the criteria for such SDS Agreements are that they remediate or avoid overlapping and unnecessary competition and duplication of service delivery. The City is located primarily within Fulton County and is a party to a current SDS Agreement dated October 27, 2005 ("Fulton County SDS Agreement"). The Fulton County SDS Agreement delineates the retail and wholesale service areas of the City for water treatment and distribution services and for wastewater treatment and collection services. Many issues were resolved between the parties following mediation. The SDS statutory scheme in Georgia Official Code of Georgia, § 36-70-20 through § 36-70-28) requires an update, if necessary, upon the creation of several new municipalities within Fulton County. As a result of the creation of several new cities within Fulton County, the SDS Agreement required an update by the State of Georgia Department of Community Affairs.

Several services under the SDS Agreements have been disputed by the parties, which are currently part of on-going litigation in the matter of Fulton County Georgia v. City of Alpharetta, Civil Action File No. 2009-CV-17723. Several disputes were resolved between the parties after a lengthy mediation process. Specifically, a dispute was resolved over the definition of the drinking water service areas of the City and several municipalities located in the South Fulton Area. Service areas of the cities of Fairburn, Palmetto and Union City generally reflect the current municipal boundaries of the respective cities, as of May 25, 2012, while recognizing that existing retail customers of the respective cities remain unchanged (including the City's retail customers located within the cities as a result of annexation).

A dispute over water service issues between the City of Sandy Springs and the City was voluntarily dismissed by the City of Sandy Springs without prejudice.

The City has affirmed its commitment to deliver services within its currently designated water and wastewater service areas, and the City has no plans to accept any proposal to reduce or amend its current retail or wholesale service areas, unless ordered otherwise in the on-going litigation of the Fulton County SDS Agreement. Except for the wholesale water service to the cities of Fairburn and Union City, the City's financial plans reflect the assumption that it will retain the water and wastewater service areas to which it currently delivers services and for which it has made and will continue to make major infrastructure investments.

Water Restrictions. On June 2, 2010, the Georgia Water Stewardship Act went into effect statewide. The Georgia Water Stewardship Act is complemented by regulations promulgated by EPD which allow the EPD to require graduated increases in restrictions based upon the level of severity of a drought. In 2014, the EPD Watershed Protection Branch held a stakeholder meeting to inform and solicit input from the public and impacted organizations and received comments from stakeholders regarding the possible development of water use efficiency rules. On August 4, 2015, EPD adopted Drought Management Rules that replaced former rule provisions relating to outdoor water use as well as the 2003 Drought Management

Plan. The Drought Management Rules, Chapter 391-3-30, require specific drought response strategies during specified levels of drought, as declared by the EPD, that may limit or restrict some of the outdoor water uses.

On November 17, 2016, the EPD instituted a Level 2 Drought Response in 52 counties, including those served by the City. EPD lifted the Level 2 Drought Response and the Level 1 Drought Response on September 7, 2017 and March 8, 2018, respectively. However, the EPD has noted that conservation and efficiency are still critical to protecting Metro Atlanta's water supply. The non-drought schedule allows daily outdoor watering for purposes of planting, growing, managing, or maintaining ground cover, trees, shrubs, or other plants only between the hours of 4:00 p.m. and 10:00 a.m. by anyone whose water is supplied by a water system permitted by the EPD. Several other outdoor water uses are also allowed daily at any time of the day by anyone.

Water System Regulatory Matters

General Water, Water Treatment, and Water Distribution Regulatory Framework. Operation of the water treatment and distribution system is subject to several federal and State environmental laws and regulations. Some of the key areas covered by these regulations include: the quality and safety of drinking water; standards and limitations on water and air pollutants to the environment; availability of water as a resource; handling and disposal of solid waste; and health and safety standards for personnel. Compliance with these laws and regulations in the ordinary course of operations requires significant operating and capital expenditures. Failure to comply with these regulations also could have material adverse effects, including, among others, the imposition of civil liability or fines by regulatory agencies or liability to private parties.

The City entered into the Consent Orders related to the water treatment and distribution system in 1997 and 2003. Most of the substantial work required for compliance with the Consent Orders has been completed. The following three projects, which have been completed, represent final efforts to address compliance with the Consent Orders: (a) River Intake Erosion Control Improvements; (b) Northside Pump Station to Sandy Springs Pressure Zone; and (c) Hemphill Reservoir #1 Embankment Repair Interconnection. Two other projects have been indefinitely delayed because projected development and growth in the area has not occurred: (a) Fairburn Road Transmission Main and (b) Koweta Road Pump Station and Water Main.

In general, the Consent Orders for the water system define performance requirements rather than specific projects that must be completed by a defined date. The Department is in a position to request closure of the Consent Orders from the EPD without completion of the above listed projects, which have been deferred in accordance with appropriate system planning and development scheduling.

In July 2018, the EPD proposed three consent orders related to violations of the Department's permits for its Water Reclamation Centers and East Area and West Area Combined Sewer Systems (the "New Proposed Consent Orders"). The New Proposed Consent Orders relate to:

(a) Permit violations related to various record keeping and reporting issues, operation of sewage sludge incinerators outside of acceptable parameter levels in 2016 and 2017, and incinerator ash emissions. The Department is currently addressing all violations and conducting a quality assurance/quality control review; no permit violations have occurred since late 2017. The remedial measures required to be taken by the Department under the New Proposed Consent Orders in connection with these permit violations are not anticipated to result in significant costs. The Department's long-term plan is to eliminate incineration of biosolids.

(b) Permit violations primarily for unpermitted discharges and effluent limit exceedances between September 2015 and May 2018. In connection with these permit violations, the New Proposed Consent Orders require (i) payment by the Department of $365,513 for unpermitted discharges, outfall spills fish kill, effluent permit limit exceedances, and other narrative violations; (ii) submission of summaries of operational and control measures implemented at the R.M. Clayton facility to optimize phosphorous removal, and for the facilities to come into compliance with permit limitations within 90 days and (iii) the Department to submit an approvable schedule for substantial completion of the decommissioning of Intrenchment Creek WRC and upgrades at South River WRC, along with a semi-annual progress report. The required operational and control improvements are currently in progress. The Department has already encumbered $21 million for initial related projects and the Capital Improvement Program provides funding for remaining projects. See "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - FY 2019–2024 Capital Improvement Program - Wastewater System" attached hereto.

(c) The Department's request for an extension, due to drought conditions, to complete required reporting and permit sampling for metals required under the Department's East Area and West Area Combined Sewer System permits. The Department has already retrieved historical data for the metals, TSS and hardness from the 2013-2016 period and a contractor has been engaged to update and execute the sampling plan. Prospective compliance for these remedial measures under the New Proposed Consent Orders is not anticipated to result in significant costs; the Department's ongoing sampling program costs are embedded in the Department's current operating budget.

Water Supply Litigation. The Chattahoochee River, the source of supply of raw water for the City, is regulated by several federal dam projects. The most important of these projects for the City is Buford Dam, which impounds the river to create Lake Lanier and is operated by the Corps. The City's raw water intakes sits downstream of this project along the Chattahoochee River. As such, the City depends upon the Corps to operate Buford Dam and control the flow of the river to ensure a sufficient water supply is available.

The Corps' authority to operate Buford Dam and Lake Lanier for water supply was once disputed. However, the United States Court of Appeals for the Eleventh Circuit issued a final decision in 2011 holding that water supply is a fully authorized purpose of the project. The decision also gave the Corps one year to reevaluate a request submitted by the State, in 2000, to reallocate storage in Lake Lanier to meet the long-term water supply needs of the City and the surrounding metropolitan Atlanta region. See *In re MDL-1824 Tri-State Water Rights Litig.*, 644 F.3d 1160 (11th Cir. 2011), cert. denied 133 S.Ct. 25 (2012). In June 2012, the Corps issued a legal memorandum concluding that it is legally authorized to grant 100 percent of the State's water supply request. The Corps adopted an updated Apalachicola-Chattahoochee-Flint River (ACF) Basin Water Control Manual on March 30, 2017, confirming the Corps will meet the State's long-term water needs. The State of Alabama and environmental groups challenged the decision in federal court in Washington, D.C. In general, the State of Alabama claims the Corps lacks authority to meet the State's water needs, while the environmental groups claim that the Corps failed to adequately consider and mitigate environmental harms from its operations. The federal court in Washington, D.C. granted motions to transfer this case to federal court in Atlanta on March 29, 2018, and the case has been assigned to Judge Thomas Thrash, Jr.

Separately, on November 3, 2014, the United States Supreme Court granted a motion by the State of Florida for leave to file an original "equitable apportionment" action against the State relating to the waters of the Apalachicola-Chattahoochee-Flint River Basin (the "ACF Basin"). The State of Florida's complaint against the State requests that the Court enter an order equitably apportioning the waters of the ACF Basin and capping the State's overall depletive water uses at the level then existing on January 3, 1992. This original action by the State of Florida is not directly related to the 2011 decision of the Eleventh Circuit relating to the Corps' authority to operate Lake Lanier for water supply. The Court assigned the matter to a Special Master to issue a report to the Court on February 16, 2017. The report recommended the Court deny the State of Florida's request for relief. Oral argument was held on the report and the Special Master's recommendation on January 8, 2018. On June 27, 2018, the United States Supreme Court remanded the case to the Special Master for further proceedings consistent with its slip opinion. See State of Florida v. State of Georgia, 585 U.S. ___ (2018).

The City currently withdraws water from the Chattahoochee River under a surface water withdrawal permit issued by the EPD with a term that runs to November 1, 2021. Future withdrawal permits will be required to be consistent with future regional and State water plans. The City provides return flows of its water withdrawals to the Chattahoochee River via the City's WRCs and it does not withdraw water from the Flint, Apalachicola, Alabama, Coosa or Tallapoosa River basins.

In addition, the City has several additional options for meeting water demand and public health and safety needs. For example, the City is developing the Bellwood Quarry property, which will provide a 2.4 billion-gallon reservoir and extend its raw water storage up to 30 days. The project is expected to be completed in 2020. Furthermore, the City has a long-standing commitment to effective and efficient water resource management and careful use of inherently limited water supplies. The City is practiced in management of the Water System and the Wastewater System under uncertainty (e.g., drought, national credit crisis), and is actively engaged in examining options for water supply augmentation.

The Capital Improvement Program revisions discussed herein under the caption "CAPITAL IMPROVEMENT PROGRAM" reflect the Department's proposed project re-scheduling given revisions to revenue forecasts, reprioritization of capital project spending and conservative projections of operation and maintenance expense requirements. These revisions anticipate a transition to an on-going asset management approach in order to prioritize capital projects required to ensure operational integrity of its water resource system and to complete wastewater projects related to the Consent Decrees as planned under the approved schedule extension. In the event that water supply challenges presented by the Tri-State Water Rights litigation suggest revisions to the Capital Improvement Program, such revisions will be effected under a protocol that largely preserves the annual project encumbrances delineated in the Department's financial plan for which financial feasibility is demonstrated. This "zero-sum" protocol requires that, in the event that selected project milestones are accelerated, other projected deferrals will be instituted to ensure that net capital financing requirements will be constrained within the Department's finances.

For more information on regulatory matters impacting the System, see "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Wastewater System and - Water System" attached hereto.

Wastewater System

The Wastewater System encompasses more than 2,150 miles of sanitary and combined sewers, two permitted combined sewer overflow (CSO) Water Quality Control Facilities (WQCF), four permitted Combined Sewer Overflow Control Facilities, three permitted water reclamation centers (WRCs) and 16 pump stations. Each WRC receives wastewater from one or more pump stations and multiple trunk sewers. The R.M. Clayton WRC is one of the largest wastewater treatment plants in the southeast region of the United States and provides wastewater treatment for a service area that encompasses the City (primarily north of Interstate 20), a portion of Sandy Springs and most of northern DeKalb County. The Utoy Creek WRC provides wastewater treatment for the wastewater service area that encompasses portions of southwest Atlanta, northwest Atlanta, East Point and Fulton County. The South River WRC provides wastewater treatment for the South River wastewater service area that encompasses Hapeville and portions of Atlanta, East Point, College Park, DeKalb County and Clayton County. The South River WRC also treats partially treated effluent from the Intrenchment Creek WRC that serves portions of Atlanta and a small portion of DeKalb County. All three of the permitted WRCs discharge treated effluent to the Chattahoochee River. The Intrenchment Creek WRC sends partially treated effluent to the South River WRC where it receives further treatment. Since all effluent from the Intrenchment Creek WRC is discharged via the National Pollutant Discharge Elimination System (NPDES) permitted outfall for the South River WRC, the Intrenchment Creek WRC does not have a NPDES permit. See "THE SYSTEM - Service Area" for a description of the service area of the Wastewater System.

Wastewater from a small portion of northeast Atlanta is treated at the R.L. Sutton Wastewater Treatment Plant, which is owned by Cobb County. Wastewater from a small portion of southwest Atlanta is treated at the Camp Creek WRC, which is owned by Fulton County.

In Fiscal Year 2018, the Wastewater System served almost 94,000 active retail wastewater accounts in the City (and also billed wastewater service provided by Fulton County for accounts that receive water service from the City). In addition, the Wastewater System treats flows from wholesale customers including DeKalb and Fulton counties, and the cities of College Park, East Point and Hapeville.

Maximum Monthly Flow. The following table shows the maximum monthly flow treated at each of the WRCs (the Intrenchment Creek WRC's flow being included within the flow of South River WRC) for the last five Fiscal Years.

Maximum Monthly Flow (mgd)

	Fiscal Year				
	2014	**2015**	**2016**	**2017**	**2018**
R.M. Clayton	92	86	98	84	84
Utoy Creek	26	20	28	26	30
South River	29	30	33	32	35

Source: City of Atlanta, Department of Watershed Management.

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Wastewater Connections and Demand. The following tables summarize certain information concerning wastewater connections, percentage wastewater demand for the last five Fiscal Years and percentage wastewater revenues by customer class for the last five Fiscal Years:

Wastewater Connections, Demand and Revenues by Customer Class

Wastewater Connections by Customer Class

Fiscal Year	Residential[1]	Commercial	Industrial	Total[2]
2014	82,380	6,502	116	88,998
2015	81,925	6,466	115	88,506
2016	82,412	6,389	111	88,912
2017	85,413	6,599	116	92,128
2018	86,677	6,535	107	93,319

Percentage Wastewater Demand by Customer Class

Fiscal Year	Residential[1]	Commercial	Industrial	Government
2014	55	39	2	4
2015	58	36	2	4
2016	57	37	2	4
2017	57	37	2	4
2018	57	38	2	3

Percentage Wastewater Revenues by Customer Class

Fiscal Year	Residential[1]	Commercial	Industrial	Government
2014	58	36	2	4
2015[3]	55	41	2	2
2016	54	42	2	2
2017	54	42	2	2
2018	54	42	3	1

(1) Includes apartment complexes, which are served by single connection.
(2) Does not include government customers. In Fiscal Year 2018, there were 478 government customers (unaudited).
(3) Prior period adjustment for residential and commercial customers made in Fiscal Year 2016.

Source: City of Atlanta, Department of Watershed Management.

Customers. In Fiscal Year 2018, the City's five largest wastewater customers in the aggregate accounted for approximately 3.08% of the City's total billings of $264,631,533. For Fiscal Year 2018, there were almost 94,000 active wastewater accounts serving residential, industrial, commercial and general customers. The following table shows the five largest retail wastewater customer billings for Fiscal Year 2018. No independent investigation has been made of, and consequently no representation can be made as to, the stability or financial condition of any of the customers listed below or that such customers will continue to maintain their status as major customers of the System.

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Five Largest Wastewater Users
(dollars in thousands)

Customers	Billings[(1)]	% of Total Billings[(2)]
Federal Penitentiary	$2,115	0.80%
Fulton DeKalb Hospital Authority	1,794	0.68
The Atlanta Hilton	1,454	0.55
Piedmont Hospital	1,438	0.54
Wellstar Atlanta Medical Center, Inc.	1,359	0.51

(1) Billings for the period beginning July 1, 2017 and ending June 30, 2018 (unaudited).
(2) Based on total billings of $264,631,533 for the period beginning July 1, 2017 and ending June 30, 2018 (unaudited).

Source: City of Atlanta, Department of Watershed Management.

Service Agreement. A small portion of the Wastewater System is located outside the topographic area served by the Utoy Creek WRC. Wastewater from this area is taken to Fulton County's Camp Creek Treatment Plant. The City pays a share of the operating costs of such plant based on use by City residents and capital improvements based on reserve capacity. In addition, costs at the Long Island Pumping Station owned and operated by Fulton County are similarly shared. That facility pumps wastewater from the area of the City north of the Nancy Creek Basin for treatment by Cobb County. Currently, the City pays Cobb County $4.22 per thousand gallons for wastewater services.

Collection System. The City's collection and transmission system is comprised of approximately 2,150 miles of combined and separate sewer pipe. The system consists of lateral, collection and trunk sewers that convey wastewater from homes, businesses and institutional and industrial facilities to a treatment facility. This includes an estimated 62 miles of combined sewers, 1,659 miles of separate sanitary sewers (exclusive of sewer lines serving the Hartsfield-Jackson Airport), and 430 miles of lines of service laterals in public rights-of-way. The collection system also includes the wastewater pumping stations, force mains and tunnels which convey flow to pump stations, the WRCs and CSO facilities. Effluent transmission mains include force mains, tunnels and gravity flow pipelines that are used to convey treated wastewater from a WRC to a receiving stream or river. The City's collection system includes 16 remote pump stations that are used throughout the system to pump wastewater to high points, after which the wastewater flows by gravity to the next pump station or a WRC.

The City's wastewater collection and transmission system, with a few exceptions, is geographically located within the City's corporate limits. This system collects wastewater from the City and is also used to convey wastewater from portions of Clayton County, College Park, DeKalb County, East Point, Fulton County and Hapeville to the City's WRCs for treatment.

Combined Sewage Control Facilities. The City owns and operates six combined sewage system control facilities: two WQCFs and four combined sewage control facilities (CSCFs), which operate under two separate NPDES permits; one for the East Area Facilities which discharge into Intrenchment Creek, a tributary to South River; and a separate permit for the West Area Facilities which discharge into the Chattahoochee River or local streams.

The combined sewer system is located in an 11-square-mile area of the City in downtown Atlanta. The combined sewer area includes portions of the Peachtree Creek watershed (including the Tanyard Creek and Clear Creek sub-watersheds), the Proctor Creek watershed (including the North Avenue subwatershed) and the Intrenchment Creek watershed (including the Custer Avenue sub-watershed). Under dry weather conditions, sewage from the combined sewer areas are transported to a WRC for treatment. During storm events, the flows from the combined sewer areas continue to be transported to the WRCs for treatment. However, if the flow volumes increase to a level that exceeds the collection system's transmission or storage capacity and/or the WRC treatment capacity, a portion of the flow is conveyed to one of the WQCFs for treatment prior to being discharged. Combined sewer flows are typically treated in this manner until such time as their respective collection tunnels are reaching storage capacity. When the heaviest rain events occur, flow volumes can exceed the combined treatment capacities of the WRCs and the WQCFs and tunnel storage capacity. In these instances, individual CSCFs are brought online, as needed, to provide additional treatment capacity prior to discharge to their respective receiving streams.

The East Area Facilities include the East Area WQCF22 and the Custer Avenue CSCF. When activated, these facilities discharge to receiving streams located in the South River Basin, which generally flows to the east and are tributaries to the Ocmulgee River.

The West Area Facilities include the West Area WQCF and the Clear Creek, North Avenue and Tanyard CSCFs. Flows from the corresponding sub-basins are conveyed to the RM Clayton WRC via the West Area Tunnel. During some wet weather events, flows from the West Area Tunnel are diverted to the West Area WQCF to provide additional treatment capacity. Both the RM Clayton WRC and the West Area WQCF discharge to the Chattahoochee River, which generally flows to the south and the west. The three CSCFs, when operating, discharge to Clear Creek, Proctor Creek, and Tanyard Creek, which also flow to the Chattahoochee River.

As the City completed the projects required by the CSO Improvement Plan under the requirements of the CSO Consent Decree, two East Area Control Facilities (McDaniel Branch and Stockade), along with the Confederate Avenue Regulator, and one West Area Control Facility (Greensferry) were decommissioned following separation of the combined sewer system in these areas.

Wastewater System Regulatory Matters

General Wastewater System Regulatory Framework. Operation of the Wastewater System is subject to several federal and State environmental laws and regulations. Some of the key areas covered by these regulations include: the quality and safety of drinking water; standards and limitations on water and air pollutants to the environment; availability of water as a resource; handling and disposal of solid waste; and health and safety standards for personnel. Compliance with these laws and regulations in the ordinary course of operations requires significant operating and capital expenditures. Failure to comply with these regulations also could have material adverse effects, including, among others, the imposition of civil liability or fines by regulatory agencies or liability to private parties.

Each WRC is subject to the conditions of the 2017 Consolidated NPDES Permit, which was issued in order to meet the requirements of the Federal Clean Water Act and the Georgia Water Quality Control Act. The NPDES permit program, authorized by the Federal Clean Water

Act and delegated to the State, regulates point sources that discharge pollutants into waters of the United States. The EPA has delegated authority to EPD to administer the NPDES program within the State.

The Wastewater System is operating pursuant to environmental permits issued by the State in accordance with the requirements of the Federal Clean Water Act and the Georgia Water Quality Control Act. In 1998, the City entered into the first of two Federal Consent Decrees to establish control over the City's Combined Sewer Overflows (the "CSO Consent Decree"), which required the City to achieve full compliance with environmental permits, the Federal Clean Water Act and the Georgia Water Quality Control Act with regard to the City's CSS Control Facilities. The City completed the work required under the CSO Consent Decree in October 2008, including partial separation of three combined sewer areas and tunnel construction. It then completed a two-year post-compliance evaluation period and successfully avoided substantial noncompliance, as defined by the CSO Consent Decree, during that timeframe.

In 1999, the City entered into a second Federal Consent Decree (the "First Amended Consent Decree"), which required the City to achieve, by 2014, full compliance with the City's environmental permits, the Federal Clean Water Act and the Georgia Water Quality Control Act with regard to the City's WRCs, collection system and pump stations, to eliminate all unpermitted discharges, and to eliminate all sanitary sewage overflows (SSOs). Numerous improvement projects designed to achieve these objectives have been completed. These improvement projects include upgrades to treatment facilities, System-wide inspection and rehabilitation of the collections system, and additional tunnel construction. The Capital Improvement Program has been developed to meet the objectives described above as well as ensure the renewal and operational efficiency and reliability of the System. Based on the work completed, the provisions of the First Amended Consent Decree applicable to the City's WRCs were terminated in 2012 as part of a second amendment to the First Amended Consent Decree (which together with the CSO Consent Decree and the First Amended Consent Decree, are collectively referred to herein as the "Consent Decrees").

In April 2010, the City submitted a Financial Capability-Based Schedule Extension Request Report seeking an extension of the completion date required for improvements to the Wastewater System pursuant to the First Amended Consent Decree (the "Extension Request"). On September 24, 2012, an order providing for important modifications to the First Amended Consent Decree, including the extension of the final completion date from July 1, 2014 to July 1, 2027 was filed in United States District Court, Northern District of Georgia. The Capital Improvement Program reflects the schedule revisions agreed-upon pursuant to the Extension Request.

For further information on regulatory matters impacting the System, see "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Wastewater System and - Water System" attached hereto.

<u>Compliance with Existing Phosphorus Requirements at R.M. Clayton, Utoy Creek and South River WRCs</u>. Among the stringent effluent limitations with which the City must comply is one set by a Georgia statute establishing limitations on the amount of phosphorus that the City may discharge into the Chattahoochee River. In the mid to late 1990s, the City completed a

$630 million Phosphorus Reduction Program (frequently identified as the Senate Bill 500 Improvements) whereby the City's WRCs were upgraded to comply with new limits on the amount of phosphorus the City may discharge to the Chattahoochee River. These improvements included upgrades to many processes as well as the addition of new processes such as disinfection using ultraviolet light and odor control. The City's wastewater treatment facilities and collection system have been expanded and upgraded to meet the demands of the service population and increasingly stringent regulatory requirements. Over the last two decades, the City has invested more than $3.0 billion in its Wastewater System to meet federal and State requirements, protect water quality and rehabilitate its existing infrastructure.

Flow Limitations on the R.M. Clayton, Utoy Creek and South River WRCs' Discharges. Draft permits issued in 2005 for each of the City's water reclamation centers (WRCs) included more restrictive limits on pollutants such as phosphorus, ammonia, biological oxygen demand, total suspended solids and dissolved oxygen. Between 2005 and 2010, the Department worked with the EPD regarding consideration of mass loadings to be applied collectively to all of the WRCs rather than applying specific effluent concentration limits to the individual plants.

The Consolidated NPDES Permit for the WRCs was most recently issued on June 15, 2017. The final NPDES permits issued by the EPD reduced the Department's discharge limits from its hydraulic capacity of 220 mgd to the current 188 mgd limits to address the assimilative capacity of the Chattahoochee River. In addition, the new permit included revised discharge limits for several pollutants based on constituent concentration (measured in milligrams per liter [mg/L] discharged) or mass (measured in kilograms discharged per day [kg/d]). The mass loading limits were established for each WRC as well as combined limits for the cumulative discharge from the three WRCs during each month. Weekly concentration and mass loading limits were also included in the 2015 NPDES permits.

For the most recent three-year period, the WRCs have operated in overall compliance with requirements set forth in the Consolidated NPDES Permit, which specifically includes the R.M. Clayton, South River, and Utoy Creek WRC individually and has consolidated limits for the three facilities that discharge treated wastewater, combined. The South River and Utoy Creek WRCs have had consistently reliable daily, weekly, and monthly compliance records over the three-year 2015-2017 period. The R.M. Clayton WRC and Intrenchment Creek WRCs each had notable exceptions in 2015 and the R.M. Clayton WRC continued to have operational challenges in 2016 and 2017. With respect to the R.M. Clayton WRC, the Department initiated repair and replacement design activities in November 2014 and construction was completed in February 2018. The contractor and plant operators are currently in the process of optimizing operations for compliance. Intrenchment Creek WRC operational issues in 2015 related to 14 major spills of raw sewage into Intrenchment Creek, which were also largely associated with severe storm events but nevertheless should not have occurred based on the design of the flow transfer system from the Intrenchment Creek WRC to the West Area Tunnel. However, in early 2016, a subsurface structural fracture was found to be leaking into the transfer system and was using up to 40 percent of the dry weather transfer pumping capacity. Given this claim on pumping capacity, less transfer capacity was available during wet weather events. This fracture was repaired in early 2016 and no similar incidents have occurred since the repair was completed.

For more information on regulatory matters impacting the System, see "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Wastewater System and - Water System" attached hereto.

Watershed Protection Services

The Department delivers a broad variety of watershed protection services, frequently in collaboration with other City departments such as the Department of Public Works and the Department of Parks and Recreation. These services include a variety of activities required under the Department's NPDES permits and other water-quality related regulatory requirements. The Department works collaboratively to perform a number of stormwater management and drainage functions.

The Department places heightened emphasis on these aspects of the Department's responsibilities in response to emerging regulatory trends and infrastructure development opportunities. These regulatory changes, aspects of which have been incorporated into wastewater treatment plant permit requirements, reflect a focus on water quality improvement that requires effective management of both point source and non-point discharges to receiving waters. Although stormwater management activities are a fundamental requirement of the Department's NPDES permit requirements for the WRC and CSS Control Facilities, such activities are currently not included within the definition of "System" under the Bond Ordinance for which Revenues of the System may be spent. A review of the Department's recent historic and budgeted expenditures was conducted in 2013, prior to issuance of the current NPEDS Permits, to assess the extent of expenditures on primarily stormwater management measures outside of the combined sewer areas and required for the City's compliance with MS4 stormwater management regulations (often performed by General Fund Departments in other jurisdictions). However, given the regulatory pressures to address stormwater management in a more robust manner, the Department has increased investment in stormwater management since 2013.

While revenues of the System historically deployed to ensure compliance with these aspects of the Wastewater System regulatory requirements have been relatively limited, the Department anticipates new opportunities with emerging "green infrastructure" approaches and embrace of integrated planning by the EPA. For a more complete description of the Department's watershed protection services and the regulatory requirements related thereto, see "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY" attached hereto.

Contemplated Stormwater Utility Program

As part of its efforts to develop a stormwater action plan, in 2017 the Department completed an update to a Stormwater Utility Feasibility Study initiated in 2009. This study assesses the need for and implementation steps required to establish a dedicated sustainable funding source to support the City's stormwater management program. The study addresses the cost of service associated with operation and maintenance (personnel costs, equipment, drainage system routine/preventive/emergency maintenance); capital improvements (infrastructure repair/replacement and green infrastructure, stream restoration and other watershed based improvements); and compliance (costs associated with our municipal separate storm sewer system program and Clean Water Act compliance). The Department estimates that the City annually receives over 1,300 customer service requests to address stormwater issues impacting most every neighborhood in the City. Although up to ten percent of the proceeds of the Municipal Option Sales Tax will continue to be allocated to address stormwater issues, such proceeds are not estimated to be sufficient to provide adequate funding to address the most pressing needs for developing a comprehensive stormwater management program. Consequently, the Department is considering introducing legislation which will authorize the creation of a stormwater utility and a stormwater enterprise fund. The utility would impose a stormwater utility fee on all developed properties, including single family residential property, dedicated to the provision of stormwater services, and to fix the stormwater fee based on measured square feet of impervious area. It is contemplated that the stormwater fee would be charged to all property owners within the corporate limits of the City and the proceeds thereof will be deposited in a Stormwater Enterprise Fund dedicated to the provision of stormwater services in the City. The proposed stormwater program levels of service would be focused on the City's municipal separate storm sewer system infrastructure maintenance and repair but would also step up stormwater management activities to proactively address regulatory requirements, watershed protection, and long-term capital improvements to aging infrastructure. A credit program would also be implemented to enable customers to reduce stormwater management fees through property owner actions that either reduce the property's stormwater runoff or reduce the cost of the overall stormwater management plan. As contemplated, the program would begin no earlier than January 1, 2019 to allow time for implementation of billing systems, credit policies and other items necessary for launching the stormwater utility. There is no assurance that the legislation, if introduced, will be passed by the City Council in substantially the form summarized above and, if passed, will survive any legal challenges thereto.

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Insurance

The City self-insures the System for third party property damage and for bodily injury resulting from operations. Third party claims for property damage and bodily injury are forwarded to the City's Law Department where they are reviewed and recommendations are made for their ultimate disposition and are litigated as necessary by the City's Law Department. In addition, the City currently maintains a property insurance policy in the amount of $300,000,000, which insures against property damage to the facilities in the System, and self-insures for workers' compensation. The City has settled third party claims for property damage and bodily injury against the System for the calendar years and in amounts as follows:

Calendar Year	Amount of Claims
2013	$3,765,755
2014	1,204,710
2015	1,293,800
2016	1,301,372
2017[(1)]	939,565

(1) Reflects claims through December 30, 2017.

Source: City of Atlanta.

System Security

By direction of the EPA, a vulnerability assessment of the security of the City's drinking water supply, treatment and distribution was completed in 2004. The Department's emergency response plan was updated with provisions for mitigating physical attack and contamination. The vulnerability assessment identified capital improvements, estimated to cost a total of $28 million, to enhance system security. In January 2004, in conjunction with the system-wide water and wastewater service rate increases, the Mayor and City Council approved a $0.15/ccf surcharge for a seven-year term to "harden" existing facilities with new facilities to be designed with compliant security measures. As a result of the vulnerability assessment and the capital improvements funded by the surcharge the City established the Office of Safety and Security whose responsibility is to maintain compliance of the System with the mandates of the EPA, including vulnerability assessments, corrective actions and emergency response planning and implementation.

In 2012, the Department retained Atkins, NA Security Group to perform a "high level" security assessment of the System. This assessment resulted in the publication of the 2012 Security Master Plan (the "Master Security Plan"). The Master Security Plan provides an organized approach to the development and enhancement of security requirements, security system technology and implementation needs. The Master Security Plan breaks down the various System facilities into three categories which are Priority 1 - Critical; Priority 2 - Urgency; and Priority 3 - Important. In January 2015, under the direction of the newly hired and current Director of the Office of Safety, Security and Emergency Management, the Master Security Plan was established as the roadmap to enhance the level of security on System facilities. This process includes adding a surveillance system which currently employs 518 cameras throughout the System. An additional 200 cameras are currently being added to the

System. All cameras are monitored in the Security Operations Center and available for viewing by the Atlanta Police Department in their Video Integration Center. In addition, access control has been enhanced through the addition of card readers and an overhaul of the badging system. Currently, all Department employees are issued a blue background badge while all contractors are issued a red background badge. All other visitors must be escorted. In addition, the Office of Safety and Security in conjunction with the U.S. Department of Homeland is currently conducting a follow-up vulnerability assessment to update the security plan and identify additional measures to enhance security.

The City has a proprietary disaster and emergency management plan which is onsite and approved by the U.S. Department of Homeland Security. All of the City's facilities, except for a few small sewerage pumping stations, have onsite, standby, emergency generators. Most of the City's major facilities are on two different transmission feeds from independent substations.

September 2009 Flood Event

On September 21, 2009, the City received between 6 and 15 inches of rain, depending on location, which raised the Chattahoochee River 12 feet over its normal flood level. This flood level is the highest on record and the U.S. Geological Survey has characterized the event as a 500-year flood. The Wastewater System was impacted in a number of ways, perhaps most notably flooding at the R.M. Clayton WRC, which took the facility out of service for a period of time. While major repairs to damaged equipment and structures were completed in 2011, some backup treatment capabilities, such as post-treatment chemical feed, were not replaced and some repairs, such as for aeration basin mixers, have not provided the anticipated service life extension. This has reduced the plant's treatment capability. The basin mixer equipment has been maintained and repaired under the facility's annual maintenance budget. Replacement or improvements to some of the chemical feed systems in the secondary treatment system are included in the Capital Improvement Program.

CAPITAL IMPROVEMENT PROGRAM

In order to effectively prioritize the Department's capital project investments in light of prevailing financial constraints and in support of the implementation of the Clean Water Atlanta program and the Water Supply Program, the City has developed a revised capital improvement program to define the capital needs of the System for Fiscal Year 2019 through Fiscal Year 2024 providing for total project encumbrances of approximately $954.4 million in current dollars ($1,010.5 million in nominal dollars) (the "Capital Improvement Program") which reflect: (a) the prioritization of investment in water distribution and wastewater collection improvements, in part, to coincide with the City's investments under the Renew Atlanta Program, (b) the continuing commitment not only to the Consent Decree Compliance Program but also a more balanced System reinvestment, (c) the continuing investment in green infrastructure projects facilitated by the adoption by the City Council of an ordinance permitting the dedication of up to ten percent of Sales Tax proceeds for stormwater management projects, (d) the inclusion of important treatment plant repairs and improvements as well as a number of projects to enhance environmental sustainability and provide community amenities; and (e) the recent execution of energy management and resource recovery contracts under shared benefit models to yield operating efficiencies and advance sustainability objectives. The Feasibility Consultant (as defined herein) previously issued a report entitled Municipal Advisor's Feasibility Study: Various Series of Water and Wastewater Revenue and Revenue Refunding Bonds, 2018 on June 4, 2018, which was initially structured to report on the issuance of the Series 2018A Bonds, the Series 2018B Bonds, the 2018 Commercial Paper Notes, and the Series 2018C Bonds as well as include estimated impacts of the 2018 Environmental Impact Bonds. However, with the completion of Fiscal Year 2018 and several revisions to revenue forecasts, operations and maintenance expense projections and capital improvement plans, and updates to the comprehensive analysis of the Department's financial projections, the City commissioned a new Municipal Advisor's Feasibility Study dated September 27, 2018, prepared by the Feasibility Consultant and attached hereto as Appendix B (the "Feasibility Study") to, among other things, (a) review the operation and maintenance of the System, (b) update the City's strategic financial plan for the Capital Improvement Program, including compliance with its obligations under the Consent Order, the New Proposed Consent Orders, the Consent Decree and Water Supply Program, (c) incorporate the actual debt service obligations associated with the Series 2018A Bonds and the Series 2018B Bonds, and revisions to the forecasted fees and interest expense associated with the 2018 Commercial Paper Notes into the financial projections, and (d) demonstrate the financial feasibility of the planned issuance by the City of the Series 2018C Bonds. The Feasibility Study also includes a detailed forecast of the financial results for the System for the forecast period (Fiscal Year 2019 through Fiscal Year 2024).

As revised, the Capital Improvement Program contemplates encumbrance requirements of approximately \$199.7 million for water related projects; \$551.7 million wastewater related projects; \$180.8 million for general projects; \$75.0 million for stormwater related projects; and \$3.3 million for projects related to the CSO facilities, all of which are presented in nominal dollars. The Capital Improvement Program will be funded through six sources: (a) proceeds of additional new money Senior Bonds (\$110.0 million); (b) proceeds of the proposed 2018 Environmental Impact Bonds (\$12.5 million); (c) re-programmed Capital Improvement Program encumbrances (\$23.6 million); (d) proceeds of new GEFA loans (\$228.0 million); (e) proceeds from the Series 2018B Bonds (\$50.0 million); and (f) revenue and other reserves from the Department's operating funds (\$600.0 million), all of which are presented in nominal dollars and exceeds the amount for total project encumbrances of approximately \$954.4 million in current dollars (\$1,010.5 million in nominal dollars).

The Department anticipates using proceeds of the 2018 Commercial Paper Notes to initially fund a portion of the North Fork Peachtree Creek Storage and Pump Station project in the amount of \$50.0 million in Fiscal Year 2020. In that same year, the Department expects to use proceeds of the 2018 Commercial Paper Notes to meet the \$60.0 million of remaining encumbrance requirements for the Intrenchment Creek Decommissioning project. The outstanding 2018 Commercial Paper Notes related to such projects will then be repaid with the issuance of \$110.0 million in additional new money Senior Bonds in early Fiscal Year 2022 when the 2018 Commercial Paper Program expires.

The Department expects proceeds from the proposed 2018 Environmental Impact Bonds in the amount of \$12.5 million to be used to fund priority green infrastructure projects largely in economically disadvantaged sectors of the community. The proposed 2018 Environmental Impact Bonds are projected to be one of the nation's first such environmental impact bonds and will be issued in accordance with a Rockefeller Foundation grant awarded to the City pursuant to which specialized experts retained by the Rockefeller Foundation will provide transaction structuring support to the City. The proposed 2018 Environmental Impact Bonds are unique in that the interest paid on such bonds will be based, in part, on the performance of the financed projects.

It is anticipated that proceeds from new loans from GEFA, totaling $228.0 million, will be available to fund a portion of the Capital Improvement Program over the forecast period. The Department typically initially funds costs for eligible GEFA projects through the Renewal and Extension Fund and once contractor invoices have been paid, the Department submits reimbursement requests to GEFA and deposits proceeds from the new loans from GEFA back into the Renewal and Extension Fund. Recently, the Department submitted three different project applications that, if approved, will result in $80.9 million in loan proceeds. The financial plan assumes that the Department will continue to take advantage of this low-interest funding from GEFA, with anticipated average annual loan approvals of $50.0 million throughout the forecast period.

In addition, the Department expects to rely on transfers from the Renewal and Extension Fund and other operating revenues to contribute $600.0 million for cash financing of the Capital Improvement Program. The Department expects reimbursements from IJ Partners to contribute $98.7 million towards the Capital Improvement Program as part of its regional water delivery strategy. Under these inter-jurisdictional agreements, the Department manages the construction of inter-jurisdictional projects and pays contractor invoices. The IJ Partners are then invoiced based on their pro-rata share of each project. The timing and availability of these reimbursements is based on the Department's current expectations of project completion timeframes, an assumed 12-month collection period from IJ Partners and the Department's procedural requirements to make these funds available for future capital projects. In addition to capital contributions from IJ Partners, $61.1 million of the operating revenues total is to be derived from tap fees that are established to recover costs necessary to provide service to new development. Based on a recent cost-recovery analysis, the Department expects to increase tap fees during Fiscal Year 2019 in order to attain revenue levels that more closely match the costs to extend service to new customers. Approximately $26.8 million over the forecast period is anticipated to be received from the City's General Fund as repayment for an existing inter-fund loan which is the subject of the MOU; the final payment of this inter-fund loan will occur in Fiscal Year 2021. After terminating the remaining portion of the Series 2001 Swap Agreement, the Department expects approximately $42.4 million of reserves will be made available from the Swap Termination Fund for future capital projects. See "OUTSTANDING SYSTEM OBLIGATIONS - Hedge Agreements" herein. The remaining $388.5 million will derived from other net operating revenues of the System due, in part, to the Department's efforts to implement operational efficiencies.

The Department's projected annual capital encumbrances reflect maximum funding capacity under the City's anticipated rate schedule. The Capital Improvement Program is subject to frequent review and modification based on evolving priorities of the System and unforeseen expenditures. To the extent that actual encumbrance needs are more or less than projected encumbrances in a given forecast year, the Department will adjust cash financing amounts of the Capital Improvement Program and/or reschedule and re-program project spending.

For a more detailed discussion of the revised Capital Improvement Program, the funding requirement forecasts and the revised capital funding plan, see "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Capital Improvement Program and - Financial Performance" attached hereto.

SYSTEM REVENUES

General

Water and wastewater rates are set by the Mayor or the Commissioner of the Department, subject to adoption by the City Council and approval by the Mayor.[(1)] The City's practice is to set rates every four years at a time which does not coincide with municipal election cycles but does occur after scheduled referenda to renew the Sales Tax. The latest rate ordinance which was adopted by the City Council on July 2, 2012 and approved by the Mayor (the "Rate Ordinance") held rates constant through June 30, 2016, provided for continued financing of the Clean Water Atlanta program and successful operations and management of the Department while providing rate stability to the City's water and sewer customers after nine consecutive years of substantial rate increases. The City's water and wastewater rates have not been revised by the City Council since 2012.

Capital Financing Strategy Refinement

The Series 2018C Bonds are part of an updated capital financing strategy for the Department's debt portfolio and projected capital program financing which reflects: (a) an updated assessment of System needs and funding options, (b) the impacts of the recent legislative approval for the extension of the MOST, upon subsequent voter approval, (c) opportunities for savings presented by the implementation of the 2018 Commercial Paper Program, (d) increased availability of low-interest loans from GEFA, and (e) savings associated with the refunding of certain Outstanding Senior Bonds. Based on the strong local voter support which the MOST has previously received, the capital financing plan reflected in the Feasibility Study assumes voter approval of the extension of the MOST for additional four-year periods in March 2020 and March 2024. The updated capital financing strategy also contemplates resumption of service rate increases in Fiscal Year 2023 and a deferral of the proposed tapering of MOST support of the Department's operational spending. See "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Introduction - Capital Financial Strategy Refinement and - Financial Performance - Planning Scenario for MOST Expiration" attached hereto.

The Department's updated capital financing strategy provides for total project encumbrances for the Fiscal Year 2019 through Fiscal year 2024 reporting period of approximately $954.4 million in current dollars ($1,010.5 million in nominal dollars). The Capital Improvement Program maintains the Department's commitments not only to its obligations under the Consent Decree Compliance Program and the New Proposed Consent Orders but also the more balanced System reinvestment previously developed by the Department following the extension of the deadlines under the Consent Decree. The Capital Improvement Program also features new green infrastructure projects enabled through Ordinance No. 14-O-

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(1) A mayoral veto may be overridden by a two-thirds majority vote of the City Council.

1453 of the City which allows dedication of up to ten percent of MOST proceeds for stormwater management-related projects.

While extension of the MOST has consistently received overwhelming voter approval, the Department's updated capital financing strategy assumes that in the event the reauthorization of the MOST does not gain voter approval in March 2020 or March 2024, additional service rate increases of 25.0 percent in Fiscal Year 2021 (July 1, 2020) and ten percent in Fiscal Year 2022 (July 1, 2021) will be required to preserve debt service coverage at target levels and provide sufficient financing capacity for Consent Decree projects and other critical System investment. Irrespective of MOST support, the Department's updated capital financing strategy contemplates that System rate increases may be limited through implementation of stormwater management fees based on property parcel impervious area measures. This type of fee structure, commonly implemented to support green infrastructure programs, is a mechanism to more equitably distribute cost responsibilities for emerging stormwater management requirements. In addition, the Department will initiate a more comprehensive effort to ensure that costs incurred to support real estate development are equitably distributed. In the near term, this includes planned increases to existing tap fees beginning in the second half of Fiscal Year 2019 to ensure full cost recovery for service connections. The Department may also initiate requisite studies to enable imposition of impact fees for water, wastewater and/or stormwater services. Finally, the Department's updated capital financing strategy contemplates the funding of prospective projects primarily with operating revenues, GEFA loan proceeds, and will employ available capacity from the 2018 Commercial Paper Program to facilitate capital project procurement processes. In addition to the approximate $50,000,000 in new money proceeds from the Series 2018B Bonds which will be used to fund new projects, the Department's updated capital financing strategy contemplates the issuance of $110,000,000 of additional new money Senior Bonds in early Fiscal Year 2022 to repay the then outstanding obligations under 2018 Commercial Paper Program. See "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Capital Improvement Program and - Financial Performance" attached hereto.

Rates and Charges

Pursuant to the Rate Ordinance, the City Council approved a four-year rate plan designed to provide for continued financing of the Clean Water Atlanta program and successful operations and management of the Department. This rate plan was developed to ensure the Department meets its financial performance targets, most notably targeted debt service coverage, under assumptions of the persistence of drought conditions over the forecast period. The previous rate plan provided for increases to all water and wastewater service rates and charges of 27.5% in Fiscal Year 2009, 12.5% in Fiscal Year 2010, 12.5% in Fiscal Year 2011 and 12% in Fiscal Year 2012. The City's water and wastewater rates have not been revised by the City Council since 2012.

Assuming the Sales Tax is reauthorized beyond Fiscal Year 2021, no changes to the above-referenced rate plan are anticipated through Fiscal Year 2022. However, given the possibility that the Sales Tax extension could fail to gain local voter approval, as noted above, the Department has developed an alternative financial plan for the expiration of Sales Tax funding, which would require higher rate increases earlier in the forecast period to replace the lost revenue stream from the Sales Tax. See "SYSTEM REVENUES - Municipal Option Sales

Tax (MOST) Revenues" herein and "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Financial Performance - Planning Scenario for MOST Expiration" attached hereto.

The following table presents the current rates which became effective on July 2, 2012, which rates have not been revised since:

Water and Wastewater System Service Rates

Water System Service Rates[1]

Base Charge[2]	$6.56
Inside-City - Retail	
1 - 3 CCF Usage	$2.58/CCF
4 - 6 CCF Usage	$5.34/CCF
7 CCF and Above Usage	$6.16/CCF
Outside - City Retail	
1 - 3 CCF Usage	$3.51/CCF
4 - 6 CCF Usage	$6.48/CCF
7 CCF and Above Usage	$7.47/CCF
Wholesale	
All Usage	$3.70/CCF

Wastewater System Service Rates[1]

Base Charge[2]	$6.56
1 - 3 CCF Usage	$9.74/CCF
4 - 6 CCF Usage	$13.64/CCF
7 CCF and Above Usage	$15.69/CCF

(1) Rates are for water usage metered approximately monthly.
(2) Base charges are applied to each customer unit on a monthly basis.

Source: Municipal Advisor's Feasibility Study attached hereto as Appendix B.

Senior Discounts. On January 5, 2004, the City adopted an ordinance which provides for a waiver of 30% of the water and wastewater rates charged to domestic customers, age 65 years and older, with a maximum household income of $25,000. Eligible ratepayers are required to apply for the waiver with the Department's Office of Business and Customer Service. Approximately, 6,200 customers are currently receiving the senior citizen discount.

Other Service Revenues

Other service revenues of the Department include operating plant charges and other operating revenues of the System.

Operating Plant Charges. Operating plant charges are revenues recovered through the Department's inter-jurisdictional service agreements and recover operations and maintenance costs incurred to provide wastewater treatment and conveyance services to the City's wholesale wastewater customers. During the last three Fiscal Years, operating plant charges have averaged

$20.7 million per annum. The Department conservatively expects revenues from this source to be $16.0 million in Fiscal Year 2019 and increase to $16.3 million by Fiscal Year 2024.

Other Operating Revenues. Other service revenues of the Department include operating plant charges, grease permits, land and building rentals, and other miscellaneous revenues. Beginning in Fiscal Year 2021, this revenue category also includes $0.4 million in annual fertilizer sales associated with the Department's resource recovery contract with Ostara. See "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Financial Performance - Other Service Revenues" attached hereto. In aggregate, including other minor fees and charges, other service revenues are expected to increase 4.2 percent, from $16.9 million in Fiscal Year 2019 to $17.6 million in Fiscal Year 2024.

Municipal Option Sales Tax (MOST) Revenues

Under the MOST Legislation, the Sales Tax (commonly referred to as the MOST) was initially placed into effect for a four-year term beginning on October 1, 2004, and was subject to being renewed for three additional four-year terms. The Sales Tax became effective on October 1, 2004, but receipts began to be realized by the City on December 1, 2004. In March 2008, voters elected to renew the Sales Tax for an additional four-year period by a nearly 3-to-1 margin. Voters again renewed the Sales Tax in March 2012 with 85 percent of the vote. In March 2016, voters approved the extension of the Sales Tax for an additional four years until October 2020 with 74 percent of the vote. In March 2018, the Georgia legislature enacted House Bill 929, amending the MOST Legislation, which allows for up to three additional referenda to enable extension of the Sales Tax beyond 2020. Consistent with the MOST Legislation, voter approvals for the Sales Tax will be required every four years beginning in 2020 with the potential to extend the Sales Tax through October 2032. See "SECURITY AND SOURCES OF PAYMENT FOR THE SERIES 2018C BONDS - Municipal Option Sales Tax (MOST) Revenues" and "SYSTEM REVENUES - Capital Financing Strategy Refinement" herein and "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Introduction - Capital Financial Strategy Refinement and - Financial Performance - Planning Scenario for MOST Expiration" attached hereto.

From implementation of the Sales Tax in 2004 through Fiscal Year 2017, the Sales Tax has provided approximately $1.5 billion to support the Department's operation and maintenance of the System and fund the costs of the compliance program associated with the Consent Decrees and Consent Orders regionally.

The Sales Tax is imposed on the retail purchase, retail sale, rental, storage, use, or consumption of tangible personal property and on services within the City, subject to numerous exemptions, including sales to certain governmental entities and to certain non-profit organizations, professional, insurance, and personal service transactions, sales of motor vehicles, sales of certain agricultural products, sales to and by certain agricultural enterprises, sales of certain types of manufacturing equipment, the sale or use of certain types of industrial materials, sales of prescription drugs, certain medical devices and equipment, and lottery tickets. The Sales Tax was established as a dedicated supplemental funding source for the Clean Water Atlanta program, and provides a 'dollar-for-dollar' reduction to the operating expenses of the Department. Visitors who use the City's water and wastewater infrastructure, but do not pay for service as residents of the City, help pay for upgrading and maintaining the System infrastructure.

The Sales Tax is generally imposed on the purchaser of tangible personal property or services and is generally collected by the seller of tangible personal property or services from the purchaser at the time of sale. Sellers of tangible personal property or services are generally required to file tax returns with the Revenue Commissioner on or before the 20th day of each month, showing taxable sales during the preceding calendar month, and to remit the Sales Tax shown due on the return with the return. Sellers of tangible personal property or services are allowed the following deductions from Sales Taxes timely remitted to the Revenue Commissioner: (a) 3% of the first $3,000 of Sales Tax reported due on each monthly return (other than Sales Tax on motor fuel), (b) 0.5% of Sales Tax in excess of $3,000 reported due on each monthly return (other than Sales Tax on motor fuel), and (c) 3% of Sales Tax on motor fuel reported due on each monthly return. When any seller fails to make any return or to pay the full amount of the Sales Tax, there will be imposed a penalty to be added to the Sales Tax in the amount of 5% or $5, whichever is greater, if the failure is for not more than 30 days and an additional 5% or $5, whichever is greater, for each additional 30 days or fraction of 30 days during which the failure continues. The penalty for any single violation will not exceed 25% or $25 in the aggregate, whichever is greater.

Georgia law provides that the Sales Tax shall be exclusively administered and collected by the Revenue Commissioner for the use and benefit of the City. The proceeds of the Sales Tax collected by the Revenue Commissioner must be disbursed to the City as soon as practicable after collection, after deducting one percent of the amount collected for the State Treasury in order to defray the costs of administration.

Georgia law provides that the proceeds received by the City from the Sales Tax shall be used by the City exclusively for the purpose or purposes specified in the resolution calling for imposition of the Sales Tax. Such proceeds are required by Georgia law to be kept in a separate account from other funds of the City and may not in any manner be commingled with other funds of the City prior to expenditure.

Pursuant to the Bond Ordinance, Pledged Revenues do not include the proceeds from the Sales Tax, but such proceeds will be taken into account for purposes of determining compliance with the City's rate covenant and additional bonds test under the Bond Ordinance. See "SECURITY AND SOURCES OF PAYMENT FOR THE SERIES 2018C BONDS - Rate Covenant" herein.

In March 2018, the City secured state legislative approval for additional referenda to continue the MOST as a funding source for System improvements. Consistent with the original MOST Legislation, Georgia House Bill 929 amends the MOST Legislation to allow for three additional renewals of the Sales Tax, subject to voter approvals every four years, beginning in 2020, with the potential to extend the Sales Tax through October 2032. Since the Sales Tax has consistently received strong local voter support in renewal referendums, in part, because of the significant water and wastewater rate adjustments that would be required in the event of immediate withdrawal of the Sales Tax funding support, the financial plan summarized in the Feasibility Study anticipates local voter approval of extension of the Sales Tax through the forecast period (Fiscal Year 2019 through Fiscal Year 2024). The Feasibility Study conservatively forecasts Sales Tax revenues to total $125 million per annum during the forecast period. Given the recent legislative approval to extend the Sales Tax through October 2032, subject to voter referenda, the previously planned reductions in the use of the Sales Tax proceeds to reduce the Department's reliance on the Sales Tax as well as service rate adjustments in Fiscal Year 2021 and Fiscal Year 2022, have been deferred by the City.

If the Sales Tax is not extended beyond Fiscal Year 2020, as assumed in the Feasibility Study, the Department has developed a longer-term capital financing strategy pursuant to which:

- The Department may initiate a wind-down of reliance on the Sales Tax proceeds by reducing the share of the Sales Tax proceeds available to the Department by five to ten percent per annum;

- The Department may restructure its debt portfolios where (a) funds equivalent to the Sales Tax proceeds not used for current project requirements are made available for defeasance of outstanding indebtedness (or held in a rate stabilization fund) and (b) the issuance of any additional new money Bonds may be deferred and feature wrap-around structures to level long term debt obligations;

- The Department may re-initiate previously deferred annual water and wastewater system service rate adjustments beyond Fiscal Year 2024; and

- The Department may implement new fees and charges, such as an impervious area-based stormwater fee and/or impact fees, to recover the costs of increasing System capacity for new customers that could supplant a portion of the Sales Tax proceeds.

This longer-term capital financing strategy will also consider the potential for the Department to obtain a share of a prospective permanent Sales Tax within the City, if enabled through state legislation and voter approval, to fund needed infrastructure investments. In the event that the City is able to secure such a permanent Sales Tax, a significant portion of such funding may be designated to the Department for System projects given the consistent state legislative and local voter support for water and wastewater system funding demonstrated by Sales Tax approvals to date. While the specific attributes of the Department's longer-term financing strategy will be determined over the course of the next several years, the Department has a plethora of options to ensure an orderly reduction of Sales Tax funding support and plans to continue to evaluate and refine alternative funding strategies for the Capital Improvement Program.

See "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Financial Performance - Planning Scenario for MOST Expiration - Projected Debt Service Coverage, MOST Expiration Scenario and - Financial Performance" attached hereto.

Other Revenues

Other revenues include interest earnings on various reserve accounts and operating funds. Interest earnings accrue in the Renewal and Extension Fund, the Series 2009A Bond Fund, the Series 2018B Bond Fund, MOST revenues, and various debt service reserve accounts. Other revenues increased from $14.8 million in Fiscal Year 2014 to $26.1 million in Fiscal Year 2018 largely as a result of non-recurring revenue items booked in Fiscal Year 2018 including tax reimbursements, insurance recoveries, and realized gain on investment activities. Under conservative assumptions, interest earnings are projected to remain constant at $4.0 million, and provide a total of $24.0 million over the forecast period. See "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY" attached hereto.

Inter-jurisdictional Capital Contributions

Inter-jurisdictional capital contributions reflect reimbursements to the Department for capital incurred by the Department to provide wastewater system capacity to the IJ Partners. Contributions are estimated by project for each IJ Partner and include payments for previously constructed, ongoing, and future capital projects. The timing and availability of these reimbursements is based on the Department's current expectations of project duration and completion timeframes, and allows for a 12-month collection period from IJ Partners, and the Department's procedural requirements to make these funds available for future capital projects. The Department expects the availability of $98.7 million in reimbursements from IJ Partners between Fiscal Year 2019 and Fiscal Year 2024. The majority of this total is attributed to two projects: approximately $26.0 million related to the R.M. Clayton Headworks project and $60.3 million in reimbursements associated with the North Fork Peachtree Creek Storage and Pump Station project that will begin construction in Fiscal Year 2021.

Billing and Collection Procedures

The City has successfully converted 99% of the System's service meters to an automated meter reading technology. In addition, the City implemented an upgrade of its billing system to enQuesta 4 in Fiscal Year 2015. This upgrade will refine the Department's billing system reports and customer classification codes to increase the accuracy and quality of the reports generated for revenue forecasting purposes.

Beginning in 2016, the Department developed a service delivery strategy specifically focused on improving customer service and operational efficiencies to maximize the use of existing Department resources and available contractor capacity. This has allowed the Department to address a significant backlog in service requests, reduce the number estimated bills across the service area, address outstanding bill adjustment reviews, reduce the call volume and make overall improvement in meeting service requests.

Historical and Comparative Information

A national rate survey of combined water and wastewater bills across major metropolitan areas is published bi-annually, with the most recent data available for 2015. The survey demonstrates that based upon a comparison at a common water usage level the City's water and wastewater rates were the highest in the United States among major metropolitan communities that responded to the rate survey. The Department recognizes that these bill impacts may impose hardships, particularly for low-income ratepayers. For ratepayers that may fall behind on bill payments, the Department provides opportunities to establish payment plans. The Department's Care and Conserve program also provides assistance to low-income customers through limited payments of their water and wastewater bills, plumbing repairs and retrofit, installation of water-saving conservation devices, and conservation counseling. The program is available to customers whose incomes fall below 200% of the federal poverty index. See "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Financial Performance - 2016 Water and Wastewater Bill Comparisons" attached hereto.

SYSTEM FINANCE MATTERS

General

The following table summarizes the historical operating results of the System for Fiscal Years 2014 through 2018 and the debt service requirement for the Senior Bonds Outstanding for such period.

Historical Operating Results of the System (dollars in millions)[(1)]

	Fiscal Year				
	2014	**2015**	**2016**	**2017**	**(Unaudited) 2018**
Water & Wastewater Service Revenue	$418.5	$435.1	$445.7	$466.0	$451.6
Other Service Revenue	18.1	24.5	21.2	20.3	17.7
MOST Revenue	124.3	131.6	132.7	131.7	145.2
Other Revenue[(2)]	14.7	10.0	15.1	3.9	26.0
Total Operating Revenue[(3)]	$575.7	$601.2	$614.6	$621.9	$640.5
Operating Expenses[(4)(5)]	210.3	202.6	225.0	228.0	247.0
Net Revenue Available for Debt Service	$365.4	$398.6	$389.7	$393.9	$393.6
Principal	51.4	53.7	56.3	60.1	63.7
Interest[(6)]	158.9	124.4	155.2	143.8	138.9
Debt Service[(7)]	$210.3	$178.1	$211.6	$203.9	$202.6
Senior Lien Coverage Ratio	1.74	2.24	1.84	1.93	1.94

(1) Numbers may not add due to rounding.
(2) Includes one-time revenues of $13.6 million in Fiscal Year 2018 for tax reimbursements, insurance recoveries, and realized gain on investment activities.
(3) As presented in this table, "Total Operating Revenue" includes all revenues of the System, including MOST Revenue.
(4) Fiscal Year 2018 total includes one-time expense of $17.4 million related to reclassification of certain prior period costs related to the capital program.
(5) As presented in this table, "Operating Expenses" does not include any depreciation expenses.
(6) The interest expense amount for Fiscal Year 2018 and Fiscal Year 2017 was netted against the amounts transferred in from the sinking funds related to Bonds refunded by the City in Fiscal Year 2018 and Fiscal Year 2017 in the amount of $14.531 million and $16.539 million, respectively.
(7) Reported annual debt service for Fiscal Year 2014 and Fiscal Year 2015 excludes approximately $9.8 million and $26.6 million, respectively, of funds transferred from the Debt Service Fund and the Sinking Fund, respectively, in connection with the issuance of the Series 2013A Bonds, the Series 2013B Bonds and the Series 2015 Bonds, the proceeds of which were used to, among other things, refund portions of the Series 1999A Bonds, the Series 2001A Bonds, the Series 2004 Bonds and the Series 2009A Bonds.

Source: Municipal Advisor's Feasibility Study attached hereto as Appendix B.

For additional information regarding the historical operating results of the System for Fiscal Years 2014 through 2018 and the debt service requirement for the Senior Bonds Outstanding for such period, see "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Financial Performance - Historical Performance" attached hereto.

Management's Discussion and Analysis (Unaudited)

The tables below show the composition of assets and deferred outflows of resources, liabilities and deferred inflows of resources, net position, revenues, expenses and change in net position as of and for the Fiscal Years ended June 30, 2018, 2017 and 2016.

	Fiscal Year 2018 (Unaudited)	Fiscal Year 2017	% Change	Fiscal Year 2016	% Change
Assets and deferred outflows of resources (in thousands)					
Capital assets, net	$5,204,880	$5,050,774	3.05%	$4,908,654	2.90%
Current and other assets	1,671,697	1,494,291	11.87	1,429,053	4.57
Total assets	$6,876,577	$6,545,065	5.07	$6,337,707	3.27
Pension related deferred outflows	2,473	26,952	-90.82	17,768	51.69
Accumulated decrease in fair value of hedging derivative instruments	18,161	36,705	-50.52	85,958	-57.30
Deferred losses on debt refunding	170,942	168,956	1.18	151,841	11.27
Deferred losses on Swap termination	5,706	-	100.00	-	-
Total deferred outflows of resources	197,282	232,613	-15.19	255,567	-8.98
Total assets and deferred outflows of resources	$7,073,859	$6,777,678	4.37	$6,593,274	2.80

The total assets for the Fiscal Year ended June 30, 2018 compared to the Fiscal Year ended June 30, 2017 increased by $331.5 million or 5.07%. During the period, current and other assets increased by $177.4 million or 11.87% due to an increase in the amount of restricted cash and cash equivalents from operating activities. Capital assets increased from the Fiscal Year ended June 30, 2017 compared to the Fiscal Year ended June 30, 2018 in the amount of $154.1 million or 3.05% which was due to an increase in capital expenditures. The change in deferred outflows of resources between the Fiscal Years ended June 30, 2018 and 2017 was primarily a result of a change in the pension related deferred outflows during the Fiscal Year ended June 30, 2018.

The total assets for the Fiscal Year ended June 30, 2017 compared to the Fiscal Year ended June 30, 2016 increased by $207.4 million or 3.27%. During the period, current and other assets increased by $65.2 million or 4.57% due to an increase in the amount of cash from operating activities. Capital assets increased from the Fiscal Year ended June 30, 2016 compared to the Fiscal Year ended June 30, 2017 in the amount of $142.1 million or 2.90% which was due to an increase in capital expenditures. The change in deferred outflows of resources between the Fiscal Years ended June 30, 2017 and 2016 was primarily a result of a change in the fair value of derivative instruments during the Fiscal Year ended June 30, 2017.

	Fiscal Year 2018 (Unaudited)	Fiscal Year 2017	% Change	Fiscal Year 2016	% Change
Liabilities and deferred inflows of resources (in thousands)					
Long-term portion of bonds and other debt	$3,081,507	$3,081,815	-0.01%	$3,126,240	-1.42%
Other liabilities	1,035,185	820,630	26.15	715,396	14.71
Total liabilities	$4,116,692	$3,902,445	5.49	$3,841,636	1.58
Deferred inflows-pension related	12,023	229	5,150.22%	15,629	-98.53
Deferred inflows OPEB related	18,045	-	100.00	-	-
Total liabilities and deferred inflows of resources	$4,146,760	$3,902,674	6.25	$3,857,265	1.18

At June 30, 2018, total liabilities increased by 214.2 million, or 5.49%, from the Fiscal Year ended June 30, 2017. The increase was due to an increase in the capital leases obligations and OPEB during the Fiscal Year ended June 30, 2018. Deferred outflows increased by 29.8 million, or 13,030.13%, which was primarily due to activities related to the deferred inflows related to pension and OPEB.

At June 30, 2017, total liabilities increased by 60.8 million, or 1.58%, from the Fiscal Year ended June 30, 2016. The decrease in long -term bonds and other debt outstanding of $44.4 million, or 1.42%, was due to principal repayments of bonds and other debt during the Fiscal Year ended June 30, 2017. Other liabilities increased by $105.2 million, or 14.71%, which was primarily due to activities related to the Department's commercial paper program.

	Fiscal Year 2018 (Unaudited)	Fiscal Year 2017	% Change	Fiscal Year 2016	% Change
Net Position (in thousands)					
Net invested in capital assets	$2,437,022	$2,340,297	4.13%	$1,991,656	17.51%
Unrestricted	490,077	534,707	-8.35	580,371	-7.87
Total net position	$2,927,099	$2,875,004	1.81	$2,572,027	11.78

The Department's total net position increased for the Fiscal Year ended June 30, 2018 by $52.1 million or 1.81% as compared to the Fiscal Year ended June 30, 2017. The increase was due primarily to the increase in the Department's billing for services as a result of continued economic recovery during the Fiscal Year ended June 30, 2018.

The Department's total net position increased for the Fiscal Year ended June 30, 2017 by $139.0 million or 5.08% as compared to the Fiscal Year ended June 30, 2016. The increase was due primarily to the increase in the Department's billing for services as a result of continued economic recovery during the Fiscal Year ended June 30, 2017 and a decrease in the allowance for non-collectible water and sewer receivables.

As depicted in the table below, the Department's total revenues for the Fiscal Year ended June 30, 2018 increased by $18.6 million or 2.98% compared to the Fiscal Year ended June 30, 2017. Total operating revenues, which primarily consists of water and wastewater fees, licenses and permits, and intergovernmental revenue decreased by $8.2 million or 1.69%. This decrease was due to an increase in water and wastewater revenue allowance recorded for the period. Non-operating revenues increased by $26.8 million or 19.8%, which was due to a higher gain on investments and sales tax revenue.

The Department's total revenues for the Fiscal Year ended June 30, 2017 increased by $7.3 million or 1.18% compared to June 30, 2016. Total operating revenues, increased by $19.4 million or 4.15% which increase was due to an increase in consumption as a result of economic recovery and a decrease in the allowance for non-collectible water and waste water receivables. Non-operating revenues decreased by $12.1 million or 8.2%, which was due to a lower gain on investments.

Revenues (in thousands)	**Fiscal Year 2018 (Unaudited)**	**Fiscal Year 2017**	**% Change**	**Fiscal Year 2016**	**% Change**
Operating Revenues:					
Water and Wastewater Service	$451,630	$466,009	-3.09%	$445,718	4.55%
Sewer Service Charges from other governmental units	17,669	18,431	-4.13	20,030	-7.98
Other	8,758	1,845	374.69	1,181	56.22
Total Operating Revenues	$478,057	$486,285	-1.69	$466,929	4.15
Non-Operating Revenues:					
Municipal Option Sales Tax revenue	145,244	131,710	10.28	132,653	-0.71
Investment income	17,161	3,910	338.90	15,051	-74.02
Total Revenues	$640,462	$621,905	2.98	$614,633	1.18

Source: City of Atlanta, Department of Watershed Management.

As depicted in the table below, total expenses increased by $25.3 million or 5.59% for the Fiscal Year ended June 30, 2018 compared to the Fiscal Year ended June 30, 2017. The primary reason for the increase was an increase in general and consulting expenses for the period.

Total expenses increased by $20.6 million or 4.58% for the Fiscal Year ended June 30, 2017 compared to the Fiscal Year ended June 30, 2016. The primary reason for the increase was an increase in employees' workers compensation cost and depreciation expenses for the period.

Expenses (in thousands)	**Fiscal Year 2018 (Unaudited)**	**Fiscal Year 2017**	**% Change**	**Fiscal Year 2016**	**% Change**
Operating Expenses:	$347,828	$342,014	7.34%	$324,042	9.32%
Non-Operating Expenses:					
Interest	128,893	125,226	2.93	123,733	1.21
Other Expenses	2,176	4,296	-49.35	3,121	37.65
Total Non-Operating Expenses	$131,069	$129,522	1.19	$126,854	-2.10
Total Expenses	$478,879	$471,536	5.59	$450,896	7.16

Source: City of Atlanta, Department of Watershed Management.

As depicted in the table below, the Department's change in total capital contributions and transfers for the Fiscal Year ended June 30, 2018 was $6.6 million which is an increase as compared to the Fiscal Year ended June 30, 2017. This increase was due primarily to an increase in transfer-out cost related to shared IT and capital cost incurred during the period.

The Department's change in total capital contributions and transfers for the Fiscal Year ended June 30, 2017 is $7.6 million which is a decrease as compared to the Fiscal Year ended June 30, 2016. This decrease was likewise due primarily to an increase in transfer-out cost related to shared IT cost incurred during the period.

	Fiscal Year 2018 (Unaudited)	Fiscal Year 2017	% Change	Fiscal Year 2016	% Change
Change in net position before capital contributions and transfers	$161,640	$150,369	7.50%	$163,737	-8.16%
Capital contributions and transfers (in thousands):					
Capital contributions	15,961	17,638	-9.51	19,639	-10.19
Transfers in (out)	37,318	29,012	28.63	19,394	49.59
	$ 53,279	$ 46,650	14.21	$ 39,033	19.51

As depicted in the table below, the Department's change in net position for the Fiscal Year ended June 30, 2018 was $140.3 million, which is $1.3 million higher as compared to the Fiscal Year ended June 30, 2017. This increase was due primarily to an increase in sales tax and other revenue earned during the period.

The Department's change in net position for the Fiscal Year ended June 30, 2017 was $139.0 million, which is $25.0 million lower as compared to the Fiscal Year ended June 30, 2016. This decrease is due primarily to an increase in operating expenses related to salaries and depreciation expense for capital assets.

Change in net position (in thousands)	Fiscal Year 2018 (Unaudited)	Fiscal Year 2017	% Change	Fiscal Year 2016	% Change
Net position at beginning of year	$2,786,816	$2,736,009	1.86%	$2,572,027	6.38%
Change in net position	140,283	138,995	0.93	163,982	-15.24
Net position at end of year	$2,927,099	$2,875,004	1.81	$2,736,009	5.08

Projected Revenues, Expenses and Coverage

The following table presents the forecasted performance of the Department relative to its targeted debt service coverage metric, including forecasted net operating revenues, expenses, debt service, and debt service coverage through the forecast period (Fiscal Year 2024). After making certain adjustments, annual net operating revenues available to pay debt service are forecast to increase 3.5 percent from $345.7 million in Fiscal Year 2019 to $357.9 million in Fiscal Year 2024. Forecasted senior lien debt service coverage, evaluated in terms of the System as a whole (combined water and wastewater), is estimated to range from 1.57x to 1.67x over the six-year period as shown in the table below. Projected senior lien debt service coverage in Fiscal Year 2019 of 1.67x is based upon forecasted net revenues available for debt service of $345.7 million, a decrease of $47.9 million (12.2%) over net revenues available for debt service in Fiscal Year 2018. Subordinate coverage, which accounts for GEFA loan payments, the 2018 Environmental Impact Bonds, 2018 Commercial Paper Notes interest, and capital lease obligations, is expected to decrease from 7.52x in Fiscal Year 2019 to 3.20x in Fiscal Year 2024. Subordinate coverage decreases primarily because of increased GEFA borrowing and the lease obligations associated with the Department's resource recovery and energy management initiatives. As indicated in the Feasibility Study attached hereto as Appendix B, revenues were forecasted on a conservative basis and expenses were estimated based on historical spending patterns, adjusted for anticipated inflation. The Feasibility Study and the forecasted financial results for the System reflects the anticipated debt service associated with the Series 2018C

Bonds, the 2018 Environmental Impact Bonds, and the planned issuance of additional Senior Bonds in early Fiscal Year 2022.

Projected Senior and Subordinate Debt Service Coverage, Sales Tax Renewal Planning Scenario
For the Fiscal Years Ended June 30, 2019 through 2024[1]
(dollars in millions)

	Fiscal Year					
	2019	**2020**	**2021**	**2022**	**2023**	**2024**
Water & Wastewater Service Revenue	$456.1	$460.8	$463.6	$463.4	$474.6	$484.3
Other Service Revenue	16.9	17.0	17.4	17.5	17.5	17.6
MOST Revenue	125.0	125.0	125.0	125.0	125.0	125.0
Other Revenue	4.0	4.0	4.0	4.0	4.0	4.0
Non-Service Revenue	25.7	25.6	11.4	12.5	25.0	25.3
- IJ Capital Contributions[2]	(15.4)	(15.4)	(5.1)	(12.5)	(25.0)	(25.3)
- Repayment from General Fund[2]	(10.3)	(10.2)	(6.3)	-	-	-
- Fertilizer Sales Revenues[2]	-	-	(0.4)	(0.4)	(0.4)	(0.4)
Total Operating Revenues	$602.0	$606.7	$609.6	$609.5	$620.7	$630.5
Operating Expenses	$218.9	$218.6	$217.8	$221.0	$222.5	$224.1
+ Direct and Indirect Charges	41.0	42.3	43.5	44.8	46.2	47.6
+ OPEB	16.4	17.2	18.1	19.0	19.9	20.9
- Capitalized Expense	(20.0)	(20.0)	(20.0)	(20.0)	(20.0)	(20.0)
Total Operating Expenses	$256.3	$258.1	$259.4	$264.8	$268.6	$272.6
Net Revenue Available for Debt Service	$345.7	$348.7	$350.1	$344.6	$352.1	$357.9
Existing Senior Debt Service[3]	206.8	215.0	214.4	214.4	214.7	211.3
Series 2021 Debt Service[4]	-	-	-	4.9	7.6	7.6
Total Senior Debt Service	$206.8	$215.0	$214.4	$219.3	$222.3	$218.9
Projected Senior Lien Coverage Ratio[5]	1.67	1.62	1.63	1.57	1.58	1.63
Revenue Available for Subordinate Debt	138.9	133.7	135.7	125.3	129.9	139.0
Total Subordinate Debt[6]	18.5	25.7	37.8	37.4	40.3	43.3
Projected Subordinate Coverage Ratio[5]	7.52	5.19	3.59	3.35	3.21	3.20

(1) Slight calculation discrepancies may exist due to rounding.
(2) Non-Service Revenue are excluded from Operating Revenues in order to establish the projected debt service coverage ratio.
(3) Reflects the anticipated debt service of the Series 2018C Bonds; the executed termination of the swap associated with the Series 2013A Bonds; and the refunding of the Series 2013A Bonds.
(4) Anticipated debt service associated with the $110.0 million repayment of 2018 Commercial Paper Program obligations in Fiscal Year 2022.
(5) Debt service coverage metrics rounded to the second significant digit.
(6) Includes GEFA interest and principal payments; interest payments on the 2018 Commercial Paper Program; and debt service associated with the Fiscal Year 2019 issuance of the proposed 2018 Environmental Impact Bonds.

Source: Municipal Advisor's Feasibility Study attached hereto as Appendix B.

See "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Financial Performance - Planning Scenario for MOST Expiration" attached hereto for a comparison of the Department's forecasted performance relating to its targeted debt service coverage metrics under a scenario in which the Sales Tax is not renewed by City voters in March 2020 and actually expires in October 2020.

MUNICIPAL ADVISOR'S FEASIBILITY STUDY

In connection with the issuance of the Series 2018A Bonds, the City retained Galardi Rothstein Group (the "Feasibility Consultant"), along with a team of municipal consultants to develop the Feasibility Study. The Feasibility Study provides, among other things, an analysis of the System, the Capital Improvement Program and certain financial matters, including forecasted financial results for the System through Fiscal Year 2023, particularly, the forecasted sufficiency of Revenues of the System to pay debt service on the Series 2018A Bonds, the Series 2018B Bonds and the Series 2018C Bonds. The Feasibility Study is included herein as Appendix B in reliance upon the knowledge and experience of the Feasibility Consultant as experts in utility systems, feasibility analyses, revenue forecasting, and related financial matters.

The Feasibility Consultant has assembled financial forecasts of Revenues of the System available for debt service through Fiscal Year 2024 based upon assumptions and estimates concerning future events and circumstances which the City and the Department believe to be reasonable. Sources of Revenues of the System and forecast debt service coverage ratios are contained in the Feasibility Study.

The Feasibility Study should be read in its entirety for a discussion of historical and forecast financial results of the System, and an understanding of all of the assumptions and rationale underlying the forecasts and the conclusions contained therein. See "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Key Assumptions" attached hereto. No assurances can be given that the assumptions on which the forecasts in the Feasibility Study are based will materialize. Inevitably, some assumptions used to develop the forecasts will not be realized and unanticipated events and circumstances will occur. Therefore, actual results achieved during the forecast period will vary from those set forth in Feasibility Study and the variations may be material. Further, the forecast period covered by the Feasibility Study does not cover the entire period through maturity of the Series 2018C Bonds. See "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY" attached hereto.

Notably, the Feasibility Study incorporates certain key assumptions including: (a) the extension of the Sales Tax beyond its scheduled expiration in October 2020 throughout the forecast period (Fiscal Year 2024); (b) a modest service rate adjustment in Fiscal Year 2023, (c) the issuance of the Series 2018C Bonds to refund all of the Series 2013A Bonds; and (d) revisions to the Capital Improvement Program based on changes to select project cost estimates, the Department's assessment of prospective regulatory requirements and the ordinance enabling application of up to ten percent of the Sales Tax proceeds to address stormwater infrastructure needs. See "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY - Financial Performance" attached hereto.

LITIGATION

The City, like other similar bodies, is subject to a variety of suits and proceedings arising in the ordinary conduct of its affairs. The City, after reviewing the current status of all pending and threatened litigation with the City's Department of Law, believes that, while the outcome of litigation cannot be predicted, the final settlement of all lawsuits which have been filed and of any actions or claims pending or, to the knowledge of the City, threatened against the City or its officials in such capacity are adequately covered by insurance or sovereign immunity or will not have a material adverse effect upon the financial position or results of operations of the System, except as noted under the captions "THE SYSTEM - Water System - *Water Supply,*" "- *Water Supply and Wastewater Treatment Disputes,*" "THE SYSTEM - Water System Regulatory Matters" and "THE SYSTEM - Wastewater System Regulatory Matters - *General Wastewater System Regulatory Framework*" herein which provide a discussion of the Tri-State Water Rights litigation and a discussion of the relevant Consent Decrees, Consent Orders, and New Proposed Consent Orders.

There is no litigation now pending or, to the knowledge of the City, threatened against the City which restrains or enjoins the issuance or delivery of the Series 2018C Bonds or the use of the proceeds of the Series 2018C Bonds or which questions or contests the validity of the Series 2018C Bonds or the proceedings and authority under which they are to be issued, executed and delivered. Neither the creation, organization nor existence of the City, nor the title of the present members or other officials of the City to their respective offices, is being currently contested or questioned to the knowledge of the City.

VALIDATION

The City received an order and final judgment by the Superior Court of Fulton County, Georgia on October 18, 2018 confirming and validating the Series 2018C Bonds and the security therefor. Under State law, the judgment of validation is final and conclusive with respect to the validity of the Series 2018C Bonds and the security therefor, and is not subject to collateral attack from other parties.

TAX MATTERS

Opinion of Co-Bond Counsel

In the opinion of Co-Bond Counsel, under current law, interest on Series 2018C Bonds (a) will not be included in gross income for federal income tax purposes, (b) will not be an item of tax preference for purposes of the federal alternative minimum income tax, and (c) will be exempt from income taxation by the State of Georgia. No other opinion is expressed by Co-Bond Counsel regarding the tax consequences of the ownership of or the receipt or accrual of interest on Series 2018C Bonds.

Co-Bond Counsel's opinion will be given in reliance upon certifications by representatives of the City and other parties as to certain facts relevant to both the opinion and requirements of the Internal Revenue Code of 1986, as amended (the "Code"), and is subject to the condition that there is compliance subsequent to the issuance of the Series 2018C Bonds with all requirements of the Code that must be satisfied in order for interest thereon to remain excludable from gross income for federal income tax purposes. The City has covenanted to comply with the current provisions of the Code regarding, among other matters, the use, expenditure and investment of the proceeds of the Series 2018C Bonds and the timely payment to the United States of any arbitrage rebate amounts with respect to the Series 2018C Bonds.

Failure by the City to comply with such covenants, among other things, could cause interest on the Series 2018C Bonds to be included in gross income for federal income tax purposes retroactively to their date of issue.

Customary practice in the giving of legal opinions includes not detailing in the opinion all the assumptions, exclusions, conditions and limitations which are a part of the conclusions therein. See *Statement on the Role of Customary Practice in the Preparation and Understanding of Third-Party Legal Opinions* in The Business Lawyer, Volume 63, Page 1277 (2008) and *Legal Opinion Principles* in The Business Lawyer, Volume 53, Page 831 (1998). Purchasers of Series 2018C Bonds should seek advice or counsel concerning such matters as they deem prudent in connection with their purchase of Series 2018C Bonds, including with respect to the Co-Bond Counsel opinion.

Co-Bond Counsel's opinion represents a legal judgment based in part upon the representations and covenants referenced therein and a review of current law, but is not a guarantee of result or binding on the Internal Revenue Service (the "IRS") or the courts. Co-Bond Counsel assumes no duty to update or supplement the opinion to reflect any facts or circumstances that may thereafter come to Co-Bond Counsel's attention after the date of its opinion or to reflect any changes in law or the interpretation thereof that may thereafter occur or become effective.

Original Issue Premium

Series 2018C Bonds purchased, whether upon issuance or otherwise, for an amount (excluding any amount attributable to accrued interest) in excess of their principal amount will be treated for federal income tax purposes as having amortizable bond premium. A holder's basis in such a Series 2018C Bond must be reduced by the amount of premium which accrues while such Series 2018C Bond is held by the holder. No deduction for such amount will be allowed, but it generally will offset interest on the Series 2018C Bonds while so held. Purchasers of such Series 2018C Bonds should consult their own tax advisors as to the calculation, accrual and treatment of amortizable bond premium and the state and local tax consequences of holding such Series 2018C Bonds.

Other Tax Matters

In addition to the matters addressed above, prospective purchasers of Series 2018C Bonds should be aware that the ownership of tax-exempt obligations may result in collateral federal income tax consequences to certain taxpayers, including without limitation financial institutions, property and casualty insurance companies, S corporations, foreign corporations subject to the branch profits tax, recipients of Social Security or Railroad Retirement benefits and taxpayers who may be deemed to have incurred or continued indebtedness to purchase or carry tax-exempt obligations. Prospective purchasers of Series 2018C Bonds should consult their own tax advisors as to the applicability and impact of such consequences.

Current and future legislative proposals, if enacted into law, may cause interest on the Series 2018C Bonds to be subject, directly or indirectly, to federal income taxation by, for example, changing the current exclusion or deduction rules to limit the aggregate amount of interest on state and local government bonds that may be treated as tax exempt by certain individuals.

The IRS has a program to audit state and local government obligations to determine whether the interest thereon is includible in gross income for federal income tax purposes. If the IRS does audit the Series 2018C Bonds, under current IRS procedures, the IRS will treat the City as the taxpayer and the owners of the Series 2018C Bonds will have only limited rights, if any, to participate.

There are many events which could affect the value and liquidity or marketability of the Series 2018C Bonds after their issuance, including but not limited to public knowledge of an audit of the Series 2018C Bonds by the IRS, a general change in interest rates for comparable securities, a change in federal or state income tax rates or treatment, legislative or regulatory proposals affecting state and local government securities and changes in judicial interpretation of existing law. In addition, certain tax considerations relevant to owners of Series 2018C Bonds who purchase Series 2018C Bonds after their issuance may be different from those relevant to purchasers upon issuance. Neither the opinion of Co-Bond Counsel nor this Official Statement purports to address the likelihood or effect of any such potential events or such other tax considerations, and purchasers of Series 2018C Bonds should seek advice from their own tax advisors concerning such matters as they deem prudent in connection with their purchase of Series 2018C Bonds.

Prospective purchasers of the Series 2018C Bonds should consult their own tax advisors as to the status of interest on the Series 2018C Bonds under the tax laws of any state other than Georgia.

CONTINUING DISCLOSURE

In order to assist the Underwriters in complying with the Rule, simultaneously with the issuance of the Series 2018C Bonds, the City will enter into the Disclosure Agreement for the benefit of the holders of the Series 2018C Bonds, substantially in the form attached hereto as "APPENDIX E - FORM OF CONTINUING DISCLOSURE AGREEMENT." The City, as an "obligated person" under the Rule, will undertake in the Disclosure Agreement to provide: (a) certain financial information and operating data relating to the System and the Series 2018C Bonds in each year (the "Annual Report"); and (b) notice of the occurrence of certain enumerated events (each a "Listed Event Notice"). The Annual Report and each Listed Event Notice, if applicable, will be filed by DAC, on behalf of the City, on EMMA, a service of the Municipal Securities Rulemaking Board. The specific nature and timing of filing the Annual Report and each Listed Event Notice, and other details of the City's undertakings are more fully described in "APPENDIX E - FORM OF CONTINUING DISCLOSURE AGREEMENT" attached hereto.

The following disclosure is being provided by the City for the sole purpose of assisting the Underwriters in complying with the Rule: The City previously entered into continuing disclosure undertakings, as an "obligated person" under the Rule (the "Undertakings"). In the previous five year period beginning on September 18, 2013 and ending on September 18, 2018 (the "Compliance Period"), the City has, on several instances during the Compliance Period, failed to comply with certain provisions of the Undertakings, including: (a) failing to timely file certain annual financial information and/or operating data; (b) failing to provide certain required annual financial information and/or operating data in its annual filings; and (c) failing to file or timely file certain notices.

LEGAL MATTERS

Certain legal matters incident to the authorization, issuance, validity, sale and delivery of the Series 2018C Bonds are subject to the approving opinion of Hunton Andrews Kurth LLP, Atlanta, Georgia and The Kendall Law Firm, Atlanta, Georgia, Co-Bond Counsel, whose approving opinion in substantially the form attached hereto as "APPENDIX D - FORM OF OPINION OF CO-BOND COUNSEL" will be delivered concurrently with the issuance of the Series 2018C Bonds. The legal opinion of Co-Bond Counsel will speak only as of its date and subsequent distribution of it by recirculation of this Official Statement or otherwise will not create any implication that subsequent to the date of the legal opinion Co-Bond Counsel has affirmed its opinion. The proposed text of the legal opinion of Co-Bond Counsel is attached hereto as "APPENDIX D - FORM OF OPINION OF CO-BOND COUNSEL." The actual legal opinion to be delivered may vary from the text of Appendix D, if necessary, to reflect facts and law on the date of delivery of the Series 2018C Bonds.

Certain legal matters will be passed upon for the City by its Department of Law. Greenberg Traurig, LLP and Riddle & Schwartz, LLC, both of Atlanta, Georgia, are serving as Co-Disclosure Counsel. Certain legal matters will be passed upon for the Underwriters by Hardwick Law Firm, LLC, New York, New York and Haley Law Firm LLC, Atlanta, Georgia.

The legal opinions to be delivered concurrently with the delivery of the Series 2018C Bonds express the professional judgment of the attorneys rendering the opinions regarding the legal issues expressly addressed therein. By rendering a legal opinion, the attorneys providing such opinion do not become insurers or guarantors of the result indicated by that expression of professional judgment, of the transaction on which the opinion is rendered, or of the future performance of parties to the transaction. Nor does the rendering of an opinion guarantee the outcome of any legal dispute that may arise out of the transaction.

FINANCIAL STATEMENTS

The financial statements of the Department as of and for the Fiscal Years ended June 30, 2017 and 2016 have been audited by KPMG LLP, independent auditors (the "Auditor"). The report of the Auditor, together with the financial statements, and notes to the financial statements for Fiscal Year ended June 30, 2017 are attached hereto as "APPENDIX A - DEPARTMENT OF WATERSHED MANAGEMENT AUDITED FINANCIAL STATEMENTS AS OF AND FOR THE YEARS ENDED JUNE 30, 2017 AND 2016." The Auditor has not been engaged to perform and has not performed, since the date of its report included herein, any procedures on the financial statements addressed in that report. The Auditor also has not been engaged to perform and has not performed any procedures relating to this Official Statement.

CO-FINANCIAL ADVISORS

Hilltop Securities Inc., Dallas, Texas and Grant & Associates LLC, Marietta, Georgia are serving as Co-Financial Advisors to the City. The Co-Financial Advisors assisted in matters related to the planning, structuring and issuance of the Series 2018C Bonds and provided other advice. The Co-Financial Advisors did not engage in any underwriting activities with regard to the issuance and sale of the Series 2018C Bonds.

RATINGS

Moody's Investors Service, Inc. ("Moody's") and S&P Global Ratings ("S&P" and together with Moody's, the "Rating Agencies") have assigned underlying ratings of "Aa2" and "AA-," respectively, to the Series 2018C Bonds.

The ratings, including any related outlook with respect to potential changes in such ratings, reflect only the respective views of the Rating Agencies, and an explanation of the significance of such ratings may be obtained from the Rating Agencies furnishing the ratings. Generally, a rating agency bases its rating on the information and materials furnished to it and on investigations, studies, and assumptions of its own. There is no assurance that such ratings will remain unchanged for any given period of time or that they will not be revised downward or withdrawn entirely by the rating agency furnishing the same, if, in its judgment, circumstances so warrant. Any such downward revision or withdrawal of such ratings or other actions by the Rating Agencies or either of them, may have an adverse effect on the liquidity and/or market price of the affected Series 2018C Bonds. The City has not undertaken any responsibility to oppose any such revision, suspension or withdrawal.

UNDERWRITING

Loop Capital Markets (the "Representative"), on behalf of itself and the other underwriters listed in the cover page of this Official Statement (collectively, the "Underwriters") have agreed jointly and severally, pursuant to a Bond Purchase Agreement between the Representative and the City (the "Bond Purchase Agreement") to purchase the Series 2018C Bonds at a price equal to $323,907,901.34 (representing the principal amount of the Series 2018C Bonds of $288,900,000.00, plus bond premium of $36,119,519.35, less an underwriting discount of $1,111,618.01). The Bond Purchase Agreement provides that the obligations of the Underwriters to accept delivery of the Series 2018C Bonds are subject to various conditions of the Bond Purchase Agreement, but the Underwriters will be obligated to purchase all of the Series 2018C Bonds, if any are purchased. The Underwriters reserve the right to join with dealers and other underwriters in offering the Series 2018C Bonds to the public.

The prices and other terms with respect to the offering and sale of the Series 2018C Bonds may be changed from time to time by the Underwriters after such Series 2018C Bonds are released for sale, and the Series 2018C Bonds may be offered and sold at prices other than the initial offering prices, including sales to dealers whom may sell the Series 2018C Bonds into investment accounts.

The Underwriters have provided the following information for inclusion in this Official Statement:

Certain of the Underwriters have entered into distribution agreements with other broker-dealers (that have not been designated by the City as underwriters with respect to the Series 2018C Bonds) for the distribution of the Series 2018C Bonds at the original issue prices set forth on the inside front cover page hereof. Such agreements generally provide that the Underwriters will share a portion of its underwriting compensation or selling concession with such broker-dealers.

CERTAIN RELATIONSHIPS

Wells Fargo Securities is serving as an underwriter of the Series 2018C Bonds and Wells Fargo Municipal Capital Strategies, LLC is the holder of the Series 2013A Bonds which are being refunded with a portion of the proceeds of the Series 2018C Bonds.

FORWARD LOOKING STATEMENTS

Any statements made in this Official Statement, including in the appendices attached hereto, involving estimates, forecasts 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, forecasts or matters of opinion will be realized.

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

The statements contained in this Official Statement, including in the appendices attached hereto, that are not purely historical, are "forward looking statements." Such statements generally are identifiable by the terminology used, such as "plan," "expect," "estimate," "budget" or other similar words. Such forward looking statements include but are not limited to certain statements contained in the information set forth under "THE SYSTEM," "SYSTEM REVENUES," "SYSTEM FINANCE MATTERS," "CAPITAL IMPROVEMENT PROGRAM," and "LEGAL MATTERS" herein and in "APPENDIX B - MUNICIPAL ADVISOR'S FEASIBILITY STUDY" attached hereto. Readers should not place undue reliance on forward looking statements. All forward-looking statements included or incorporated by reference in this Official Statement are based on information available on the date hereof and the City assumes no obligation to update any such forward looking statements. It is important to note that the actual results could differ materially from those in such forward-looking statements.

The forward looking statements herein are necessarily based on various assumptions and estimates and are inherently subject to various risks and uncertainties, including risks and uncertainties relating to the possible invalidity of the underlying assumptions and estimates and possible changes or developments in social, economic, business, industry, market, legal and regulatory circumstances and conditions and actions taken or omitted to be taken by third parties, including customers, suppliers, business partners and competitors, and legislative, judicial and other governmental authorities and officials. Assumptions related to the foregoing involve judgments with respect to, among other things, future economic, competitive, and market conditions and future business decisions, all of which are difficult or impossible to predict accurately and many of which are beyond the control of the City. Any of such assumptions could be inaccurate and, therefore, there can be no assurance that the forward-looking statements included in this Official Statement, including in the appendices attached hereto, will prove to be accurate.

MISCELLANEOUS

The references, excerpts and summaries of all documents referred to herein do not purport to be complete statements of the provisions of such documents and reference is directed to all such documents for full and complete statements of all matters of fact relating to the Series 2018C Bonds, the security for and the source for repayment for the Series 2018C Bonds and the rights and obligations of the Bondholders. Copies of such documents may be obtained as specified under the section "INTRODUCTION - Other Information" herein.

The appendices attached hereto, are integral parts of this Official Statement and should be read together with all other parts of this Official Statement.

Any statements made in this Official Statement involving matters of opinion or of estimates or forecasts, 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 forecasts will be realized. Neither this Official Statement nor any statement which may have been made verbally or in writing is to be construed as a contract with the Holders of the Series 2018C Bonds.

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CERTIFICATION

The execution and delivery of this Official Statement, and its distribution and use by the Underwriters in connection with the original public offer, sale and distribution of the Series 2018C Bonds by the Underwriters, have been duly authorized and approved by the City.

CITY OF ATLANTA

By: */s/ Keisha Lance Bottoms*
Keisha Lance Bottoms,
Mayor

By: */s/ Roosevelt Council, Jr.*
Roosevelt Council, Jr.,
Chief Financial Officer

By: */s/ Kishia L. Powell*
Kishia L. Powell,
Commissioner of Watershed Management

APPENDIX A

DEPARTMENT OF WATERSHED MANAGEMENT
AUDITED FINANCIAL STATEMENTS AS OF AND FOR THE YEARS ENDED JUNE 30, 2017 AND 2016

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KPMG LLP
Suite 2000
303 Peachtree Street, N.E.
Atlanta, GA 30308-3210

Independent Auditors' Report

Honorable Mayor and Members
of the City Council
City of Atlanta, Georgia:

Report on the Financial Statements

We have audited the accompanying financial statements of the Department of Watershed Management (the Department) of the City of Atlanta, Georgia (the City), a major enterprise fund of the City, as of and for the years ended June 30, 2017 and 2016, and the related notes to the financial statements, which collectively comprise the Department's basic financial statements as listed in the table of contents.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with U.S. generally accepted accounting principles; 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.

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

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

Opinion

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Department as of June 30, 2017 and 2016, and the changes in its financial position and its cash flows thereof for the years then ended in accordance with U.S. generally accepted accounting principles.

Emphasis of Matter

As discussed in note 1 to the basic financial statements, the financial statements of the Department are intended to present the financial position, the change in financial position and, where applicable, cash flows of only that portion of the business type of activities of the City that is attributable to the transactions of the Department. They do not purport to, and do not, present fairly the financial position of the City of Atlanta, Georgia, as of June 30, 2017 and 2016, the changes in its financial position, or, where applicable, its cash flows for the years then ended in accordance with U.S. generally accepted accounting principles. Our opinion is not modified with respect to this matter.

Other Matters

Required Supplementary Information

U.S. generally accepted accounting principles require that the management's discussion and analysis on pages 3-15 and schedules of funding progress for other postemployment benefits and proportionate share of net pension liability and related ratios on page 65, 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.

Supplementary and Other Information

Our audit was conducted for the purpose of forming an opinion on the financial statements that collectively comprise the Department's basic financial statements. The introductory and statistical sections are presented for purposes of additional analysis and are not a required part of the basic financial statements. Such 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.

Other Reporting Required by Government Auditing Standards

In accordance with *Government Auditing Standards*, we have also issued our report dated December 21, 2017 on our consideration of the Department'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 the Department's 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 Department's internal control over financial reporting and compliance.

KPMG LLP

Atlanta, Georgia
December 21, 2017

CITY OF ATLANTA, GEORGIA
DEPARTMENT OF WATERSHED MANAGEMENT
Statements of Net Position
June 30, 2017 and 2016
(In Thousands)

	2017	2016
ASSETS		
Current assets:		
Cash and cash equivalents	$ 11,867	18,831
Restricted cash and cash equivalents	205,815	115,589
Equity in cash management pool	819,929	747,159
Accounts receivable, net of allowance for doubtful accounts of $99,537 in 2017 and $92,238 in 2016	70,962	66,125
Interest receivable	625	426
Due from other governmental units, net of allowances	11,460	11,570
Due from other funds of the City of Atlanta	11,680	11,910
Advance to other funds of the City of Atlanta - current portion	10,000	10,000
Materials and supplies, net of allowance for obsolescence of $244 in 2017 and $557 in 2016	12,502	11,148
Total current assets	1,154,840	992,758
Noncurrent assets:		
Restricted cash and cash equivalents	—	86,059
Restricted investments	213,470	212,557
Advance to other funds of the City of Atlanta, less current portion	26,199	36,199
Investment in joint venture	75,782	77,480
Due from other parties	24,000	24,000
Capital assets:		
Land	127,319	124,045
Land improvements	13,010	12,195
Water collection and distribution system	4,342,498	4,276,723
Water and wastewater plant and treatment facilities	1,933,550	1,933,499
Other property and equipment	236,910	215,209
Construction in progress	748,611	587,322
	7,401,898	7,148,993
Less: accumulated depreciation	(2,351,124)	(2,240,339)
Capital assets, net	5,050,774	4,908,654
Total noncurrent assets	5,390,225	5,344,949
Total assets	6,545,065	6,337,707
DEFERRED OUTFLOWS OF RESOURCES		
Pension related deferred outflows	26,952	17,768
Accumulated decrease in fair value of hedging derivative instruments	36,705	85,958
Deferred losses on debt refunding	168,956	151,841
Total assets and deferred outflows of resources	$ 6,777,678	6,593,274

(Continued)

See accompanying notes to the financial statements.

CITY OF ATLANTA, GEORGIA
DEPARTMENT OF WATERSHED MANAGEMENT
Statements of Net Position
June 30, 2017 and 2016
(In Thousands)

	2017	2016
LIABILITIES		
Current liabilities payable from operating assets:		
Accounts payable	$ 38,087	32,730
Accrued liabilities, vacations, and compensatory pay	6,861	5,340
Claims payable	6,675	6,675
Customer deposits	8,137	7,476
Current portion of other debt	6,200	6,002
Current maturities of capital lease/installment purchase obligations	1,749	1,304
Accrued workers' compensation	2,854	1,087
Total current liabilities payable from operating assets	70,563	60,614
Current liabilities payable from restricted assets:		
Accounts payable restricted	29,402	24,592
Accrued interest payable	22,153	22,843
Contract retention	15,378	8,034
Current maturities of revenue bonds payable	63,650	60,120
Commercial note payable	96,410	—
Total current liabilities payable from restricted assets	226,993	115,589
Total current liabilities	297,556	176,203
Noncurrent liabilities:		
Revenue bonds payable and other debt, less current maturities	3,081,815	3,126,240
Installment purchase obligations, less current maturities	5,394	—
Claims payable, less current portion	8,631	6,111
Accrued worker's compensation, less current portion	6,685	7,474
Pension liability	259,718	235,708
Other post retirement benefits	112,861	106,924
Derivative instruments - interest rate swaps	129,785	182,976
Total non-current liabilities	3,604,889	3,665,433
Total liabilities	3,902,445	3,841,636
DEFERRED INFLOWS OF RESOURCES		
Deferred inflows pension related	229	15,629
Total liabilities and deferred inflows of resources	3,902,674	3,857,265
NET POSITION		
Net investment in capital assets	2,340,297	2,148,323
Unrestricted	534,707	587,686
Total net position	$ 2,875,004	2,736,009

See accompanying notes to the financial statements.

CITY OF ATLANTA, GEORGIA
DEPARTMENT OF WATERSHED MANAGEMENT
Statements of Revenue, Expenses, and Changes in Net Position
For the Years Ended June 30, 2017 and 2016
(In Thousands)

	2017	2016
Operating revenues:		
Water and wastewater service charges	$ 466,009	445,718
Sewer service charges from other governmental units	18,431	20,030
Rentals, admissions and concessions	25	66
Other	1,820	1,115
Total operating revenues	486,285	466,929
Operating expenses:		
Salaries and employee benefits	108,830	94,823
Utilities	21,595	20,571
Supplies and materials	20,154	19,231
Repairs, maintenance and other contractual services	11,023	13,444
Motor equipment services	6,164	6,302
Engineering and consultant fees	27,163	32,214
General services	33,098	38,369
Depreciation	113,987	99,088
Total operating expenses	342,014	324,042
Operating income	144,271	142,887
Non-operating revenues (expenses):		
Investment income, net of capitalized interest	3,910	15,051
Interest expense	(125,226)	(123,733)
Other revenues (expenses)	(4,296)	(3,121)
Total nonoperating revenues (expenses)	(125,612)	(111,803)
Change in net position before capital contributions and transfers	18,659	31,084
Capital contributions	17,638	19,639
Transfers in	133,624	132,653
Transfers out	(30,926)	(19,394)
Change in net position	138,995	163,982
Net position, beginning of period	2,736,009	2,572,027
Net position, end of year	$ 2,875,004	2,736,009

See accompanying notes to the financial statements.

CITY OF ATLANTA, GEORGIA
DEPARTMENT OF WATERSHED MANAGEMENT
Statements of Cash Flows
For the Years Ended June 30, 2017 and 2016
(In Thousands)

	2017	2016
Cash flows from operating activities:		
Cash received from customers	$ 468,375	496,769
Cash received from interfund services provided	13,844	12,455
Cash paid to employees for services	(101,485)	(97,805)
Cash paid to suppliers for goods and services	(92,312)	(84,823)
Cash paid for interfund services received	(14,617)	(18,766)
Net cash provided by operating activities	273,805	307,830
Cash flows from investing activities:		
Purchase of investments	(11,733)	(70,489)
Proceeds from sale of investments	10,820	—
Investment income	4,201	6,597
Change in pooled investments	(72,770)	(37,083)
Net cash used in investing activities	(69,482)	(100,975)
Cash flows from capital and related financing activities:		
Capital contributions	17,638	19,639
Principal repayment of debt and capital lease obligations	(320,236)	(63,943)
Acquisition, construction, and improvement of capital assets	(235,382)	(189,689)
Proceeds from issuance of debt	356,982	5,592
Premium from issuance of debt	37,732	14,361
Interest paid	(162,256)	(159,236)
Net cash used in capital and related financing activities	(305,522)	(373,276)
Cash flows from noncapital financing activities:		
Transfers from other funds	133,624	132,653
Transfers to other funds	(30,926)	(19,394)
Noncapital distributions	(4,296)	(3,121)
Net cash provided by noncapital financing activities	98,402	110,138
Decrease in cash and cash equivalents	(2,797)	(56,283)
Cash and cash equivalents:		
Beginning of year	220,479	276,762
End of year	$ 217,682	220,479

(Continued)

See accompanying notes to the financial statements.

CITY OF ATLANTA, GEORGIA
DEPARTMENT OF WATERSHED MANAGEMENT
Statements of Cash Flows
For the Years Ended June 30, 2017 and 2016
(In Thousands)

	2017	2016
Reconciliation of operating income to net cash provided by operating activities:		
Operating income	$ 144,271	142,887
Adjustments to reconcile operating income to net cash provided by operating activities:		
Depreciation	113,987	99,088
Changes in assets and liabilities:		
Accounts receivable - net of allowances	(4,837)	(3,557)
Due from other funds of the City of Atlanta	10,230	10,122
Due from other governmental units - net of allowance	110	45,339
Materials and supplies - net of allowances	(1,354)	(634)
Investment in joint venture	1,698	2,102
Accounts payable and accrued expenses	6,519	11,614
Claims payable	2,520	356
Customer deposits	661	513
Net cash provided by operating activities	$ 273,805	307,830
Schedule of noncash capital and related financing activity:		
Acquisition of capital assets in accounts payable	$ 29,402	24,592
Amortization of bond discount and premium, net	$ 12,926	12,562
Retainage payable	$ 15,378	8,034
Acquisition of capital assets in installment payment arrangement	$ 1,952	—
Accrued capitalized interest	$ 1,871	1,305
Equipment identified through periodic capital asset physical count	$ 4,231	—

See accompanying notes to the financial statements.

Note 1 – Reporting Entity and Summary of Significant Accounting Policies

Reporting Entity

The City of Atlanta, Georgia - Department of Watershed Management (Department) accounts for all activities associated with the provision and management of clean water, wastewater and stormwater systems, and water pollution control services to individuals, organizations, and other governmental units within and around the City of Atlanta, Georgia (City). All revenue from sources applicable to such operations and all costs and expenses incurred in the provision of such services are recorded in this fund. The accompanying financial statements include only the financial activities of the Department. The Department is an integral part of the City's government reporting entity and its results are included in the Comprehensive Annual Financial Report (CAFR) of the City as a proprietary fund. The City's most recent available CAFR is as of and for the year ended June 30, 2016. The CAFR should be read in conjunction with these financial statements.

The accounting policies of the Department conform to U.S. generally accepted accounting principles (GAAP) as applied to governmental units. The Department's most significant accounting policies are summarized below.

Basis of Accounting

As required by various City ordinances, the financial activities of the Department are accounted for in separate funds established by such ordinances and are combined for financial reporting purposes and presented as a single proprietary fund. Proprietary fund financial statements are prepared on the accrual basis of accounting, whereby revenue is recognized as earned and expenses are recognized as incurred.

Revenue Recognition

Substantially all revenues are accrued and recognized as earned. Revenue for water and sewer service charges is billed based on cycle billings sent to customers. Service charges, including amounts not yet billed as of year-end, are pro-rated based on days applicable to the financial reporting period.

Grants which finance either capital or current operations are reported as non-operating revenue. The Department recognizes related receivables and revenue when the applicable eligibility requirements, including time requirements, are met. Resources transmitted before the eligibility requirements are met are reported as unearned revenue by the Department.

Cash and Cash Equivalents

The Department considers all highly liquid debt securities with an original maturity of no more than three months to be cash equivalents. At June 30, 2017 and 2016, cash and cash equivalents included the following (in thousands):

	2017	2016
Unrestricted cash and cash equivalents	$ 11,867	$ 18,831
Restricted cash and cash equivalents	205,815	201,648
	$ 217,682	$ 220,479

(Continued)

Note 1 – Reporting Entity and Summary of Significant Accounting Policies, continued

Investments

Investments are reported at fair value, based on quoted market prices, and include any accrued interest.

The City maintains a pooled investment fund in which the Department participates. Investment income of this pooled fund is allocated to each participating fund based on that fund's recorded equity in the pooled fund. Debt service and construction project funds of the Department are held as restricted assets and are not included in the pooled investment fund.

Materials and Supplies

Materials and supplies are stated at the lower of average cost or market and are reduced by an allowance for obsolescence.

Customer Deposits

Deposits made on customer accounts will be refunded, provided no action to terminate service has been taken, after five years of uninterrupted water service. When accounts are closed, the deposit credited to such accounts is applied to any unpaid balance. Any credit remaining after unpaid balances are satisfied may, at the customer's request, be refunded without interest or transferred without interest to another account to serve as a deposit or a portion of the required deposit for such new account.

Water main deposits are typically collected from developers of new businesses and residential buildings. Deposits are only refundable when the water mains are laid within the City limits, a request has been made by the developer, the project is complete, and water meters have been installed and activated. If a request for refund is not made by the developer after 10 years of the approval date of the contract, all rights to a refund by the developer are relinquished.

Restricted Assets

Restricted assets represent amounts required to be maintained pursuant to City ordinances relating to bonded indebtedness (construction, renewal and extension, escrow, and sinking funds) and funds received for specific purposes pursuant to U.S. government grants (see note 3).

When costs are incurred for purposes for which there are both restricted and unrestricted assets available, it is the Department's policy to apply those costs to restricted assets to the extent such are available and then to unrestricted assets.

Interfund Transactions

During the course of normal operations, transactions take place between the funds comprising the Department and other funds within the City. These interfund transactions are not eliminated and are classified as "due from other funds of the City of Atlanta" and "advance to other funds of the City of Atlanta" on the statements of net position (see note 4).

(Continued)

Note 1 – Reporting Entity and Summary of Significant Accounting Policies, continued

Capital Assets

Capital assets are recorded at cost, if purchased and at fair value at date of gift, if donated. The Department capitalizes plant and facilities, systems, machinery and equipment with a cost of $5,000 or more. Depreciation is provided on the straight-line method over the following estimated useful lives:

Classification	Range of Lives
Water and wastewater plant and treatment facilities	50 years
Water collection and distribution system	75 years
Wastewater system	67 years
Stormwater drainage systems	75 years
Machinery, equipment, and other	5 - 15 years
Land improvements	10 - 20 years

Capitalization of Interest

Net interest costs incurred during construction of system lines, plant facilities, and other structures are capitalized as part of the historical cost of acquiring these assets. The interest earned on investments acquired with proceeds from tax-exempt borrowings (where such borrowings are restricted to the acquisition of assets) is offset against the related interest costs in determining either the amount of interest to be capitalized or limitations on the amount of interest costs to be capitalized.

Compensated Absences

Department employees can accrue a maximum of 25 to 45 days of annual leave, depending upon length of service. Vested or accumulated vacation leave and the related employee benefits are recorded as an expense and liability as the benefits accrue to employees.

Employees can accrue unlimited amounts of sick leave. Sick leave can be taken only due to personal illness or, in certain cases, illness of family members. Sick leave is not intended to be paid out except under special circumstances where the City Council has given approval and the necessary funds are available. Consequently, the Department does not record an accrued liability for accumulated sick pay.

Net Position

Net investment in capital assets - Consists of capital assets including restricted capital assets, net of accumulated depreciation and reduced by the outstanding balances of any bonds, notes, or other borrowings that are attributable to the acquisition, construction or improvement of those assets. Included are the deferred outflows of resources and deferred inflows of resources that are attributed to acquisition, construction, or improvement of those assets or related debt. If there are significant unspent related debt proceeds at year-end, the portion of the debt attributable to the unspent proceeds is 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.

(Continued)

Note 1 – Reporting Entity and Summary of Significant Accounting Policies, continued

Net Position, continued

Restricted - Consists of net position with constraints placed on use either by (1) external groups, such as creditors, grantors, contributors, or laws or regulations of other governments or (2) law through constitutional provisions or enabling legislation reduced by liabilities and deferred inflows of resources related to those assets.

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

Unrestricted - All other net position that does not meet the definition of "restricted" or "net investment in capital assets."

Deferred Outflows of Resources

Deferred outflows of resources represent a consumption of net position that applies to a future period and will not be recognized as an outflow of resource (expense) until then. The deferred charge on refunding results from the difference in the carrying value of refunded debt and reacquisition price. The effective portion of the Department's interest rate swaps is accounted for as a deferred outflow of resources. The amount for pensions relates to certain differences between projected and actual actuarial results, certain differences between projected and actual investment earnings, as well as contributions between measurement and reporting dates, which are accounted for as deferred outflows of resources.

Deferred Inflows of Resources

Deferred inflows of resources represent an acquisition of net position that applies to a future period and so will not be recognized as an inflow of resources (revenue) until that time. The interest rate swap, which relates to an interest rate swap agreement, is considered to be a hedging derivative. Changes in the fair market value of hedging derivatives are reported as deferred inflows or outflows of resources. The amounts for pensions relate to certain differences between projected and actual actuarial results and certain differences between projected and actual investment earnings, which are accounted for as deferred inflows of resources.

Classification of Revenues and Expenses

Operating revenues and expenses consist of those revenues and expenses that result from the ongoing principal operations of the Department. Operating revenues consist primarily of charges for services, with a small portion attributable to ancillary activities. Non-operating revenues and expenses consist of those revenues and expenses that are related to financing and investing types of activities and that result from non-exchange transactions.

(Continued)

Note 1 – Reporting Entity and Summary of Significant Accounting Policies, continued

Long-Term Debt

Bond discounts and premiums are deferred and amortized over the term of the bonds using the bonds outstanding method, which approximates the effective interest method. Bond discounts and premiums are presented net of the face amount of bonds payable.

Bond issuance costs are recorded as an outflow of resources (expensed) in the year in which they are incurred.

Franchise Fees

In fiscal years 2017 and 2016, a franchise fee was charged by and paid to the City's general fund. The payment was based on the carrying value of the property and assessments on revenue. These charges were approximately $19,887,000 and $19,394,000, respectively, for the years ended June 30, 2017 and 2016, and are reported on the accompanying statements of revenue, expenses and changes in net position as transfers out.

General Services Costs

The Department is one of a number of funds and/or departments maintained by the City. Certain general services costs, such as purchasing, accounting, budgeting, and personnel administration represent services provided to the Department by other City departments and/or funds. Such costs are allocated to the Department based on allocation methods determined by an independent study. For the years ended June 30, 2017 and 2016, such allocated expenses totaled approximately $14,617,000 and $18,766,000, respectively.

(Continued)

Note 1 – Reporting Entity and Summary of Significant Accounting Policies, continued

Recently Adopted Accounting Pronouncements

In 2016, the Department adopted the provisions of GASB Statement No. 72, *Fair Value Measurement and Application*. This Statement provides hierarchical guidance for determining fair value measurement for assets and liabilities for financial reporting purposes and also provides guidance for required disclosures related to fair value measurements.

Future Accounting Pronouncements

Pronouncements issued, but not yet effective, which will be adopted by the Department in future years:

In June 2015, the GASB issued Statement No. 75, *Accounting and Financial Reporting for Postemployment Benefit Plans Other Than Pensions.* This statement establishes accounting and financial reporting standards for recognizing and measuring liabilities, deferred outflows of resources, deferred inflows of resources, and expenses for other post-employment benefits (OPEBs) that are provided to employees of state and local government employers. This Statement also identifies the methods and assumptions that are required to be used to project benefit payments, discount projected benefit payments to their actuarial present value, and attribute that present value to periods of employee service. This Statement will be effective for the Department in fiscal year 2018. The Department is in the process of evaluating the impact of this pronouncement on its financial statements.

In November 2016, the GASB issued Statement No. 83, *Certain Asset Retirement Obligations.* The purpose of this Statement is to provide financial statement users with information about asset retirement obligations (AROs) that were not previously addressed in existing GASB standards by establishing uniform accounting and financial reporting requirements for these obligations. This Statement will enhance comparability of financial statements among governments by establishing uniform criteria for governments to recognize and measure certain AROs, including obligations that may not have been previously reported. This Statement also will enhance the decision-usefulness of the information provided to financial statement users by requiring disclosures related to those AROs. This Statement will be effective for the Department in fiscal year 2019. The Department is in the process of evaluating the impact of this pronouncement on its financial statements.

In June 2017, the GASB issued Statement No. 87, *Leases.* This statement establishes accounting and financial reporting standards focused on certain lease liabilities that currently are not reported. Comparability of financial statements among governments will be enhanced by requiring lessees and lessors to report leases under a single model. Decision-usefulness will also be enhanced by requiring notes to financial statements related the timing, significance, and purpose of leasing arrangements. The Department is in the process of evaluating the impact of this pronouncement on its financial statements.

(Continued)

Note 1 – Reporting Entity and Summary of Significant Accounting Policies, continued

Use of Estimates

The preparation of financial statements in conformity with U.S. GAAP requires management to make estimates and assumptions that affect the reported amounts of assets, liabilities, revenues, expenses and disclosures. Actual results could differ from those estimates.

Note 2 – Deposits and Investments

Pooled Cash and Investments Held in City Treasury

The City maintains a cash and investment pool that is available for use by various City funds including the Department. The Department's portion of this pool is displayed on the accompanying statements of net position as equity in cash management pool.

Investment in Local Government Investment Pool

The City is a voluntary participant in the Georgia Local Government Investment Pool (Georgia Fund 1) that is managed by the Office of Treasury and Fiscal Services. Georgia Fund 1 is designed to maximize current income while preserving principal and providing daily liquidity. It is managed to maintain a $1.00 value and a weighted maturity of 60 days or less, with a maximum maturity of any investment limited to 397 days. At June 30, 2017 and 2016, portfolio composition consisted of the Federal Home Loan Bank (FHLB), Federal Home Loan Mortgage Corporation (FHLMC), Federal National Mortgage Association (FNMA), Federal Farm Credit Bank (FFCB), Repurchase Agreements (Repos), and Negotiated Investment Deposit Agreements (NIDA).

As of June 30, 2017 and 2016, the Department's investments in the Georgia Fund 1 are approximately $98,446,000 and $71,629,000, respectively. The Georgia Fund 1 investments are included in restricted cash and cash equivalents in the accompanying statements of net position. The total amount held by all public agencies in Georgia Fund 1 at June 30, 2017 and 2016 is approximately $12.0 billion and $13.4 billion, respectively.

Investments Authorized by the Official Code of Georgia and the City's Investment Policy

The City has adopted an investment policy (Policy) to minimize the inherent risks associated with deposits and investments. The primary objective of the Policy is to invest funds to provide for the maximum safety of principal.

(Continued)

Note 2 – Deposits and Investments, continued

The Policy also identifies certain provisions of the Official Code of Georgia Annotated (OCGA) that address interest rate risk, credit risk and concentration of credit risk. The Policy governs all governmental and business-type activities for the City, but does not govern the City's pension plans. Identified below are the investment types that are authorized for the City by the Policy.

The City's investments are limited to U.S. government-guaranteed securities and U.S. government agency securities which are limited to issues of the Federal Farm Credit Bank (FFCB), Federal Home Loan Bank System (FHLBS), Federal Home Loan Mortgage Corporation (FHLMC) and Federal National Mortgage Association (FNMA). Under the Policy, the City restricts investments in eligible obligations to discount notes and callable or non-callable fixed-rate securities with a fixed principal repayment amount.

Also, the City may invest in fully collateralized repurchase agreements provided the City has on file a signed Master Repurchase Agreement, approved by the City Attorney, detailing eligible collateral, collateralization ratios, standards for collateral custody and control, collateral valuation, and conditions for agreement termination. The Policy requires the securities being purchased by the City to be assigned to the City, held in the City's name, deposited, at the time the investment is made, with the City or with a third party selected and approved by the City, and placed through a primary government securities dealer, as defined by the Federal Reserve, or a financial institution doing business in this state, which is rated no less than "A" or its equivalent by two nationally recognized rating services.

Under the Policy, the City's investment portfolio, in aggregate, will be diversified to limit its exposure to interest rate, credit and concentration risks by observing the above limitations.

Fair Value Measurement

GASB Statement No. 72, *Fair Value Measurement and Application,* enhances comparability of governmental financial statements by requiring fair value measurement for certain assets and liabilities using a consistent definition and accepted valuation techniques. The standard establishes a hierarchy of inputs used to measure fair value that prioritizes the inputs into three categories – Level 1, Level 2 and Level 3 inputs – considering the relative reliability of the inputs. The hierarchy gives the highest priority to unadjusted quoted prices in active markets for identical assets or liabilities (Level 1 measurements) and the lowest priority to measurements involving significant unobservable inputs (Level 3 measurements). The three levels of the fair value hierarchy are as follows:

- Level 1 inputs are quoted (unadjusted) prices in active markets for identical financial assets or liabilities that the Department has the ability to access at the measurement date;
- Level 2 inputs are inputs other than quoted prices included within Level 1 that are observable for the financial asset or liability, either directly or indirectly; and
- Level 3 inputs are unobservable inputs for the financial asset or liability.

The level in the fair value hierarchy within which a fair value measurement falls is based on the lowest level input that is significant to the fair value measurement in its entirety.

(Continued)

Note 2 – Deposits and Investments, continued

The following tables present the financial assets carried at fair value by level within the valuation hierarchy as of June 30, 2017 and 2016:

	2017			
	Level 1	Level 2	Level 3	Total
Investments by fair value level:				
Debt securities				
U.S. Treasuries	$ 49,758	—	—	49,758
U.S. Agencies	—	64,062	—	64,062
Total debt securities	49,758	64,062	—	113,820
Equity securities				
Equity - open end fund	11,974	—	—	11,974
Guaranteed investment contracts	—	87,676	—	87,676
Total equity securities	11,974	87,676	—	99,650
Equity in Cash Management Pool				819,929
Total Investments	$ 61,732	151,738	—	1,033,399

	2016			
	Level 1	Level 2	Level 3	Total
Investments by fair value level:				
Debt securities				
U.S. Treasuries	$ 50,463	—	—	50,463
U.S. Agencies	—	74,177	—	74,177
Total debt securities	50,463	74,177	—	124,640
Equity securities				
Equity - open end fund	241	—	—	241
Guaranteed investment contracts	—	87,676	—	87,676
Total equity securities	241	87,676	—	87,917
Equity in Cash Management Pool				747,159
Total Investments	$ 50,704	161,853	—	959,716

Short term investment and debt securities classified in Level 1 are valued using prices quoted in active markets for those securities. Debt securities classified as Level 2 are subject to pricing by an alternative pricing source due to lack of information by the primary vendor. Guaranteed investment contracts were valued using a matrix pricing technique. Matrix pricing is used to value securities based on the securities' relationship to benchmark quoted prices for identical securities in markets that are not active.

There are no investments classified as Level 3. The equity in cash management pool represents the Department's participation in the City's internal cash pool which is measured at net asset value (NAV) per share.

(Continued)

Note 2 – Deposits and Investments, continued

Investment Risk Disclosures

Interest rate risk - Interest rate risk is the risk that changes in market rates will adversely affect the fair value of an investment. Generally, the longer the maturity of an investment, the greater the sensitivity of its fair value to changes in market interest rates. Additionally, the fair values of the investments may be highly sensitive to interest rate fluctuations. The Policy establishes maximum maturity dates by investment type in order to limit interest rate risk. The City manages its exposure to interest rate risk by purchasing a combination of shorter-term and longer-term investments and by timing cash flows from maturities so that a portion is maturing, or approaching maturity, evenly over time, as necessary to provide the cash flow and liquidity needs for operations. The City has the ability and generally has the intention to hold all investments until their respective maturity dates. The average maturity of the City's pooled cash and investments governed by the Policy as of June 30, 2017 and 2016, was approximately six months. If it becomes necessary or strategically prudent for the City to sell a security prior to maturity, the Policy allows for occasional restructuring of the portfolio to minimize the loss of fair market value and/or to maximize cash flows.

Credit risk - Credit risk is the risk that an issuer of an investment will not fulfill its obligation to the holder of the investment. This risk is measured by the assignment of a rating by a nationally recognized statistical rating organization. The Policy does not specify a minimum bond rating for investments.

As of June 30, 2017, the Department had the following investments with the corresponding credit ratings and maturities (in thousands):

			Maturity					
Type of investments	**Credit rating**		**Under 30 Days**	**31 - 180 Days**	**181 - 365 Days**	**1 - 5 Years**	**Over 5 years**	**Carrying value**
U.S. government obligations	Aaa/AAA	$	—	51,466	9,207	3,389	—	64,062
U.S. government treasuries	Exempt		—	—	—	49,758	—	49,758
Equity in cash management pool	AAA		819,929	—	—	—	—	819,929
GIC's	*		—	—	—	—	87,676	87,676
Equity - open end fund	Exempt		11,974	—	—	—	—	11,974
		$	831,903	51,466	9,207	53,147	87,676	1,033,399

*All Guarenteed Investment Contracts (GIC's) are fully collateralized by U.S. Government Obligations or Agency securities.

As of June 30, 2016, the Department had the following investments with the corresponding credit ratings and maturities (in thousands):

			Maturity					
Type of investments	**Credit rating**		**Under 30 Days**	**31 - 180 Days**	**181 - 365 Days**	**1 - 5 Years**	**Over 5 years**	**Carrying value**
U.S. government obligations	Aaa/AAA	$	—	74,177	—	—	—	74,177
U.S. government treasuries	Exempt		—	50,463	—	—	—	50,463
Equity in cash management pool	AAA		747,159	—	—	—	—	747,159
GIC's	*		—	—	—	—	87,676	87,676
Equity - open end fund	Exempt		241	—	—	—	—	241
		$	747,400	124,640	—	—	87,676	959,716

*All Guarenteed Investment Contracts (GIC's) are fully collateralized by U.S. Government Obligations or Agency securities.

(Continued)

Note 2 – Deposits and Investments, continued

Custodial credit risk - Custodial credit risk for deposits is the risk that, in the event of the failure of a depository financial institution, the Department will not be able to recover its deposits or collateral securities that are in the possession of an outside party. Custodial credit risk for investments is the risk that, in the event of the failure of the counterparty, the Department will not be able to recover the value of its investments or collateral securities that are in the possession of an outside party.

The Department requires that all uninsured collected balances plus accrued interest in depository accounts be collateralized and that the market value of collateralized pledged securities must be at least 110% of the deposit balances and 102% for repurchase agreements. As a result, the Department had no deposits with custodial risks as of June 30, 2017 and 2016. All investments of the Department are either held by the Department or by a counterparty in the Department's name; therefore, the Department's investments had no custodial credit risk as of June 30, 2017 and 2016.

Concentration of credit risk - The Policy contains no limitations on the amount that can be invested in any one issuer beyond that stipulated by the OCGA. The Department has no investments in any one issuer that represents 5% or more of total financial instruments, except for Federal Home Loan Mortgage Corporation (46%), Federal National Mortgage Association (28%), and U.S. Department of Treasury notes (11%).

Foreign currency risk - Foreign currency risk is the risk that changes in exchange rates could adversely affect an investment's or deposit's fair value. The Department is not exposed to this risk and the Policy does not provide for investments in foreign currency risk-denominated securities.

Note 3 – Restricted Assets

The Department's bond covenants require certain reserves for debt service payments. Principal and interest payments are not required to be deposited into the sinking fund accounts until 30 days prior to the payment being due.

Cash equivalents and investments at June 30, 2017 and 2016 are restricted for the following (in thousands):

	2017	2016
Construction revenue funds:		
Cash and cash equivalents	$ 205,815	$ 115,623
Sinking fund:		
Cash and cash equivalents	—	86,025
Investments	213,470	212,557
Total sinking fund	213,470	298,582
Total restricted cash equivalents and investments	$ 419,285	$ 414,205

(Continued)

Note 3 – Restricted Assets, continued

The following is a summary of carrying amounts of restricted assets as shown on the accompanying statements of net position at June 30, 2017 and 2016 (in thousands):

	2017	2016
Cash and cash equivalents	$ 205,815	$ 201,648
Investments	213,470	212,557
Total	$ 419,285	$ 414,205

Note 4 – Due from Other Funds of the City of Atlanta, Advance to Other Funds of the City of Atlanta and Transfers

Due from Other Funds of the City of Atlanta and Advance to Other Funds of the City of Atlanta

During the course of its operations, the Department makes transfers between other City funds to finance operations, provide services, and acquire assets and service debt. To the extent that certain transfers between funds had not been received as of year-end, balances of interfund amounts, receivable or payable, have been recorded. Interfund receivable and advance balances as of June 30, 2017 and 2016 are as follows (in thousands):

	2017	2016
Due from other funds of the City of Atlanta:		
Sales tax fund	$ 11,228	$ 11,333
General fund	452	577
Due from other funds of the City of Atlanta:	$ 11,680	$ 11,910
Advance to other funds of the City of Atlanta:		
General fund	$ 36,199	$ 46,199
less current portion	10,000	10,000
Advance to other funds of the City of Atlanta, less current portion	$ 26,199	$ 36,199

On December 23, 2008, the Department and the City executed a Memorandum of Understanding (MOU) to establish a repayment plan for amounts that the Department advanced various City governmental funds from the Department's equity in the cash pool. These amounts will be repaid in annual installments of $10,000,000 plus accrued interest at a rate of 1.25% per annum commencing in fiscal year 2010 until the advance is repaid in full. The first payment was due July 1, 2009. As of June 30, 2017 and 2016, the amounts outstanding, including accrued interest, were approximately $36,651,000 and $46,776,000, respectively.

(Continued)

Note 4 – Due from Other Funds of the City of Atlanta, Advance to Other Funds of the City of Atlanta and Transfers, continued

Transfers

Transfers are used to move revenues collected in one fund to another fund for payment of expenses as required by statute, ordinance or budget. Transfers for the years ended June 30, 2017 and 2016, are as follows (in thousands):

	2017	2016
Transfers in:		
Special revenue fund - Municipal Option Sales Tax Fund	$ 131,710	$ 132,653
General fund	1,914	—
	$ 133,624	$ 132,653
Transfers out:		
General fund	$ 29,926	$ 19,394
Agency fund	1,000	—
	$ 30,926	$ 19,394

The transfer in from the special revenue fund represents the proceeds from the Municipal Option Sales Tax (see note 14). In fiscal year 2017, the transfer out to the City of Atlanta's general fund represents primarily franchise fees of approximately $19,887,000 and shared information system fees of $10,039,000. In fiscal year 2016, the transfer out to the City of Atlanta's general fund represents primarily franchise fees of approximately $19,394,000.

(Continued)

Note 5 - Due from Other Parties

During the year ended June 30, 2008, the Department advanced $30,000,000 to a component unit of the City, Atlanta Beltline, Inc., an affiliate of the Atlanta Development Authority. The funds are to be used in the accomplishment of certain consent decree objectives. As of June 30, 2017 and 2016, approximately $23,890,000 of the advance was expended on this project and is reflected as construction in progress by Atlanta Development Authority, the component unit. Upon project completion, the related assets will be transferred to the Department. The balances as of June 30, 2017 and 2016 are as follows (in thousands):

	2017	2016
Due from other parties	$ 24,000	$ 24,000

Note 6 – Capital Assets

A summary of capital asset activity and changes in accumulated depreciation for the years ended June 30, 2017 and 2016 follows (in thousands):

	Balance at June 30, 2016	Additions	Deletions/ Retirements	Transfers and Adjustments	Balance at June 30, 2017
Capital assets not being depreciated:					
Land	$ 124,045	—	(28)	3,302	127,319
Construction in progress	587,322	233,461	—	(72,172)	748,611
Total capital assets not being depreciated	711,367	233,461	(28)	(68,870)	875,930
Capital assets being depreciated:					
Land improvements	12,195	—	—	815	13,010
Water collection and distribution system	4,276,723	—	—	65,775	4,342,498
Water and wastewater plant and treatment facilities	1,933,499	51	—	—	1,933,550
Other property and equipment	215,209	1,870	(3,281)	23,112	236,910
Total capital assets being depreciated	6,437,626	1,921	(3,281)	89,702	6,525,968
Less: Accumulated depreciation					
Land improvements	(9,578)	(532)	—	(399)	(10,509)
Water collection and distribution system	(1,488,621)	(57,952)	—	—	(1,546,573)
Water and wastewater plant and treatment facilities	(548,527)	(34,114)	—	—	(582,641)
Other property and equipment	(193,613)	(4,786)	3,202	(16,204)	(211,401)
Total accumulated depreciation	(2,240,339)	(97,384)	3,202	(16,603)	(2,351,124)
Total capital assets being depreciated, net	4,197,287	(95,463)	(79)	73,099	4,174,844
Net capital assets	$ 4,908,654	137,998	(107)	4,229	5,050,774

(Continued)

Note 6 – Capital Assets, continued

	Balance at June 30, 2015	Additions	Deletions/ Retirements	Transfers and Adjustments	Balance at June 30, 2016
Capital assets not being depreciated:					
Land	$ 119,116	1,958	(180)	3,151	124,045
Construction in progress	561,771	182,036	0	(156,485)	587,322
Total capital assets not being depreciated	680,887	183,994	(180)	(153,334)	711,367
Capital assets being depreciated:					
Land improvements	12,195	—	—	—	12,195
Water collection and distribution system	4,270,169	—	—	6,554	4,276,723
Water and wastewater plant and treatment facilities	1,794,699	316	(124)	138,608	1,933,499
Other property and equipment	206,775	1,918	(1,656)	8,172	215,209
Total capital assets being depreciated	6,283,838	2,234	(1,780)	153,334	6,437,626
Less: Accumulated depreciation					
Land improvements	(9,060)	(518)	—	—	(9,578)
Water collection and distribution system	(1,431,916)	(56,705)	—	—	(1,488,621)
Water and wastewater plant and treatment facilities	(512,193)	(36,381)	47	—	(548,527)
Other property and equipment	(189,606)	(5,484)	1,477	—	(193,613)
Total accumulated depreciation	(2,142,775)	(99,088)	1,524	—	(2,240,339)
Total capital assets being depreciated, net	4,141,063	(96,854)	(256)	153,334	4,197,287
Net capital assets	$ 4,821,950	87,140	(436)	—	4,908,654

Total interest costs incurred during the years ended June 30, 2017 and 2016, totaled approximately $149,397,000 and $160,903,000, respectively, of which approximately $12,577,000 and $8,304,000, net of interest income, were capitalized in the years ended June 30, 2017 and 2016, respectively.

Depreciation expense incurred during the years ended June 30, 2017 and 2016 totaled approximately $113,591,000 and $99,088,000, respectively.

Notes 7 – Accounts Payable

At June 30, 2017, the accounts payable balance includes 44% capital asset payables or $29,402,000 and 56% vendor payables or $38,087,000. At June 30, 2016, the accounts payable balance includes 43% capital asset payables or $24,592,000, and 57% vendor payables or $32,730,000.

(Continued)

Note 8 – Commercial Paper Notes Payable

In April, 2015, the Department authorized the issuance of the following Water and Wastewater Revenue Commercial Paper Notes (Series 2015 Notes): (a) Series 2015A-1, up to the amount of $125,000,000 and (b) Series 2015A-2, up to the amount of $125,000,000. On April 1, 2015, the Department entered into a Letter of Credit and Reimbursement Agreement with PNC Bank, National Association to facilitate the payment of principal and interest on the Series 2015-A1 Notes in the principal amount of $125 million for the 2015 Commercial Paper Program. Also, on April 1, 2015, the Department entered into a Letter of Credit and Reimbursement Agreement with Wells Fargo Bank, National Association to facilitate the payment of principal and interest on the Series 2015-A2 Notes in the principal amount of $125 million for the 2015 Commercial Paper Program. The Series 2015 Notes were issued to: (A) finance or refinance, on an interim basis, the costs of planning, engineering, design, acquisition, construction and reconstruction of certain additions, extensions, improvements and betterments included as a part of a multi-phase long term capital improvement program for the Department, (B) refund in whole or in part the principal of and interest on outstanding Series 2015 Notes, and (C) pay expenses necessary to accomplish the foregoing. Revenue of the Department is pledged as security for payments on the Series 2015 Notes, which is junior and subordinate to the pledge of revenue securing the Department's long-term debt. The Series 2015 Notes do not constitute a debt, liability, or obligation of the City's governmental funds, or a pledge of the faith and credit or taxing power of the City. The Series 2015 Notes are considered a short term obligation of the Department and may be repaid and reissued as often as necessary to affect the purposes set out in the program. The Notes have varying maturities of no more than 270 days and bear interest at a market rate at the date issued not to exceed 12% per annum. The interest rates on the Notes issued during the year ended June 30, 2017, ranged from 0.58% to 1.00%. The irrevocable, direct pay letter of credit expires on April 23, 2018.

Short-term debt activity for the years ended June 30, 2017 and 2016, was as follows (in thousands):

	June 30, 2016	Increases	Decreases	June 30, 2017
Commercial paper	—	109,010	(12,600)	96,410

	June 30, 2015	Increases	Decreases	June 30, 2016
Commercial paper	—	—	—	—

(Continued)

Note 9 – Long-Term Liabilities

Long-term debt at June 30, 2017 and 2016 consists of the following (in thousands):

	2017	2016
Revenue Bonds		
Water and Wastewater Revenue Bonds, $1,096,140 Series 1999A, combination serial bonds (5.50%) and term bonds (5.50%), due serially through 2022	$ 204,445	$ 232,660
Water and Wastewater Revenue Bonds, $415,310 Series 2001A, term bonds (5.50%) due serially through 2027	85,055	85,055
Water and Wastewater Revenue Bonds, $849,330 Series 2004, serial bonds (5.75%) due serially through 2030	134,110	134,110
Water and Wastewater Revenue Bonds, $106,795 Series 2008, variable rate bonds (1.27% at June 30, 2017 and .81% at June 30, 2016), due serially through 2041	106,795	106,795
Water and Wastewater Revenue Bonds, $750,000 Series 2009A, serial bonds (5.00% - 6.00%) due serially through 2019	49,545	64,245
Water and Wastewater Revenue Bonds, $448,965 Series 2009B, combination serial bonds (4.00% - 5.50%) and term bonds (5.25-5.375%), due serially through 2039	194,270	438,155
Water and Wastewater Revenue Bonds, $178,735 Series 2013A1, variable rate bonds (2.505% at June 30, 2017 and 1.813% at June 30, 2016), due serially through 2038	178,735	178,735
Water and Wastewater Revenue Bonds, $50,000 Series 2013A2A, variable rate bonds (1.905% at June 30, 2017 and 1.213% at June 30, 2016), due serially through 2038	48,930	49,215
Water and Wastewater Revenue Bonds, $50,000 Series 2013A2B, variable rate bonds (1.905% at June 30, 2017 and 1.213% at June 30, 2016), due serially through 2038	48,940	49,220
Water and Wastewater Revenue Bonds, $50,000 Series 2013A2C, variable rate bonds (1.905% at June 30, 2017 and 1.213% at June 30, 2016), due serially through 2038	50,000	50,000
Water and Wastewater Revenue Bonds, $200,140 Series 2013B, serial bonds (5.00% - 5.50%), due serially through 2030	177,005	188,860
Water and Wastewater Revenue Bonds, $1,237,405 Series 2015, combination serial bonds (2.00% - 5.00%) and term bonds (5.00%), due serially through 2043	1,236,295	1,237,405
Water and Wastewater Revenue Refunding Bonds, $226,175 Series 2017A, serial bonds (3.50% - 5.00%), due serially through 2039	226,175	—
Total Revenue bonds	2,740,300	2,814,455
Other Debt		
Georgia Environmental Facilities Authority (GEFA) $4,669 Loan, (3.00%), due serially through 2023	1,819	2,079
Georgia Environmental Facilities Authority (GEFA) $19,006 Loan, (3.82%), due serially through 2035	14,072	14,589
Georgia Environmental Facilities Authority (GEFA) $19,034 Loan, (3.92%), due serially through 2036	14,707	15,200
Georgia Environmental Facilities Authority (GEFA) $31,409 Loan, (3.00%), due serially through 2027	24,047	24,941
Georgia Environmental Facilities Authority (GEFA) $19,021 Loan, (4.12%), due serially through 2038	15,325	15,789
Georgia Environmental Facilities Authority (GEFA) $31,216 Loan, (3.00%), due serially through 2027	23,644	24,490
Georgia Environmental Facilities Authority (GEFA) $31,053 Loan, (3.00%), due serially through 2028	24,034	24,870
Georgia Environmental Facilities Authority (GEFA) $5,500 Loan, (3.00%), due serially through 2032	4,475	4,703
Georgia Environmental Facilities Authority (GEFA) $3,000 Loan, (3.81%), due serially through 2032	2,489	2,606
Georgia Environmental Facilities Authority (GEFA) $34,990 Loan, (3.00%), due serially through 2035	32,016	33,363
Georgia Environmental Facilities Authority (GEFA) $51,426 maximum gross loan (2.03%), due serially through 2039	20,246	5,592
Total other debt	176,874	168,222
Total revenue bonds and other debt	2,917,174	2,982,677
Unamortized bond premiums	236,720	214,220
Unamortized bond discounts	(2,229)	(4,535)
Less: Current maturities	(69,850)	(66,122)
Total long-term debt	$ 3,081,815	$ 3,126,240

Note 9 – Long-Term Liabilities, continued

The annual debt service requirements at June 30, 2017 are as follows (in thousands):

	Revenue Bonds			Other Debt - GEFA Notes Payable		
Year Ending	Principal	Interest	Interest Rate Swaps, Net	Principal	Interest	Total
2018	$ 63,650	124,189	14,296	6,200	5,050	213,385
2019	66,850	120,805	14,275	6,404	4,846	213,180
2020	70,890	117,076	14,254	6,616	4,634	213,470
2021	74,195	113,192	14,232	6,834	4,416	212,869
2022	78,195	109,245	14,208	9,816	5,696	217,160
2023-2027	452,465	484,524	65,937	38,278	16,772	1,057,976
2028-2032	559,605	366,021	51,740	44,018	10,010	1,031,394
2033-2037	668,515	231,686	34,166	53,111	3,082	990,560
2038-2042	632,280	76,243	12,949	5,597	16	727,085
2043-2047	73,655	3,727	—	—	—	77,382
	$ 2,740,300	1,746,708	236,057	176,874	54,522	4,954,461

The bonds are payable from Department revenue and are collateralized by Department revenue remaining after reasonable and necessary operating and maintenance costs. In addition, the bond ordinances require the maintenance of sinking funds to provide for debt service on the related bonds (see note 3). The ordinances require that revenue must be 110% of maximum annual debt service.

On September 12, 2013 the City of Atlanta issued approximately $328.7 million of its Water and Wastewater Revenue Bonds, Series 2013A, and $200.1 million of its Water and Wastewater Revenue Bonds Series 2013B, collectively referred to as the "Series 2013 Bonds". An amount totaling $178.7 million of the Series 2013A Bonds was issued as sub-series A-1 and sold to respective bond trading institutions, and $150 million issued as sub-series A–2 Bonds and privately placed. All of the Series 2013A bonds were issued as Variable Rate Bonds with a LIBOR index rate. The Series 2013 Bonds were issued to refinance portions of the outstanding Water and Wastewater Revenue Bonds Series 1999A, Series 2001A, Series 2004, and pay all costs with respect to the issuance of the Series 2013 Bonds.

On March 12, 2015, the City of Atlanta issued approximately $1.237 billion of its Water and Wastewater Revenue Bonds, Series 2015 (the "Series 2015 Bonds"). The Series 2015 Bonds were issued to refund a portion of the City's outstanding Water and Wastewater Revenue Bonds, Series 2001A, Series 2004, Series 2009A, and to pay the costs of issuance with respect to the issuance of the Series 2015 Bonds. The refunding of the Series 2015 Bonds resulted in a net present value savings of approximately $156.1 million.

On May 4, 2017, the City of Atlanta issued approximately $226.2 million of its Water and Wastewater Revenue Refunding Bonds, Series 2017A (the "Series 2017A Bonds"). The Series 2017A Bonds were issued to: (a) refund a portion of the City's outstanding Water and Wastewater Revenue Bonds, Series 2009B and (b) pay the costs of issuance related to the Series 2017A Bonds. The refunding of the Series 2017A Bonds resulted in a net present value savings of approximately $27.5 million.

(Continued)

Note 9 – Long-Term Liabilities, continued

Changes in long-term liabilities are as follows (in thousands):

	Balance at June 30, 2016	Additions	Reductions	Balance at June 30, 2017	Due Within One Year
Long-term debt:					
Revenue bonds payable	$ 2,814,455	226,175	(300,330)	2,740,300	63,650
GEFA loans	168,222	14,654	(6,002)	176,874	6,200
Bond premiums	214,220	37,732	(15,232)	236,720	—
Bond discounts	(4,535)	—	2,306	(2,229)	—
Total long-term debt	3,192,362	278,561	(319,258)	3,151,665	69,850
Other long-term liabilities:					
Capital lease/installment purchase obligations	1,304	7,143	(1,304)	7,143	1,749
Accrued workers' compensation	8,561	1,909	(931)	9,539	2,854
Claims payable	12,786	8,839	(6,319)	15,306	6,675
Other post-retirement benefits	106,924	14,198	(8,261)	112,861	—
Derivative instruments - interest rate swaps	182,976	—	(53,191)	129,785	—
Total other long-term liabilities	312,551	32,089	(70,006)	274,634	11,278
Total long-term liabilities	$ 3,504,913	310,650	(389,264)	3,426,299	81,128

	Balance at June 30, 2015	Additions	Reductions	Balance at June 30, 2016	Due Within One Year
Long-term debt:					
Revenue bonds payable	$ 2,870,765	—	(56,310)	2,814,455	60,120
GEFA loans	168,843	5,592	(6,213)	168,222	6,002
Bond premiums	212,197	15,091	(13,068)	214,220	—
Bond discounts	(4,311)	(730)	506	(4,535)	—
Total long-term debt	3,247,494	19,953	(75,085)	3,192,362	66,122
Other long-term liabilities:					
Capital lease obligations	2,724	—	(1,420)	1,304	1,304
Accrued workers' compensation	10,153	(929)	(663)	8,561	1,087
Claims payable	12,430	411	(55)	12,786	6,675
Other post-retirement benefits	100,909	13,494	(7,479)	106,924	—
Derivative instruments - interest rate swaps	138,425	44,551	—	182,976	—
Total other long-term liabilities	264,641	57,527	(9,617)	312,551	9,066
Total long-term liabilities	$ 3,512,135	77,480	(84,702)	3,504,913	75,188

(Continued)

Note 9 – Long-Term Liabilities, continued

Interest Rate Exchange Agreements (SWAPs) and Associated Bonds

The Department entered into two interest rate swap agreements in December 2001. These swap agreements are currently associated with the Department's Water and Wastewater Revenue Refunding Bonds, Series 2013A (Swap 3), and the Department's Water and Wastewater Revenue Bonds, Series 2008 and Water and Wastewater Revenue Refunding Bonds, Series 2015 (Swap 4), and have notional amounts of $432,310,000, and $432,875,000 at June 30, 2017 and 2016, respectively. Swap 3 became effective on January 3, 2002 and will mature on November 1, 2038. Swap 4 became effective on January 3, 2002 and will mature on November 1, 2041.

The fair value balances and notional amounts of derivative instruments outstanding at June 30, 2017 and 2016, classified by type, and the changes in fair value of such derivative instruments for the years then ended are as follows (in thousands):

		2017 Changes in Fair Value		Fair Value at June 30, 2017		
Swap	Terms	Classification	Amount	Classification	Amount	Notional
3	Pay fixed rate 4.09% per annum Receive 67% 1M LIBOR	Deferred outflow	$37,331	Debt	$(95,657)	326,605
4a (partial)	Pay fixed rate 4.09% per annum Receive SIFMA	Investment expense	—	Investment	(4,812)	25,265
4b (partial)	Pay fixed rate 4.09% per annum Receive SIFMA	Deferred outflow	15,860	Debt	(29,316)	80,440
					$(129,785)	

		2016 Changes in Fair Value		Fair Value at June 30, 2016		
Swap	Terms	Classification	Amount	Classification	Amount	Notional
3	Pay fixed rate 4.09% per annum Receive 67% 1M LIBOR	Deferred outflow	$(26,005)	Debt	$(132,988)	327,170
4a (partial)	Pay fixed rate 4.09% per annum Receive SIFMA	Investment expense	—	Investment	(4,812)	25,265
4b (partial)	Pay fixed rate 4.09% per annum Receive SIFMA	Deferred outflow	(18,546)	Debt	(45,176)	80,440
					$(182,976)	

(Continued)

Note 9 – Long-Term Liabilities, continued

Interest Rate Exchange Agreements (SWAPs) and Associated Bonds, continued

Swap 3 became an effective hedge during fiscal year 2015 in connection with a change in hedging relationship associated with the issuance of the Series 2013A Water and Wastewater Revenue Bonds. Amortization of the accumulated loss of Swap 3, as of the date Swap 3 became an effective hedge, into deferred outflows totaled $3,938,000 for the year ended June 30, 2017.

The fair values of derivative liabilities have been adjusted for nonperformance risk, which includes, but may not be limited to, the City's own credit risk. Inputs to the valuation techniques for the City's over-the-counter interest rate swaps are both directly or indirectly observable and thus categorized as Level 2 as defined in GASB Statement No. 72 (Note 2).

The fair value of the swaps was estimated using the proprietary pricing model of an independent derivative valuation service. The net cash outflow (payments) related to these derivative instruments during fiscal years 2017 and 2016 was approximately $15,522,000 and $14,225,000, respectively.

Objective and Terms of Hedging Derivative Instruments (Swap 3 and Swap 4b) - The following table displays the objective and terms of the Department's hedging derivative instruments outstanding at June 30, 2017 along with the credit rating of the associated counterparty (dollars in thousands).

Swap	Type	Objective	Notional Amount	Effective Date	Maturity Date	Terms	Counterparty Credit Rating
Swap 4b (partial)	Pay-fixed interest rate swap	Hedge of changes in cash flows of variable debt obligations	$ 80,440	1/3/2002	11/1/2041	Receive SIFMA Municipal Swap Index; pay 4.09%	A+/Aa3/AA-
Swap 3	Pay-fixed interest rate swap	Hedge of changes in cash flows of variable debt obligations	$ 326,605	1/3/2002	11/1/2038	Receive 67% 1M LIBOR; pay 4.09%	A+/Aa3/AA-

Risks

Credit Risk - Credit risk is the risk that the counterparty will not fulfill its obligations. As of June 30, 2017, the two swaps were in liability positions; therefore, the Department is not exposed to credit risk. However, should interest rates change causing the fair value of the swaps to become assets, the Department would be exposed to credit risk.

The Department executes hedging derivatives with one counterparty, comprising 100% of the net exposure to credit risk. This one counterparty is rated A+ as issued by Fitch, London, Aa3 as issued by Moody's, New York, and AA- as issued by Standard & Poor's, New York.

Interest Rate Risk - Interest rate risk is the risk that changes in interest rates will adversely affect the fair values of the Department's financial instruments or its cash flows. The Department is exposed to interest rate risk on its pay-fixed, receive-variable interest rate swaps. As LIBOR or the SIFMA swap index decreases, the Department's net payment on the swap increases.

(Continued)

Note 9 – Long-Term Liabilities, continued

Risks, continued

Basis Risk - Basis risk is the risk that arises when variable rates or prices of a hedging derivative instrument and a hedge item are based on different reference rates. The Department is exposed to basis risk on its pay-fixed interest rate swap hedging instruments because the variable-rate payments received by the Department on these hedging derivative instruments are based on a rate or index other than interest rates the Department pays on its hedge variable-rate debt. As of June 30, 2017 and 2016, the interest rate on the Department's hedged variable-rate debt is 2.505 percent and 1.813 percent, respectively, while the SIFMA municipal swap index rate is 0.91 and 0.41 percent, respectively.

Termination Risk - Termination risk is the risk that a hedging derivative instrument's unscheduled termination will affect the Department's asset and liability strategy or will present the Department with potentially significant unscheduled termination payments to the counterparty. Amendments to the swap transactions, dated February 26, 2010, allow either party to terminate and cancel each of the transactions in whole or in part upon one business day's prior written notice to the other party.

Additionally, Swap 3 contains a barrier option, which provides the counterparty the right, but not the obligation to terminate the transaction upon providing 30 calendar days' notice prior to any payment date, if the Average Rate has exceeded 7% per annum within the preceding 180 days. The Average Rate is defined as the arithmetic mean of the Municipal Swap Index as determined by the Calculation Agent on each reset date during the preceding 180 days.

Such termination would not require the consent of the Department and no fees, payments or other amounts would be payable by either party in respect to the termination, without prejudice to any obligation to pay a scheduled payment on or prior to such early termination. Any such termination would serve to extinguish all rights or obligations of either party to the other party which would otherwise accrue or have accrued since the last payment date.

Rollover Risk - Rollover risk is the risk that a hedging instrument associated with a hedgeable item does not extend to the maturity of that hedgeable item. The Department is not exposed to rollover risks because the hedging derivative instruments associated with the hedgeable debt items extend to the maturity of the hedgeable debt items.

(Continued)

Note 9 – Long-Term Liabilities, continued

Defeased Debt

The Department has defeased a portion of the series 2009A and 2009B bond issues during 2015 and 2017, respectively, by creating separate irrevocable trust funds. New debt was issued and the proceeds were used to purchase U.S. government securities that were placed in the trust funds. The investments and fixed earnings from the investments are sufficient to fully service the defeased debt until the debt is called or matures. For financial reporting purposes, the debt has been considered defeased and therefore, removed as a liability from the Department's basic financial statements

Below is a description of the Department's defeased bonds and the outstanding balances as of June 30, 2017 (Dollars in thousands):

Date Originally Issued	Original par Amount	Redemption Call Date	Date Defeased	Maturities Defeased	Interest Rate Defeased Bonds %	Amount Defeased	Outstanding 6/30/2017
6/25/2009	$ 750,000	11/1/2019	3/12/2015	2020-2039	6.0-6.25	$ 608,885	608,885
10/22/2009	$ 448,965	11/1/2039	5/4/2017	2020-2039	4.25-5.50	$ 240,210	240,210
	$ 1,198,965					$ 849,095	849,095

Note 10 – Leases/Installment Purchases

On April 1, 2002, the Department entered into two lease agreements as lessee for power generators. These lease agreements qualified as capital leases for accounting purposes and the lease payments were reflected as capital lease obligations at the present value of the aggregate payments due over the remaining life of the leases. Included in other property and equipment as of June 30, 2016 was $14,787,000 of equipment acquired under capital leases. The accumulated amortization on this equipment was $14,047,000 as of June 30, 2016. Related amortization expense was $986,000 for the fiscal year ended June 30, 2016. The balance of these capital lease obligations was repaid during the fiscal year ended June 30, 2017.

On August 31, 2016, the Department entered into an installment purchase agreement for the purchase of certain heavy equipment. This agreement is reflected as an installment purchase obligation at the present value of the aggregate payments due over the remaining life of the agreement. Included in other property and equipment as of June 30, 2017 is $1,952,000 of the $7.1 million heavy duty equipment to be ultimately acquired under this installment purchase agreement. The accumulated amortization on this equipment is $11,000 as of June 30, 2017 and related amortization expense was $11,000 for the fiscal year ended June 30, 2017.

(Continued)

Note 10 – Leases/Installment Purchases, continued

The present value of future minimum installment purchase payments as of June 30, 2017, is as follows (in thousands):

Fiscal year		
2018	$	1,848
2019		1,848
2020		1,848
2021		1,848
Total minimum payments		7,392
Less amount representing interest		(249)
Present value of minimum installment purchase payments	$	7,143

(Continued)

Note 11– Transactions with Fulton County

Investment in Joint Venture

The Atlanta-Fulton County Water Resources Commission (Commission) is a joint venture between Fulton County, Georgia (County) and the City for the construction and operation of a water treatment plant accounted for under the equity method of accounting. The Commission is governed by a seven‑member management commission, of which three members are appointed by the City, three by the County, and one independent member is elected by majority vote of the other members. The City and County also approve the annual budget of the Commission.

Under the terms of the amended Joint Venture Agreement, the City and the County share equally the costs of all capital expenditures. Capital contributions are recorded during the year in which the additions to capital assets are accrued. The City and the County each contributed approximately $444,000 and $535,000 during the years ended June 30, 2017 and 2016, respectively. These capital costs are reflected as investment in joint venture in the accompanying statements of net position.

The costs of operations of the plant are paid directly by the County as incurred. The County is subsequently reimbursed by the City for its pro rata share of the cost of operations, net of personnel costs paid by the City. The costs of operations, including personnel costs, are allocated between the City and the County on the basis of water delivered to each. The City's share of those operating costs was approximately $2,962,000 and $3,079,000 for the years ended June 30, 2017 and 2016, respectively. The costs are reflected in operating expenses in the accompanying statements of revenue, expenses, and changes in net position. At June 30, 2017 and 2016, the City owes the County approximately $207,000 and $268,000, respectively for expenses associated with this joint venture.

The Commission's fiscal year end is December 31. Therefore, the financial information of the Commission does not match the Department's financial information. Financial information for the Commission as summarized below is as of and for the years ended December 31, 2016 and 2015 (in thousands):

		2016	2015
Total assets	$	150,573	156,072
Total net assets	$	147,379	151,664
Total operating revenue	$	9,401	9,393
Total operating expenses		13,621	14,558
Net loss	$	(4,285)	(5,275)

Separate financial statements of the Commission may be obtained from the Atlanta-Fulton County Water Resources Commission, 9750 Spruill Road, Alpharetta, Georgia 30022.

(Continued)

Note 11 – Transactions with Fulton County, continued

Other Contractual Agreements

The City and the County have contractually agreed that, among other things, monies owed by the City to the County would be used solely for making repairs, replacements, and extensions to the portion of the City's water distribution system located in the unincorporated portion of South Fulton County. The agreement also provides that the City retains custody of the funds and the County determines the projects for which such funds shall be used. There were no capital expenditures incurred by the City for water projects in the unincorporated area of South Fulton County during the years ended June 30, 2017 and 2016.

Note 12 – Pension Plan and Other Employee Benefits

The City maintains an agent multiple employer defined benefit pension plan, entitled the General Employees' Pension Plan (GEPP), and one single employer defined contribution pension plan, entitled the General Employees' Defined Contribution Plan (DCP), in both of which the Department participates.

The City has two other single-employer defined benefit pension plans, the Firefighters' Pension Plan and the Police Officers' Pension Plan. A very small number of the Department's employees participate in the Police Officers' Pension Plan, and therefore this plan is not considered material to the Department. No employees of the Department participated in the Firefighters' Pension Plan.

As noted above, the employees of the Department are covered by either the GEPP or the DCP (collectively, the Plans). The Plans do not provide for measurements of assets for individual units of the City. Such information for the City as a whole is presented in the City's Comprehensive Annual Financial Report.

Complete financial statements for the GEPP can be obtained at the following address:

City of Atlanta
68 Mitchell Street, S.W., Suite 1600
Atlanta, Georgia 30335

Separate financial statements have not been prepared for the DCP.

Administration of the Plan - The GEPP is administered as an agent multiple‐employer defined benefit pension plan by its Board of Trustees (the Pension Board). Pension Board membership includes The Mayor or his designee, the City's Chief Financial Officer, a member of the City Council, two active City employee representatives, one retired City representative, one active Atlanta Public School System representative, and one retired Atlanta Public School System representative. All modifications to the GEPP must be supported by actuarial analysis and receive the recommendations of the City Attorney, the Chief Financial Officer, and the Pension Board. Each pension law modification must be adopted by at least two‐thirds vote of the City Council and be approved by the Mayor.

In June 2011, the City Council approved changes to the City's GEPP effective September 1, 2011 for new hires and November 1, 2011 for existing employees. All non‐sworn employees hired prior to July 1, 2001 regardless of payroll grade, and all non‐sworn employees hired after July 1, 2001 below payroll grade 19 or its equivalent, are required to contribute to the GEPP.

(Continued)

Note 12 – Pension Plan and Other Employee Benefits, continued

General Employees' Pension Plan

Contribution requirements - Under the Georgia Legislature principle of Home Rule and the Atlanta Code of Ordinances, Section 6, the Pension Board has the authority to administer the GEPP including establishing and amending contribution requirements. The funding methods and determination of benefits payable were established by the Atlanta Code of Ordinances, Part 1, Section 6 legislative acts creating the GEPP, as amended, and in general, provide that funds are to be accumulated from employee contributions, City contributions, and income from the investment of accumulated funds.

Prior to July 1, 2001, all permanent employees of the Department were eligible to participate in the GEPP. Effective July 1, 2001, all new, permanent employees of the Department were only eligible to participate in the newly created DCP. Effective December 5, 2002, employees previously participating in the GEPP were given the option of transferring to the new DCP. Effective September 1, 2005, classified employees and certain non-classified employees pay grade 18 and below enrolled in the DCP had a one-time option of transferring to the GEPP. Classified employees and certain non-classified employees pay grade 18 and below not covered by either the Police Officers' or Firefighters' Pension Plans and hired after September 1, 2005 are required to become members of the GEPP.

Employees hired on or after September 1, 2011 who are below pay grade 19 or its equivalent are required to participate in a hybrid defined benefit plan with a mandatory defined contribution component. The defined benefit portion of this plan includes a 1% multiplier, which includes a mandatory employee contribution of 3.75% of salary that is matched 100% by the City. Additionally, these employees may voluntarily contribute up to an additional 4.25% of salary, which is also matched 100% by the City. Employees vest in the City's contributions at a rate of 20% per year and become fully vested in the City's contribution after five years of participation.

Beginning on November 1, 2011, employees participating in the GEPP and hired before September 1, 2011, and after January 1, 1984, had an increase of 5% in their mandatory contributions into the GEPP fund in which they participate. The contribution is such that the new contribution is 12% of salary (without a designated beneficiary) or 13% of salary (with a designated beneficiary).

Beginning in fiscal year 2012, there is a cap on the maximum amount of the City's contribution to the GEPP measured as a percentage of payroll. The City's annual contribution to the GEPP may not exceed 35% of payroll of the participants in the City's GEPP. In the event that this 35% cap is reached, the City will fund any overage for the first 12-month period from its reserves. During that period, the City's management must agree on an alternative method to reduce the overage. If no alternative is reached, beginning with the second 12-month period, the City and the participants will equally split the cost of the overage, subject only to a provision that employee contributions may not increase more than 5%. Contribution requirements may be amended by the Board under the authority of the City ordinance, but the employer contribution requirement is subject to State minimums. During fiscal year 2016, the City had an actuarial assessment conducted to review the pay cap. The assessment determined the City was at 26.9%, well within the cap. The 35% cap is not projected to occur over the next 30 years based on the fiscal year 2017 results projected forward with Pension Reform. During the year ended June 30, 2017 and 2016 the City contributions were $53,817,000 and 54,236,000, respectively.

(Continued)

Note 12 – Pension Plan and Other Employee Benefits, continued

General Employees' Pension Plan, continued

The following table provides the Department's contributions used in the determination of the Department's proportionate share of collective pension amounts reported (dollars in thousands).

Plan	Proportionate share of contribution	Allocation percentage of proportionate share of collective pension amount
General employees:		
2017	$ 17,106	31.79%
2016	17,768	32.76%

Description of the benefit terms – In June 2011, the City Council approved changes for the GEPP, effective on September 1, 2011 for new hires, and November 1, 2011 for existing employees.

Prior to the change approved in June 2011, the GEPP provided monthly retirement benefits that initially represent 3% of each year of credited service times the participants' final average three-year earnings (limited to 80% of the average). Retirement benefits were adjusted annually based on the change in the consumer price index, limited to 3% per year. Upon the death of a vested participant who has beneficiary coverage, his or her eligible beneficiary(ies) would be entitled to three-fourths of the amount the deceased participant was receiving or would have been entitled to receive.

Subsequent to the June 2011 changes, the retirement age increased to age 62 for participants in the GEPP. Early Retirement Age is changed from any age (as long as vested) with penalty to age 52 for hires after September 1, 2011. Upon retirement, these participants will receive an annually calculated cost of living increase to their pension benefit that may not exceed 1% and is based upon the Consumer Price Index. Sick and vacation leave are no longer applied to retirement benefits for employees hired after September 1, 2011. Below are the terms the GEPP has established to receive benefits.

Normal Pension:

Hired before July 1, 2010:
Age 65 or Age 60 after completing five years of service.
Monthly benefit is 2.5% of average monthly salary for each year of credited service.

Hired between July 1, 2010 and October 31, 2011:
Age 65 or Age 60 after completing 10 years of service.
Monthly benefit is 2.0% of average monthly salary for each year of credited service.

Hired after October 31, 2011:
Age 65 or Age 62 after completing 15 years of service.
Monthly benefit is 1.0% of average monthly salary for each year of credited service.
This amount cannot be less than $12 per month for each year of service, capped at 80% of average monthly salary.

(Continued)

Note 12 – Pension Plan and Other Employee Benefits, continued

General Employees' Pension Plan, continued

The average monthly salary for employees hired before November 1, 2011, is the average of the highest consecutive 36 months of salary. For those employees hired after October 31, 2011, the average monthly salary is the average of the highest consecutive 120 months of salary.

Early Pension:

Hired before July 1, 2010
Five years of credited service.

Hired between July 1, 2010 and October 31, 2011
Ten years of credited service.

Hired after October 31, 2011
Age 52 and 15 years credited service.

The monthly benefit for employees hired before November 1, 2011, is reduced by one half of 1% per month for the first 60 months and by one quarter of 1% per month for the remaining months by which age at retirement is less than 60. More favorable early retirement adjustments may apply to participants in prior plans. Unreduced early retirement is available with 30 years of credited service. For employees hired after October 31, 2011, the monthly benefit amount is reduced by one half of 1% per month before age 62.

Disability:

Service requirement:

Five years of credited service for non-job-related disability. None for job‑related disability.

Normal pension benefit based on service accrued and final average salary at disability, payable immediately; cannot be less than 50% of average monthly salary. This amount is payable until attainment of normal retirement age at which time the benefit is recalculated to include years while disabled as years of service.

The GEPP Investments - The investments for the GEPP are made within the Public Retirement Systems Investment Authority Law of the Georgia Code (O.C.G.A. 47‑20‑80). The GEPP Board has been granted the authority by City Ordinance to establish and amend the GEPP investment policy. The GEPP Board is responsible for making all decisions with regard to the administration of the GEPP, including the management of plan assets, establishing the investment policy and carrying out the policy on behalf of the GEPP.

The GEPP's investments are managed by various investment managers under contract with the Pension Board, who have discretionary authority over the assets managed by them and within the GEPP's investment guidelines as established by the Pension Board. The investments are held in trust by the GEPP's custodian in the GEPP's name. These assets are held exclusively for the purpose of providing benefits to members of the GEPP and their beneficiaries.

(Continued)

Note 12 – Pension Plan and Other Employee Benefits, continued

General Employees' Pension Plan, continued

State of Georgia Code and City statutes authorize the GEPP to invest in U.S. government obligations, U.S. government agency obligations, State of Georgia obligations, obligations of a corporation of the U.S. government, the Georgia Fund 1 (a government investment pool maintained by the State of Georgia), and alternative investments. The Plan invests in repurchase agreements only when they are collateralized by U.S. government or agency obligations. The GEPP is also authorized to invest in collateralized mortgage obligations (CMOs) to maximize yields. These securities are based on cash flows from interest payments on underlying mortgages. CMOs are sensitive to prepayment by mortgagees, which may result from a decline in interest rates. For example, if interest rates decline and mortgagees refinance their mortgages, thereby prepaying the mortgages underlying these securities, the cash flows from interest payments are reduced and the value of these securities declines. Likewise, if mortgagees pay on mortgages longer than anticipated, the cash flows are greater and the return on the initial investment would be higher than anticipated.

In the development of a current asset allocation plan, the GEPP Board reviews the long-term performance and risk characteristics of various asset classes, balancing the risks and rewards of market behavior, and reviewing state legislation regarding investments options. The below asset classes are included in the GEPP's investment objectives: Domestic Equities, International Equities, Domestic Fixed Income, International Fixed Income and Alternative Investments.

The investment policy for the GEPP was revised during the 2014 fiscal year. There were no changes to the policy in fiscal year 2017. The policy may be amended by the Pension Board by a majority vote of its members. Below is the asset allocation target assets mix for the GEPP:

General employees' pension plan

Asset class	Target allocation
Domestic equity	50%
International equity	20%
Fixed income	25%
Alternative investments	5%
	100%

(Continued)

Note 12 – Pension Plan and Other Employee Benefits, continued

General Employees' Pension Plan, continued

The long‑term expected rate of return on investments was determined using a building‑block method in which best‑estimate ranges of expected future real rates of return (expected returns, net of pension 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. Estimates of real rates of return for each major asset class included in the GEPP's target asset allocation as of June 30, 2017 are summarized in the following table:

General employees' pension plan

Asset class	Long-term expected real rate of return
Domestic equity	6.7%
International equity	8.1%
Fixed income	2.1%
Alternative investments	6.2%

For the year ended June 30, 2017 and 2016, the annual money‑weighted rate of return on the GEPP investments, net of pension plan investment expense, was 13.32% and 1.24%, respectively. The money‑weighted rate of return expresses investment performance, net of investment expense, adjusted for the changing amounts actually invested.

Changes in Net Pension Liability - The changes in net pension liability of the GEPP for the years ended June 30, 2017 and 2016, are as follows (in thousands):

	Total Pension Liability	Plan Net Position	Net Pension Liability
Balances at June 30, 2016	$ 1,873,213	1,153,715	719,498
Changes for the year:			
Service cost	20,230	—	20,230
Interest expense	136,155	—	136,155
Demographic experience	1,610	—	1,610
Contributions - employer	—	54,236	(54,236)
Contributions - employee	—	19,173	(19,173)
Net investment income	—	12,257	(12,257)
Benefit payments and refunds	(115,631)	(115,631)	—
Administrative expenses	—	(964)	964
Net changes	42,364	(30,929)	73,293
Balances at June 30, 2017	$ 1,915,577	1,122,786	792,791

(Continued)

Note 12 – Pension Plan and Other Employee Benefits, continued

General Employees' Pension Plan, continued

	Total Pension Liability	Plan Net Position	Net Pension Liability
Balances at June 30, 2015	$ 1,832,883	1,145,333	687,550
Changes for the year:			
Service cost	20,191	—	20,191
Interest expense	133,276	—	133,276
Contributions - employer	—	48,015	(48,015)
Contributions - employee	—	16,975	(16,975)
Net investment income	—	56,575	(56,575)
Benefit payments and refunds	(111,738)	(111,738)	—
Administrative expenses	—	(1,445)	1,445
Net changes	40,330	8,382	31,948
Balances at June 30, 2016	$ 1,873,213	1,153,715	719,498

Net Pension Liability - The Department has recorded and disclosed its proportionate share of the net pension liability of the GEPP using a measurement date of June 30, 2016 as determined based on the July 1, 2015 actuarial valuation, projected forward to the measurement date of June 30, 2016 (dollars in thousands).

	2017	2016
Total pension liability	$ 1,915,577	$ 1,873,213
Plan fiduciary net position	1,122,786	1,153,715
Net pension liability	$ 792,791	$ 719,498
Plan fiduciary net position as a percentage of the total pension liability	58.61%	61.59%

The Department allocation of the net pension liability in GEPP at June 30, 2017 and 2016 is $259,718 or 32.76% and $235,708 or 32.76%, respectively.

Discount Rate - The projection of cash flows used to determine the discount rate assumed that plan member contributions will be made at the actuarial determined contribution rates. Based on those assumptions, the GEPP'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. The GEPP discount rate is 7.5%.

(Continued)

Note 12 – Pension Plan and Other Employee Benefits, continued

General Employees' Pension Plan, continued

Sensitivity of the Net Pension Liability to Changes in the Discount Rate - The following presents the Department's proportionate share of the net pension liability of the GEPP, calculated using the current discount rate, as well as what the Department's proportionate share of the net pension liability would be if it were calculated using a discount rate that is 1-percentage-point lower or 1-percentage-point higher than the current rate (dollars in thousands).

	2017		
	1% Decrease 6.50%	Current discount rate 7.50%	1% Increase 8.50%
Department - net pension liability	$ 330,993	259,718	199,793

	2016		
	1% Decrease 6.50%	Current discount rate 7.50%	1% Increase 8.50%
Department - net pension liability	$ 306,582	235,708	176,046

Actuarial Assumptions

The total pension liability was determined by an actuarial valuation as of July 1, 2015, with the results rolled forward to the measurement date of June 30, 2016 using the following actuarial assumptions, applied to all periods included in the measurement.

Asset valuation method	Market value
Inflation rate	2.75%
Salary increases	3.50%
Investment rate of return	7.50%

Healthy mortality rates were based on the RP-2000 Combined Healthy Table published by the Society of Actuaries. No provision was made for future mortality improvement after the valuation date as the current tables were determined to contain provision appropriate to reasonably reflect future mortality improvement based on the review of mortality experience for the 2003-2011 period. Mortality rates were applied on a generational basis, meaning members are assumed to receive additional mortality improvements in each future year, throughout their lifetime.

The actuarial assumptions used in the July 1, 2015 valuation were based on the results of an experience study for the period January 1, 2003 to June 30, 2011.

(Continued)

Note 12 – Pension Plan and Other Employee Benefits, continued

General Employees' Pension Plan, continued

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

For the years ended June 30, 2017 and 2016, the City recognized $116.1 million and $69.8 million in pension expense respectively. The Department's proportionate share of pension expense was $17.5 million and $19.9 million for the years ended June 30, 2017, and 2016, respectively related to the GEPP.

Deferred outflows of resources were related to differences between expected and actual experience and contributions made after the measurement date. The difference between expected and actual experience with regard to economic and demographic factors is amortized over the average of the expected remaining service life of active and inactive members, which is approximately five years. The first year of amortization is recognized as pension expense with the remaining years shown as a deferred outflow of resources.

See the following table for deferred outflows and deferred inflows of resources related to the GEPP for the Department (in thousands):

		2017	2016
Deferred Inflows			
Net difference between projected and actual pension investments	$	—	(15,285)
Difference between expected and actual experience		(229)	(344)
	$	(229)	(15,629)
Deferred Outflows			
Net difference between projected and actual pension investments	$	9,451	—
Demographic gain/loss		395	—
Contributions subsequent to the measurement date		17,106	17,768
	$	26,952	17,768
Deferred amount to be amortized	$	9,617	15,629

The Department's contributions subsequent to the measurement date of $17,106,000 will be recognized as a reduction of the net pension liability during the year ending June 30, 2018. The Department's other amounts reported as deferred inflows and outflows of resources related to pensions will be recognized in pension expense by the Department during the next four years ended June 30 as follows (in thousands):

		Deferred inflows/outflows
Year ending June 30,		
2018	$	(919)
2019		(919)
2020		6,695
2021		4,760
	$	9,617

(Continued)

Note 12 – Pension Plan and Other Employee Benefits, continued

General Employees' Pension Plan, continued

The City's practice is to have actuarial valuations of its defined benefit pension plans performed annually by an enrolled actuary. The following schedule reflects membership data for the GEPP at July 1, 2016 and July 1, 2015, the date of the most recent actuarial valuation.

	2016	2015
Inactive plan members or beneficiaries currently receiving benefits	3,874	3,834
Inactive plan members entitled to, but not yet receiving benefits	275	241
Active plan members	3,452	3,307
Total membership	7,601	7,382

Defined Contribution Plan

The City's Defined Contribution Plan (Defined Contribution Plan) provides funds at retirement for employees of the City and, in the event of death, provides funds for their beneficiaries, through an arrangement by which contributions are made to the Defined Contribution Plan by employees and the City. The current contribution requirement of the City is 6% of employee's payroll. Employees also make a pre‑tax contribution of 6% plus have the option to contribute amounts up to the amount legally limited for retirement contributions.

All modifications to the Defined Contribution Plan, including contribution requirements, must receive the recommendations and advice from the offices of the Chief Financial Officer and the City Attorney, respectively. Each pension law modification must be adopted by at least two‑thirds vote of the City Council and be approved by the Mayor.

As described earlier in note 12, all new, permanent employees hired after July 1, 2001 were eligible to participate in the Defined Contribution Plan, while persons employed prior to July 1, 2001 were given the option to transfer to the Defined Contribution Plan.

Effective September 1, 2005, classified employees and certain non‑classified employees pay grade 18 and below then enrolled in the Defined Contribution Plan had the one‑time option of transferring to the Defined Benefit Pension Plan. Classified employees and certain non‑classified employees' pay grade 18 and below hired after September 1, 2005 were required to become participants of the Defined Benefit Pension Plan.

Employees hired on or after September 1, 2011, who are below payroll grade 19 or its equivalent, are required to participate in the Defined Contribution Plan which will include a mandatory employee contribution of 3.75% of salary and be matched 100% by the City. Additionally, these employees may voluntarily contribute up to an additional 4.25% of salary which will also be matched 100% by the City. Employees vest in the amount of the City's contributions at a rate of 20% per year and become fully vested in the City's contribution after five years of participation.

(Continued)

Note 12 – Pension Plan and Other Employee Benefits, continued

Defined Contribution Plan, continued

As of June 30, 2017 and 2016, there were 1,733 and 1,603 participants, respectively, in the Defined Contribution Plan. The covered payrolls for employees in the Defined Contribution Plan were approximately $128,606,000 and $113,913,000 for the years ended June 30, 2017 and 2016, respectively. Employer contributions for the years ended June 30, 2017 and 2016 were approximately $11,090,000 and $9,647,000, respectively, and employee contributions for the years then ended were approximately $10,979,000 and $9,727,000, respectively, totaling 17.2% and 17.0% of covered payroll for 2017 and 2016, respectively.

The Defined Contribution Plan uses the accrual basis of accounting. Investments are reported at fair value, based on quoted market prices and there were no nongovernmental individual investments that exceeded 5% of the net position of the Plan.

The total employer contributions for the Department were approximately $2,319,000 and $1,577,000 for the years ended June 30, 2017 and 2016, respectively.

Postretirement Benefits

Plan Description - The City's Retiree Healthcare Plan (Healthcare Plan) is a single-employer defined benefit healthcare plan which provides other postemployment benefits (OPEB) to eligible retirees, dependents and their beneficiaries. The Healthcare Plan was established by legislative acts and functions in accordance with existing City laws. OPEB of the City includes health, dental, and vision care and life insurance. Separate financial statements are not prepared for the Healthcare Plan.

Funding Policy - The City is not required by law or contractual agreement to provide funding for OPEB other than the pay-as-you-go amounts necessary to provide current benefits to retirees, eligible dependents and beneficiaries. For the fiscal years ended June 30, 2017 and 2016, the City paid approximately $48,928,000 and $43,715,000, respectively, on behalf of the Healthcare Plan. Retiree contributions vary based on the plan elected, dependent coverage and Medicare eligibility. For the years ended June 30, 2017 and 2016, eligible retirees receiving benefits contributed approximately $41,651,000 and $47,500,000, respectively, through their required contributions.

For the fiscal years ended June 30, 2017 and 2016, the Department paid approximately $8,261,000 and $7,479,000, respectively, on behalf of the Healthcare Plan.

Annual OPEB Cost and Net OPEB Obligation - The City's annual OPEB cost (expense) is calculated based on the annual required contribution (ARC) of the employer; an amount actuarially determined using the Projected Unit Credit Actuarial Cost Method. The ARC represents a level of funding that, if paid on an ongoing basis, is projected to cover normal cost each year and amortize any unfunded actuarial liabilities over a period not to exceed 30 years.

(Continued)

Note 12 – Pension Plan and Other Employee Benefits, continued

Postretirement Benefits, continued

The following table shows the elements of the Department's OPEB cost, the amount actually contributed on behalf of the Healthcare Plan, and changes in the Department's net OPEB obligation to the Healthcare Plan for the years ended June 30, 2017 and 2016 (in thousands):

	2017	2016
Annual required contribution	$ 14,820	13,896
Interest on net OPEB obligation	3,262	2,946
Adjustment to annual required contribution	(3,884)	(3,348)
Annual OPEB cost (expense)	14,198	13,494
"Pay As You Go" payments made	(8,261)	(7,479)
Increase in net OPEB obligation	5,937	6,015
Net OPEB obligation, beginning of year	106,924	100,909
Net OPEB obligation, end of year	$ 112,861	106,924

The Department's annual OPEB costs, the percentage of annual OPEB costs contributed to the Healthcare Plan, and the net OPEB obligation for the fiscal years ended June 30, 2017, 2016, and 2015 were as follows (in thousands):

Year ended:	Annual OPEB Cost	Percentage of Annual OPEB Cost Paid	Net OPEB Obligation
2017	$ 14,198	58.18%	$ 112,861
2016	13,494	55.42%	106,924
2015	13,111	56.75%	100,909

Funded Status and Funding Progress – As of July 1 2016, the most recent actuarial valuation date, the Healthcare Plan was not funded, except for "pay-as-you-go" payments. The unfunded actuarial accrued liability (UAAL) for benefits was $1.14 billion. The covered payroll was $385 million, and the ratio of the UAAL to the covered payroll was 297.36%.

Actuarial valuations of an ongoing plan involve estimates of the value of reported amounts and assumptions about the probability of occurrence of events far into the future. The determined actuarial valuations of OPEB provided under the Healthcare Plan incorporated the use of various assumptions including demographic and salary increases among others. Amounts determined regarding the funded status of the Healthcare Plan and the annual required contributions of the City are subject to continual revisions as actual results are compared with past expectations and new estimates are made about the future. The schedule of funding progress, shown as required supplementary information following the notes to the financial statements, presents multiyear trend information on the actuarial value of plan assets relative to the actuarial accrued liability for benefits. The result of the OPEB valuation is as of June 30, 2015. Under the provisions of GASB Statement No. 45 the City elected to use the June 30, 2015, actuarial report as the basis for determining the current year ARC requirement.

(Continued)

Note 12 – Pension Plan and Other Employee Benefits, continued

Postretirement Benefits, continued

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

In the June 30, 2015 actuarial valuation, the Individual Entry Age Normal actuarial cost method was used. It is amortized as a level percent of payroll over a 23‑year period and a closed amortization method. The actuarial assumptions included 4 percent investment rate of return (net of administrative expenses) and an annual medical cost trend rate of 9 percent initially, reduced by decrements to an ultimate trend rate of 5 percent after eight years. Both rates include a 3‑percent inflation assumption. Currently there are no assets set aside that are legally held exclusively for OPEB.

Deferred Compensation Plan

The City has adopted a deferred compensation plan in accordance with the 1997 revision of Section 457 of the Internal Revenue Code. The plan, available to all Department employees, allows an employee to voluntarily defer receipt of up to 25% of gross compensation, not to exceed certain limits per year. Each participant elects one of three insurance providers to administer the investment of the deferred funds. Administration costs of the plan are deducted from the participants' account. The plan assets are held in custodial accounts for the exclusive benefit of the plan participants and their beneficiaries, and are therefore not included in the Department's financial statements.

Note 13 – Self-Insurance

The City and the Department are self‑insured for workers' compensation and general claims liabilities. The City pays for such claims as they become due. These claim liabilities are accounted for in the general fund and the applicable enterprise funds. Claims generated by governmental funds expected to be paid subsequent to one year are recorded only in the City's government‑wide financial statements. There were no significant reductions in insurance coverage or claims in excess of insurance coverage during the years ended June 30, 2017 and 2016.

(Continued)

Note 13 – Self-Insurance, continued

The City's workers' compensation liability is calculated by an outside actuary. Liabilities are reported when it is probable a loss has occurred and the amount can be reasonably estimated including amounts for claims incurred but not yet reported. The calculation of the present value of future workers' compensation liabilities, as calculated by the outside actuary, is based on the discount rate of 3.5% for both 2017 and 2016.

Prior to March 1, 2011, the City had no specific excess or annual aggregate coverage for its self-insured workers' compensation claims. Effective March 1, 2011, the City purchased an annual excess insurance policy with a $5 million per occurrence retention with no annual aggregate coverage.

The City's medical and dental plans under Blue Cross Blue Shield Point of Service are fully self-insured. The Kaiser HMO, OHS dental plan and Spectra vision plan are fully insured. The City's health and dental liability is calculated by an outside actuarial firm. Liabilities are reported when it is probable a loss has occurred and the amount can be reasonably estimated, including amounts for claims incurred but not yet reported.

Net changes in the balance of liabilities for workers' compensation and general claims attributable to the Department during fiscal years ended June 30, 2017, 2016, and 2015 were as follows (in thousands):

	Beginning of Year	Current Year Claims and Changes in Estimates	Claims Payments	End of Year
Workers' compensation:				
2017	$ 8,561	$ 1,909	$ (931)	$ 9,539
2016	10,153	(929)	(663)	8,561
2015	8,159	2,679	(685)	10,153
General claims liability:				
2017	$ 12,786	$ 8,839	$ (6,319)	$ 15,306
2016	12,430	411	(55)	12,786
2015	11,910	1,200	(680)	12,430

The City participates in the State Subsequent Injury Trust Fund, a public entity managed by the State of Georgia. This pool is designed to provide insurance coverage for employees who are hired with previous medical conditions. Historically, premiums have not been significant.

(Continued)

Note 14 – Commitments and Contingencies

Commitments

Construction - The Department currently has several significant construction projects budgeted. At June 30, 2017, the Department was contractually obligated to expend approximately $163,871,000 related to these projects.

Other Governments - In July 1968, the City and DeKalb County, Georgia (DeKalb County) entered into an agreement (Clayton Agreement) providing for the construction of a 120-mgd water pollution control facility known as the R.M. Clayton Water Reclamation Center (Plant). Pursuant to the Clayton Agreement, the City agreed to assume responsibility for the financing, construction, operation, and maintenance of the Plant. In addition, the Clayton Agreement gave DeKalb County the right to use 25 mgd or 20.83% of the Plant capacity. The Clayton Agreement was amended in 1987 to increase DeKalb County's capacity in the Plant to 50-mgd which is 48.54% of the 103-mgd capacity.

In 1977, DeKalb County entered into an agreement for 2.62-mgd or 5.82% capacity rights in the South River Water Reclamation Center and 2.60-mgd or 12.38% capacity rights in the Intrenchment Creek Water Reclamation Center. These two Water Reclamation Centers, along with the R.M. Clayton Water Reclamation Center, are hereafter referred to as the "Plants".

Additional capital improvements may be made to the Plants upon the determination by the Department that excessive flows or loads are impairing the efficient operation of the City's sewer system, improved processes are available, and that additional improvements are necessary or desirable for the efficient operation of the Department or to comply with applicable laws. In any such event, the Department and DeKalb County have agreed to share the costs of such capital improvements generally upon the basis of relative sewerage flow contributed by the City and DeKalb County, respectively.

DeKalb County, Fulton County, the City of Hapeville, the City of East Point, and the City of College Park (collectively, the "Municipalities") share in the costs of the operation and maintenance of the Plants based upon the ratio that their sewerage flow bears to the total flows to the Plants. The Municipalities' shares of the operation and maintenance costs for the Plants for the periods ended June 30, 2017 and 2016 were approximately $18,431,000 and $20,030,000, respectively. These payments are recorded as operating revenues in the accompanying statements of revenue, expenses, and changes in net position.

The Municipalities have agreed to share in the capital improvement costs made to the Plants with their share being based on their portion of the sewerage flow. The Municipalities' shares of the capital improvement costs for the years ended June 30, 2017 and 2016 were approximately $17,638,000 and $19,639,000, respectively. These payments are treated as non-operating revenue and are reported on the accompanying statements of revenue, expenses and changes in net position as capital contributions.

(Continued)

Note 14 – Commitments and Contingencies, continued

Contingencies

Litigation - The Department is subject to various lawsuits and proceedings arising in the ordinary conduct of its affairs and has been named as defendant in several lawsuits claiming personal property damages. The City is working with most of the property owners to settle these claims that primarily relate to water and sewer overflow issues. The nature of the Department's operations and the matters currently being alleged are such that similar suits may be filed in the future. The outcomes of these matters are not expected to materially affect the Department's financial position.

Other than the lawsuits discussed above, the Department has been named defendant of a class‑action lawsuit in May 2014. Plaintiffs plead for a class‑action lawsuit and allege that a payment‑in‑lieu‑of‑taxes (PILOT) and Franchise Fee paid by the Water and Wastewater enterprise fund to the City's General Fund is an illegal tax that must cease. The class seeks a refund for all allegedly illegal taxes paid since June 29, 2009, plus interest. The estimated maximum potential liability in that litigation is $62 million, and based on the information we have at this time, the City believes it is more likely than not that it will be successful in its defense.

Consent Decrees for Wastewater System - The Department is subject to two related consent decrees the City entered into to resolve alleged violations of the Federal Clean Water Act and the Georgia Water Quality Control Act.

On October 10, 1995, the Upper Chattahoochee Riverkeeper Fund, Inc. (Riverkeeper), brought suit against the City pursuant to the citizen suit provision of the Clean Water Act seeking injunctive relief and the assessment of civil penalties. Subsequently, the United States of America, acting at the request and on behalf of the Environmental Protection Agency (EPA), and the State of Georgia, at the request of the Georgia Environmental Protection Division (EPD), also filed a complaint against the City alleging violations of the Clean Water Act and seeking similar relief. The actions were consolidated.

The plaintiffs alleged that the City violated the terms of its permits which authorize discharge of wastewater from the City's combined sewer overflows (CSO) control facilities and its wastewater treatment facilities. In 1998, the plaintiffs and the City agreed to the entry of a consent decree relating to the CSO control facilities. On December 20, 1999, the First Amended Consent Decree (FACD) was entered with the United States District Court for the Northern District of Georgia. The United States, the State of Georgia, and the City are the parties to the FACD. Because claims brought by Riverkeeper were resolved under the CSO Consent Decree, Riverkeeper is not a party to the FACD.

CSO Consent Decree - With respect to the October 10, 1995 action brought against the City by Riverkeeper, the court dismissed allegations regarding the phosphorus reduction program and common law nuisance claims, but found that the City violated Federal and State water pollution laws with regard to the City's operation of its Tanyard Creek, Proctors Creek/North Avenue, and Proctor Creek/Greensferry CSO treatment facilities. As mentioned, the City and the citizen plaintiffs settled the lawsuit in what is referred to as the CSO Consent Decree (EPA and the EPD also joined). The CSO Consent Decree requires the City to study the performance of the existing CSO treatment facilities, evaluate treatment alternatives that may be necessary for meeting State water quality standards, and improve the performance, maintenance, operation, and management of the existing treatment facilities. As of June 30, 2017, all projects required under the CSO Consent Decree were substantially complete.

(Continued)

Note 14 – Commitments and Contingencies, continued

Contingencies, continued

First Amended Consent Decree - The FACD resolved allegations regarding the City's wastewater treatment facilities, inter-jurisdictional requirements, and the City's sewerage collection and transmission system. For the wastewater treatment facilities, the FACD requires the City to continue its ongoing wastewater treatment facilities Capital Improvement Program to complete upgrades at the R.M. Clayton, Utoy Creek, Intrenchment Creek, and South River Water Reclamation Centers; install and implement a maintenance management system, revise the current operations program, and implement upgrades to the current laboratory information system; and review its inter-jurisdictional agreements to address over loading and pretreatment issues. There are milestones that must be completed on schedule. The provisions regarding the wastewater treatment facilities were completed in March 2004. All capital improvements, upgrades, and repairs under the FACD had an original completion date of July 1, 2014.

Amendment to the First Amended Consent Decree - On September 24, 2012, the court entered an amendment to the FACD. This amendment contained five changes: (1) it extended the deadlines on the work to rehabilitate and provide capacity relief in the City's sewerage collection and transmission system with the final deadline for this work extended from 2014 to 2027; (2) it eliminated the requirement that sewer lines that were merely surcharging as opposed to overflowing be upgraded; (3) it required that the City complete one major project, the Peachtree Creek Storage and Pump Station, by July 1, 2014; (4) it required that the City reassess its financial capability on July 1, 2020 and accelerate remaining projects if financial conditions substantially improve; and (5) it required the City to report certain performance metrics to federal and state environmental protection agencies on a semi-annual basis as opposed to a quarterly basis. This amendment allows the City to continue to improve the financial condition of its water and wastewater system, balance its competing system needs, and prevent a substantial increase in the burden on its ratepayers.

Clean Water Atlanta Program - The City is actively seeking federal and state grants and loans and other sources of funding to perform the tasks outlined in the Clean Water Atlanta (CWA) Program. Key elements of the comprehensive funding and financing plan include the following:

- Municipal Option Sales Tax (MOST) - Effective October 1, 2004, a 1% municipal sales and use tax is being collected for retail sales and use occurring in the incorporated city limits of the City of Atlanta. Proceeds from this tax are used for operations, debt service and funding renovations to the City's water and sewer system. The MOST was approved by the City's residents in the July 2004 general election for a period not to exceed four years and for raising not more than $750,000,000. Up to two extensions, at four years each can be approved by a vote of the City's residents. In the February 2008 general election, the residents approved the first extension and in the March 2012 general election, the residents approved the second extension. In 2010, the statute was amended to allow up to three four-year extensions. Proceeds from the MOST for the years ended June 30, 2017 and 2016 were approximately $131,710,000 and $132,653,000, respectively, of which approximately $11,228,000 and $11,333,000 was receivable from the Georgia Department of Revenue at June 30, 2017 and 2016, respectively.

- Federal Appropriation - Some small federal grants have been obtained and efforts to secure additional federal grants continue.

(Continued)

Note 14 – Commitments and Contingencies, continued

Contingencies, continued

- State GEFA Loans - The State of Georgia passed legislation to provide up to $50,000,000 per year in low interest Georgia Environmental Facilities Authority (GEFA) loans to the City. The City is pursuing the maximum loan amount for each year of the CWA Program. Liabilities for these loans are recorded at the time the funds are drawn. In the fiscal years 2017 and 2016, the Department received approximately $14,654,000 and $5,592,000, respectively, in GEFA funding. As of June 30, 2017, the City had approximately $176,874,000 in short-and long-term loans outstanding to GEFA.
- The City Council approved annual increases to the current water and wastewater rates to support revenue bonds financing the five-year portion (2008-2012) of the CWA Capital Improvement Program. The graduated three-tiered rate structure is intended to minimize, to the extent possible, the impact of rate increases on ratepayers to maintain affordability and to permit water conservation. The 2013- 2017 rates are summarized below. In July 2012, the Atlanta City Council approved holding the current water and wastewater rates at fiscal year 2012 levels through fiscal year 2017.

Graduated City Monthly Water Rate Structure

Water Consumption	2013	2014	2015	2016	2017
Base Charge	$6.56	6.56	6.56	6.56	6.56
0-3 ccf	$2.58	2.58	2.58	2.58	2.58
4-6 ccf	$5.34	5.34	5.34	5.34	5.34
Above 7 ccf	$6.16	6.16	6.16	6.16	6.16

Graduated Monthly Wastewater Rate Structure

Water Consumption	2013	2014	2015	2016	2017
Base Charge	$6.56	6.56	6.56	6.56	6.56
1-3 ccf	$9.74	9.74	9.74	9.74	9.74
4-6 ccf	$13.64	13.64	13.64	13.64	13.64
Above 7 ccf	$15.69	15.69	15.69	15.69	15.69

Consent Orders for Drinking Water System - The City is subject to two administrative Consent Orders issued by the Georgia Department of Natural Resources Environmental Protection Division. They are dated December 9, 1997, and March 21, 2003. Those orders require capital improvement at the Chattahoochee and Hemphill Treatment Plants, as well as operational improvement to ensure compliance with Georgia Rules for Safe Drinking Water. While the City is in substantial compliance with the provisions of both Consent Orders, certain aspects of the capital program remain to be completed.

(Continued)

Note 14 – Commitments and Contingencies, continued

Contingencies, continued

Estimated Capital Costs to Complete Compliance with Decrees and Orders – The City is in the midst of a Capital Improvement Program mandated by court orders, regulatory and priority requirements. This Capital Improvement Program details all of the improvements needed through the year 2027 to meet the aforementioned objectives. The current future cost estimate as of June 30, 2017 of the overall Capital Improvement Program is approximately $2.89 billion.

The following is a summary of the funded and unfunded future costs to complete projects by type based on the current estimate:

Project Types	Total 2006-2027 CIP (In millions)	Remaining Cost 2018-2027 CIP (In millions)
Wastewater Projects:		
Consent Decree Program (CSO)	$ 723	3
First Amended Consent Decree Program (SSO)	1,863	806
Regulatory	130	14
Renewal & Extension Fund Projects	828	599
	3,544	1,422
Water Projects:		
Consent Order	80	36
Non-Consent Order	2,017	1,433
	2,097	1,469
	$ 5,641	2,891

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APPENDIX B

MUNICIPAL ADVISOR'S FEASIBILITY STUDY

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September 27, 2018

Mayor Keisha Lance Bottoms and Members of the City Council
City of Atlanta
68 Mitchell St SW
Atlanta, GA 30335

Subject: Municipal Advisor's Feasibility Study
City of Atlanta Series 2018C Water and Wastewater Bonds

Dear Mayor, President and Members of the Council:

The City of Atlanta (the "City") engaged Galardi Rothstein Group to prepare this report on the financial feasibility of the planned issuance of the Water and Wastewater Refunding Bonds, Series 2018C and to update the City's strategic financial plan for prospective capital improvement program financing. This report has been developed in collaboration with the City's Department of Watershed Management (the "Department" or "DWM"). This report relies on recent evaluations of the condition and prospective capital project needs of the City's water and wastewater assets (collectively, the "System") primarily conducted by Department staff as well as its Program Management Services Team (PMST) and selected engineering consulting firms.

The report updates and supplements information provided in our June 2018 Municipal Advisor's Feasibility Study prepared in connection with the issuance by the City of its Water and Wastewater Bonds, Series 2018A and Series 2018B. It reports on revised revenue forecasts, operations and maintenance (O&M) expense projections and capital improvement plans—and updates the comprehensive analysis of the Department's financial projections. Of particular importance, this report incorporates:

- Updates to the Department's schedule of capital improvement encumbrances and capital financing plan to provide for compliance with Georgia Environmental Protection Division Consent Orders proposed in July 2018.
- Updates to historical system performance and financial data to reflect the close of FY 2018, including revision of the Department's strategic financial plan to incorporate unaudited financial information. This included adjustment to the beginning fund balance to reflect higher than budgeted Municipal Option Sales Tax performance and other variances in FY 2018 budget to actual revenue and expenses.
- Updates to the Department's service revenue forecasts to reflect observed trends in residential and commercial account growth through the close of FY 2018, assumptions regarding price-independent declines in per capita water use, and initiation of service rate adjustments in the final 2 years of the forecast period (FY 2023 and FY 2024).
- Modifications to the Department's prospective debt portfolio occasioned by the Series 2018A and Series 2018B refunding of outstanding bonded indebtedness and issuance of additional long term bonded indebtedness to retire outstanding commercial paper notes

and to finance priority projects. The prospective debt portfolio also reflects recent entry into debt obligations to finance resource recovery and energy management initiatives, as well as the planned Series 2018C refunding of outstanding floating rate notes with fixed rate obligations.

- Modest changes to DWM's long-term capital financing strategy, which continues to rely primarily on funding from current operating revenues due, in part, to the May 2018 State law that enables extension of the City's Municipal Option Sales Tax (MOST) by voter referenda.

The financial forecasts reported herein demonstrate that the City can support the Series 2018C Bonds from System revenues derived primarily from Council-approved water and wastewater rates and Municipal Option Sales Tax revenues. We affirm the financial feasibility of the Department's revised capital financing strategy.

We appreciate the opportunity to conduct this review and are prepared to answer any questions regarding its contents.

Eric Rothstein, CPA
Principal

Municipal Advisor's Feasibility Study

Water and Wastewater Refunding Bonds, Series 2018C

Prepared for:

City of Atlanta

Prepared by:

Galardi Rothstein Group

SEPTEMBER 2018

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1.0 Introduction

1.1 Purpose

The purpose of this report[1] is to review the operation and maintenance of the water and wastewater system (the "System") of the City of Atlanta (the "City"); update the City's strategic financial plan for the City's capital improvement programs including compliance with its water Administrative Consent Order, its wastewater Second Amended Consent Decree[2], and proposed wastewater Consent Orders; incorporate the actual debt service obligations associated with the City's Water and Wastewater Revenue and Revenue Refunding Bonds, Series 2018A (the "Series 2018A Bonds") and its Water and Wastewater Revenue and Revenue Refunding Bonds, Series 2018B (the "Series 2018B Bonds") into the financial projections[3]; and to demonstrate the financial feasibility of the planned issuance by the City of its Water and Wastewater Revenue Refunding Bonds, Series 2018C (the "Series 2018C Bonds"). This report provides a detailed forecast of the financial performance of the City's Department of Watershed Management (the "Department" or "DWM") for the forecast period Fiscal Year (FY) 2019 through FY 2024 and updates other information presented in the Municipal Advisor's Feasibility Study (the "Series 2018A and Series 2018B Feasibility Study") prepared in connection with the Series 2018A Bonds and Series 2018B Bonds.

This report has been developed in collaboration with the Department, which is responsible for operating, maintaining and upgrading the City's System. As members of the City's Program Management Services Team (PMST) team, Galardi Rothstein Group (GRG) assisted with development of Engineer's Financial Feasibility Studies for the City's:

- Water and Wastewater Revenue Bonds, Series 2004 (the "Series 2004 Bonds"),
- Water and Wastewater Revenue Bonds, Series 2008 (the "Series 2008 Bonds"),
- Water and Wastewater Revenue Bonds, Series 2009A and Series 2009B, (the "Series 2009 Bonds"), and
- Water and Wastewater Revenue Commercial Paper notes authorized in an aggregate principal amount not to exceed $1,200.0 million which provided interim

[1] Galardi Rothstein Group issued a report entitled Municipal Advisor's Feasibility Study: Various Series of Water and Wastewater Revenue and Revenue Refunding Bonds, 2018 on June 4, 2018. This report was initially structured to report on the Series 2018A, 2018B and 2018C issues as well as include estimated impacts of the Department's planned $13.3 million ($12.5 million net proceeds) Environmental Impact Bond offering. However, with the completion of FY 2018 and several revisions to project cost estimates, completion schedules and forecast assumptions, this report serves to update information provided in the Series 2018A and Series 2018B Feasibility Study.

[2] The City entered into the CSO Consent Decree on September 24, 1998 related to compliance with NPDES permits for the CSO Control Facilities, the Georgia Water Quality Control Act, and the Clean Water Act. The City has substantially completed all CSO Consent Decree requirements. The City signed the First Amended Consent Decree (FACD)—also known as the SSO Consent Decree—on July 29, 1999, to address issues related to sanitary sewer overflows in the separate sewer collection system. The City requested and was granted an extension of the final completion date of the FACD from July 1, 2014 to July 1, 2027. This amendment to the FACD—referred to as the Second Amended Consent Decree (SACD) or the FACD extension—was entered into U.S. Federal District Court on September 24, 2012.

[3] Of necessity, the Series 2018A and Series 2018B Feasibility Study employed estimated debt service provided by the Department's financial advisor while this report includes actual debt service values pursuant to the closed transactions.

short-term financing for the Department between February 2006 and June 2009 (the "2006 Commercial Paper Program").

Most recently, GRG developed Municipal Advisor's[4] Feasibility Studies for the City's:

- Water and Wastewater Revenue Refunding Bonds, Series 2013A (the "Series 2013A Bonds"),
- Water and Wastewater Revenue Refunding Bonds, Series 2015 (the "Series 2015 Bonds"), as well as a new commercial paper program in the amount of $250.0 million (the "2015 Commercial Paper Program") to facilitate funding of the Department's Water Supply Program; and
- Series 2017A Bonds, and
- Series 2018A Bonds, Series 2018B Bonds and 2018 Commercial Paper Program.

1.2 Use of Proceeds

The proceeds of the Series 2018C Bonds will be used for the following purposes:

- Approximately $323.5 million in proceeds from the Series 2018C Bonds will be used to refund all of the City's outstanding Series 2013A Bonds and pay costs of issuance associated with the Series 2018C Bonds.

1.3 Scope

This report summarizes the results of collaborative Department and PMST efforts to modify capital project plans previously updated in the Series 2018A and Series 2018B Feasibility Study. The capital project plans reflect scheduling of wastewater collection projects enabled by the approval of the City's Financial Capability-Based Schedule Extension Request in September 2012 by the U.S. District Court, Northern District of Georgia, the United States Environmental Protection Agency (USEPA) and United States Department of Justice (USDOJ). Project plans also reflect assessments of the adequacy of the System to meet requirements of the Federal Clean Water Act, the Georgia Water Quality Control Act, the Federal Safe Drinking Water Act, and the Georgia Safe Drinking Water Act.

Data sources reviewed during the course of this study included key reports and documents prepared by the City and the Department including:

- FY 2018–2023 revised Capital Improvement Program (CIP) encumbrance and projected expenditure schedule;
- Department's FY 2018 budget and budgetary variance reports, as well as Comprehensive Annual Financial Reports (CAFRs) for FY 2012 through FY 2017 (where available);
- Department's "Strategic Plan 2020: A One Water Vision";

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[4] The Rothstein Group, LLC – a component of Galardi Rothstein Group, LLC – is a Municipal Advisor registered with the Municipal Securities Rulemaking Board (MSRB) (MSRB ID: K0764) and Securities and Exchange Commission (SEC) (Municipal Advisor SEC ID: 867-01397).

- Integrated Utility Plan. Draft, July 2014;
- Integrated Plan for the City of Atlanta, East Area Control Facilities National Pollutant Discharge Elimination System (NPDES) Permit No. GA0037168
- Various other documents or financial reports prepared by the Department, the City, or the PMST regarding the performance of the System.

Engineering evaluations reported herein and in the Series 2018A and Series 2018B Feasibility Study are based on a number of facility assessments and master planning efforts conducted between 2011 and 2017, including perhaps most notably the integrated master plan drafted in mid-2014. Reported asset condition assessments are based on the same five-point condition definitions employed in the context of prior City bond issues (related to the System), provided in Table 1-1. The report reiterates engineering evaluations reported for the Series 2018A Bonds and Series 2018B Bonds that referenced prior, limited visual inspections of selected major above ground facilities operated by the City, interviews of key staff responsible for operation of facilities, and reviews of ongoing and planned capital improvements. No field-testing or detailed evaluation of facility maintenance records was performed to confirm scoring or to assign more refined condition scores.

While the Department continues to reference prior facility condition assessments, its capital program reflects an evolution in focus from Consent Decree compliance to long-term sustainability. This evolution is reflected in capital project definition, cost estimation and prioritization – now informed by asset management and holistic water resource management principles. Priority projects not only reflect asset condition assessments but also opportunities to leverage new technologies or approaches (like green infrastructure and biosolids management). Project cost estimation has been revisited and updated to reflect emerging market conditions and project delivery requirements (e.g., site restoration). Project prioritization, while retaining the primacy of Consent Decree compliance, has embraced opportunities to enhance sustainability—as evidenced by recent biosolids, nutrient harvesting and energy management initiatives.

Our financial evaluations have included an analysis of billing system data, updating of detailed revenue forecasting models, and revisions to the strategic financial planning model used to determine System rate revenue requirements. The strategic financial planning model forecasts all System cash flows, employing approved FY 2018 departmental operating budgets and recent forecasts of capital financing expenses funded through prior and anticipated revenue bond proceeds, low-interest Georgia Environmental Finance Authority (GEFA) loans, the 2018 Commercial Paper Program as described below), and operating revenues. The resulting financial plan, which is reported on herein, was developed to ensure compliance with the applicable covenants of the City's Master Bond Ordinance adopted on May 31, 1999 as thereafter supplemented (the "Master Bond Ordinance").

Our updates also address several planned financial transactions that will marginally impact the Department's overall debt portfolio. In particular, with support from a Rockefeller Foundation grant to facilitate transaction structuring, the Department is planning to issue a \$13.3 million (\$12.5 million net proceeds) Environmental Impact Bond under a pay-for-performance model.[5] As outlined in Section 7, the Department is planning to use its 2018 Commercial Paper program to continue to facilitate capital project procurement and timing of re-entry into the credit market. Lastly, the Department has applied for Water Infrastructure Finance and Innovation Act (WIFIA) loans to fund selected projects of regional importance for system resiliency.

TABLE 1-1
Condition Score Definitions

Condition Score	Scoring Definition
1	**Very Good.** Sound physical condition. Asset likely to perform adequately without major work for 25 years or more for structures and for 10 years or more for mechanical or electrical assets.
2	**Good.** Acceptable physical condition. Minimal short-term failure risk, but potential for deterioration in medium- to long-term (10 years plus for structures and 5 to 10 years for mechanical and electrical assets). Only minor work required, if any.
3	**Fair.** Moderate deterioration evident for structures and deterioration beginning to be reflected in performance and higher maintenance for mechanical and electrical assets. Failure unlikely within next 2 years, but further deterioration likely and major replacement likely within 10 years for structures and within 5 years for mechanical and electrical assets. Minor components or isolated sections of the asset need replacement or repair now, but asset still functions safely at adequate level of service. Work required, but asset is still serviceable.
4	**Poor.** Failure likely in short-term. Likely need to replace most, or all, of asset within 2 years. No immediate risk to health or safety, but work required within 2 years to ensure asset remains safe. Substantial work required in short-term, asset barely serviceable.
5	**Very Poor.** Failed or near failure. Immediate need to replace most, or all, of asset. Component effective life exceeded and excessive maintenance costs incurred. A high risk of breakdown with serious impact on performance. Health and safety hazards exist which present a possible risk to public safety, or the asset cannot be serviced/operated without risk to personnel. Major work or replacement required urgently.

Source: Adapted by MWH Americas, Inc. from International Infrastructure Management Manual, Version 3.0, 2006.

1.4 Firm Qualifications

GRG, who has worked in close collaboration with the Department since 2003, produced this report for the City.[6] GRG provides strategic financial and management consulting services to government agencies, public-private partnerships and special districts worldwide. GRG is the partnering of Galardi Consulting LLC, established in 1996 – a certified Woman-Owned and Emerging Small Business Enterprise; Stanger Consulting LLC established in 2012; and the Rothstein Group LLC established in 2007, located in Chicago, IL, and a Municipal Advisor registered with the Municipal Securities Rulemaking Board (MSRB). GRG has prepared strategic financial plans, conducted cost-of-service rate studies, and participated in consent

[5] For more information on Atlanta's planned EIB and pay for performance models for impact investing, see Case i3: Working Paper #1: Environmental Impact Bonds by David J. Nicola, MBA, Class of 2013, Duke University, The Fuqua School of Business, https://sites.duke.edu/casei3/files/2013/03/CASEi3_EIB_Report_FINAL-links.pdf accessed 9/3/2018. On Atlanta's EIB, see for example. "Sharing Risks and Rewards, Water Finance & Management, June 18, 2018 at https://waterfm.com/sharing-risks-rewards/ accessed 9/3/2018.

[6] GRG, under a separate contract, serves as a sub-contractor of the Stantec/SG Joint Venture Program Management Services Team (PMST) responsible for various aspects of the City's wastewater consent decree compliance program.

decree negotiations related to financial capabilities for numerous utilities throughout North America including Akron, OH; Halifax Regional Water Commission, Nova Scotia; Honolulu, HI; Northeast Ohio Regional Sewer District (Cleveland, OH); Salem, OR; Metropolitan St. Louis Sewer District, MO; Tucson, AZ and Winnipeg, Manitoba. GRG, through a contract with Chemonics International Inc., was also engaged in 2012 by the United States Agency for International Development (USAID) to participate in a national tariff study for the Government of Egypt's Ministry of Housing, Utilities and Urban Development. GRG is supporting the Guam Waterworks Authority in ongoing water and wastewater system consent decree negotiations with USEPA. GRG also prepared the Municipal Advisor's Report for the $1.785 billion Series 2013 Jefferson County Alabama Sewer Warrant issue that enabled the county to exit from bankruptcy under a Plan of Adjustment confirmed by the U.S. Federal Bankruptcy Court in November 2013. Most recently, GRG Principal Eric Rothstein served as Implementation Planning Program Manager for the creation of the Great Lakes Water Authority in Detroit, Michigan and as a member of the Flint Water Advisory Task Force appointed by Michigan Governor Rick Snyder in October 2015.

Two consulting engineering teams - BGR and JP2 - were engaged by the Department between 2011 and 2014 to conduct various facility assessments and develop an integrated master plan for prospective rehabilitation and development of the System. These firms contributed the facility condition assessment information reported herein.

- BGR has provided engineering services on a variety of assignments to the City for over four years. BGR is a joint venture of Black & Veatch, Gresham, Smith & Partners, and Rohadfox Construction Control Services Corporation, bringing together the combined expertise, experience, and capacity of these industry-leading firms.
- The JP2 Team has performed short- and long-term master plan activities for the water system. In addition, JP2 completed a short-term assessment of the Combined Sewer Overflow facilities and sewer lift stations. The JP2 team that completed the master plan consisted of three primary consultants - PRAD Group, Tetra Tech and River 2 Tap (R2T).

1.5 Capital Financing Strategy Refinement

The Series 2018C Bonds are part of an updated strategy for the Department's debt portfolio and projected capital program financing. This refinement builds on the strategy outlined in the Series 2018A and Series 2018B Feasibility Study, updates assessments of System needs and funding options, and includes the impacts of recent state legislative approval of prospective Municipal Option Sales Tax (MOST) referenda. It leverages opportunities presented by the implementation of the 2018 Commercial Paper Program, increased availability of low-interest GEFA loans, and savings associated with the refunding of DWM outstanding revenue bonds.

In May 2018, the City secured state legislative approval for additional referenda to continue MOST as a funding source for DWM system improvements.[7] Consistent with the original MOST legislation, voter approvals for the MOST will be required every 4 years—beginning in

[7] Governor Nathan Deal signed the bill into law on May 3, 2018.

2020—with the potential to extend MOST funding through October 2032. Based on the strong local voter support which the MOST has previously received, the financial plan summarized in this report assumes voter approval of the extension of the MOST for additional 4-year periods in March 2020 and March 2024.[8] The financing strategy also contemplates resumption of service rate increases in FY 2023[9] and deferred tapering of MOST support of DWM's operational spending. The Department's refined capital financing strategy includes:

- Current revenue (PAYGO) funding of $575.0 million (56.9%) of capital program encumbrances over the FY 2019-24 forecast period;
- The proceeds of the Series 2018C Bonds will be used to refund all of the outstanding Series 2013A Bonds and pay costs of issuance associated with the Series 2018C Bonds;
- Expansion of annual GEFA borrowing from $40.0 million to $50.0 million per year to leverage alignment of planned DWM capital projects with GEFA program priorities.

DWM's financial plan provides for total project encumbrances for the FY 2019-24 reporting period of approximately $954.4 million in current dollars ($1,010.5 million in nominal dollars).[10] Combined with the $699.0 million of existing encumbrances summarized in Section 6-4, the Department expects to have $1,709.5 million available for capital expenditures during the 6-year forecast period.[11] The capital program maintains the Department's commitments not only to consent decree and proposed consent order compliance but also the more balanced System reinvestment noted in each of the feasibility studies developed following the Consent Decree extension. While the capital program includes important treatment plant repairs and improvements, it also includes a number of projects to enhance environmental sustainability and provide community amenities. The capital program also features new green infrastructure projects enabled through City Council adoption of Ordinance No. 14-O-1453 that allows dedication of up to 10 percent of MOST proceeds for stormwater management-related projects.

In addition, the Department will initiate a more comprehensive effort to ensure that costs incurred to support real estate development are equitably distributed. In the near term, this includes planned increases to existing tap fees beginning in the second half of FY 2019 to ensure full cost recovery for service connections. The Department may also initiate requisite studies to enable imposition of impact fees for water, wastewater and/or stormwater services.

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[8] The 2008 MOST reauthorization was approved by 71 percent of the voters, the 2012 reauthorization by 85 percent, and the 2016 reauthorization by 74 percent. In the event that reauthorization does not occur in 2020, the Department has developed an alternative financial plan to cope with the loss of this critical funding source (see Section 7.12).

[9] The financial plan reported herein assumes implementation of system-wide rate increases of 3.0 percent in FY 2023 and 2.0 percent in FY 2024.

[10] In numerous references throughout this report, "current dollars" means the value of a dollar at today's price whereas "nominal dollar" estimates reflect adjustments for inflation.

[11] Existing encumbrances represent funding commitments from prior periods (i.e. available cash balances) that will be used for the Department's previously-identified capital projects.

1.6 System Financing Overview

Prior to 2006, DWM used proceeds of revenue bonds, GEFA loans, and operating revenues to finance its System development. The 2006 Commercial Paper Program provided interim funding for the Clean Water Atlanta program with notes subordinate in lien and right-of-payment to revenue bonds issued by the City under the Master Bond Ordinance. In 2009, the City issued the Series 2009A Bonds to refinance all of its outstanding notes under the 2006 Commercial Paper Program, realign project commitments funded by the 2006 Commercial Paper Program, and secure new money for the Department's capital projects.[12] In October 2009, the City issued its Series 2009B Bonds to refinance certain of its outstanding variable rate demand obligations for which liquidity support had expired. In 2013, the City issued the Series 2013A Bonds and its Water and Wastewater Refunding Bonds, Series 2013B (the "Series 2013B Bonds") to refinance selected revenue bond issues and align its swap contracts to portions of its variable debt portfolio. In 2015, the City issued the Series 2015 Bonds to refinance selected revenue bond issues and installed a new interim short-term financing facility, the 2015 Commercial Paper Program, to facilitate funding of the Department's Water Supply Program. In 2017, the City issued the Series 2017A Bonds to refund the Series 2009B Bonds.

Most recently, in FY 2018, the City issued the Series 2018A Bonds and Series 2018B Bonds and implemented the 2018 Commercial Paper Program:

- The proceeds of the Series 2018A Bonds in the amount of $58.8 million were used to refund all of the City's outstanding Series 2008 Bonds and pay costs of issuance associated with the Series 2018A Bonds.
- The $324.3 million of Series 2018B proceeds were used to:
    a. pay the outstanding principal portion of maturing commercial paper notes in the amount of $170.1 million issued pursuant to the 2015 Commercial Paper Program;
    b. provide $79.9 million in substitute funding for Water Supply Program obligations that were encumbered[13] against the 2015 Commercial Paper Program line of credit but had not yet been expended; [14]
    c. provide $50.0 million of additional funding for select priority projects;
    d. fund debt service reserves in the amount of $22.5 million; and
    e. pay costs of issuance associated with the Series 2018A Bonds.

Simultaneously with the issuance of the Series 2018B Bonds, the City also implemented a new commercial paper program (the "2018 Commercial Paper Program"), in the amount of $125,000,000, supported by an irrevocable, direct-pay letter of credit issued by Wells Fargo

[12] The 2006 Commercial Paper Program was terminated at this time.

[13] Like many other water and wastewater service providers, the Department is required to encumber—or set aside—all funds necessary to complete a capital project before beginning the project procurement process (see Section 6.4).

[14] Of the $250.0 million in Water Supply Program contract obligations initially encumbered with the 2015 Commercial Paper Program, DWM had issued $170.1 million in 2015 Commercial Paper notes as of May 2018.

Bank, National Association to facilitate capital project encumbrances during the forecast period.

As discussed in the DWM Capital Financing Strategy Refinement section (Section 1.4) and described in greater detail in Section 7, the Department intends to fund prospective projects primarily with operating revenues, GEFA loan proceeds, and will employ available capacity from the 2018 Commercial Paper Program to facilitate capital project procurement processes. Besides the $50.0 million in new money proceeds from the Series 2018B Bonds that will be used to fund new projects, the City intends to issue System revenue bonds of $110.0 million in early FY 2022 to repay outstanding obligations under the 2018 Commercial Paper Program.

1.7 Commercial Paper Programs

The Commercial Paper Ordinance (Ordinance No. 15-O-1113) adopted by the City on March 16, 2015 authorized the issuance of commercial paper notes pursuant to various programs in the maximum aggregate principal amount of $250.0 million outstanding at any particular time (the "2015 Commercial Paper Ordinance"). Commercial Paper notes were issued in two series: the Series A-1 and Series A-2 notes, each issuance not to exceed $125.0 million. The 2015 Commercial Paper Program provided financing capacity for the Water Supply Program pursuant to the terms and conditions set forth in the 2015 Commercial Paper Ordinance. As the 2015 Commercial Paper Program expired in August 2018, the Series 2018B Bonds were used to pay the outstanding obligations under the 2015 Commercial Paper Program.[15]

The 2018 Commercial Paper Program has been established for the purpose of financing, on an interim basis, the costs of making additions, extensions and improvements to the System, including specifically the Peyton Center and Intrenchment Creek decommissioning projects discussed in Section 6.

1.8 Report Organization

This Report contains the following sections:

- **Section 1 – Introduction:** outlines the purpose and scope of the report, data sources and evaluation methodology, municipal advisor qualifications and a summary of recent and prospective approaches to capital project financing.
- **Section 2 – Department of Watershed Management:** provides an overview of the creation of the Department, its Vision, Mission and Objectives; outlines DWM's organizational structure; and reviews the Department's recently-completed strategic plan.
- **Section 3 – Wastewater System:** describes the current wastewater system service area, facilities, operations and assets; discusses consent decree compliance and provides a general assessment of the condition of System assets.
- **Section 4** – **Watershed Protection Services:** describes the current infrastructure asset base, distinguishes between public and private responsibilities, delineates regulatory

[15] The 2015 Commercial Paper Ordinance authorized and validated a series of take-out bonds to repay the outstanding obligations under the 2015 Commercial Paper Program.

requirements for stormwater management planning, and reviews City programs employed to deliver watershed protection services and comply with applicable regulatory requirements.

- **Section 5 – Water System:** describes the current water system service area, facilities, operations and assets, discusses consent order compliance and provides a general assessment of the condition of water system assets. This section also addresses selected legislative challenges potentially impacting the Department's capital program.
- **Section 6 – Capital Improvement Program (CIP):** reviews the composition and scheduling of the Department's CIP by major expenditure category, which (continues to) reflect extension of the required program completion dates under the First Amended Consent Decree (FACD), anticipates completion of the marquee Water Supply Program in FY 2021, and addresses issues identified by earlier System assessments and master planning efforts; provides details regarding DWM's resource recovery and energy management initiatives; and summarizes existing capital project encumbrances.
- **Section 7 – Financial Performance:** provides historical financial performance information; delineates a detailed capital financing strategy; summarizes projections of revenues and expenses, debt service coverage and fund balances for the period FY 2019 through FY 2024; provides additional bonds test information, and compares the Systems water and wastewater bills with those of other major metropolitan areas.
- **Section 8 – Rate Schedule:** provides the Department's current and projected water and wastewater rates, by component, based on the proposed schedule of FY 2019-24 rate increases required to fund the capital improvement program (as outlined in Section 7). Bill impacts for residential customers of the System are also summarized.

2.0 Department of Watershed Management

2.1 Overview

The Atlanta City Council approved the creation of the Department on September 16, 2002 (Ordinance 02-O-1450). Since its inception, the Department has overseen the City's comprehensive approach to providing water, watershed protection and wastewater services.[16] The Department Commissioner reports directly to the Mayor and the Chief Operating Officer of the City. The Department manages its relationships with other municipalities and counties through inter-jurisdictional (IJ) agreements. The Department's financial transactions are accounted for in a single independent enterprise fund.

The Department provides drinking water, selected watershed protection, and wastewater services to residential, commercial, industrial and governmental ratepayers across its State of Georgia-certified regional service area. The delivery of these essential services includes responsibility for several significant areas:

- Management of 1,732 operating positions dedicated to delivering water, wastewater and watershed protection services on a daily basis.
- Operation and maintenance of the facilities and infrastructure involved in conveying potable drinking water to customers, carrying wastewater from homes and businesses for treatment before discharge into area waterways, and addressing challenges presented by stormwater flows.
- Ensuring the timely and effective completion of the City's capital improvement plan, modified to reflect schedule relief obtained with respect to the First Amended Consent Decree, completion of integrated master planning and strategic planning initiatives, and reflecting asset management and improved system-wide prioritization procedures (discussed in Section 6).
- Implementing environmental compliance programs for grease management, industrial pretreatment, and greenways management.
- Planning, monitoring and evaluation of utility system impacts from a holistic, water resource management perspective.
- Engaging utility system stakeholders through public information and education initiatives, and responsive customer service.

[16] Between FY 2009 and FY 2012, the Department was structured to include the Office of the Commissioner and seven bureaus: Drinking Water, Wastewater Treatment and Collection, Engineering Services, Financial Administration, Program Performance, Management, and Watershed Protection. In FY 2013, the Department implemented a reorganization structure to align similar functions to gain operational efficiency -- establishing organizational units to, for example, manage treatment facilities or field operations across water and wastewater systems.

- Implementing the Department's Care and Conserve program to address water affordability concerns by providing bill assistance and water use efficiency measures to qualifying low-income customers.

2.2 Department Re-Organization

In FY 2017, DWM implemented a reorganization (depicted in Figure 2-1) that was incorporated into its FY 2018 budget, and calls for an authorized staffing level of 1,732 positions. As of the beginning of FY 2019, the Department had 1,410 filled operating positions and 322 vacancies.[17]

The departmental reorganization was undertaken to focus on customer delivery and to substantially improve customer service, as well as to ensure proper attention is given to Consent Decree and compliance with all regulatory requirements. In addition, the senior team has been enhanced with the creation of the Chief Administrative Officer and Assistant Commissioner positions to assure dedicated attention to project delivery as well as the Department's daily administrative and operational needs, thereby allowing the Commissioner to be more attentive to strategic planning and policy issues.

The functions and staffing of the Department are discussed below.

2.2.1 Office of the Commissioner

The Commissioner's Office is responsible for setting the strategic direction for the Department and providing leadership in all areas of operations and management. It has ultimate responsibility for regulatory compliance, management of the System's infrastructure assets, customer service and management of human and financial resources.[18] Its priorities are provision of high quality customer service, environmental compliance and operational efficiency. The FY 2018 budget provides for funding of 107 positions in the Commissioner's Office, inclusive of seven funded positions within the Commissioner's Office itself and seven functional reporting areas, as described below.

2.2.1.1. Policy and Intergovernmental Affairs

The Policy and Intergovernmental Affairs functional area is responsible for planning, drafting and coordinating legislative, regulatory and strategic initiatives on behalf of the Department to address issues at the municipal, state and national levels. This area coordinates with other municipalities, regulatory agencies, and national and regional industry organizations to guide policy decisions that are in the City's best interest. The Policy and Intergovernmental Affairs team reports directly to the Commissioner. The FY 2019 budget provides for funding of 5 positions.

[17] The authorized position counts by Office reflect manual realignment of some positions based on the completion of the Department's reorganization and are consistent with the FY 2017 budget.

[18] The Commissioner's Office helped coordinate the evaluation and restructuring of position classifications in support of the Department's reorganization and continues to support refinement of classifications, succession planning, and other personnel related DWM initiatives.

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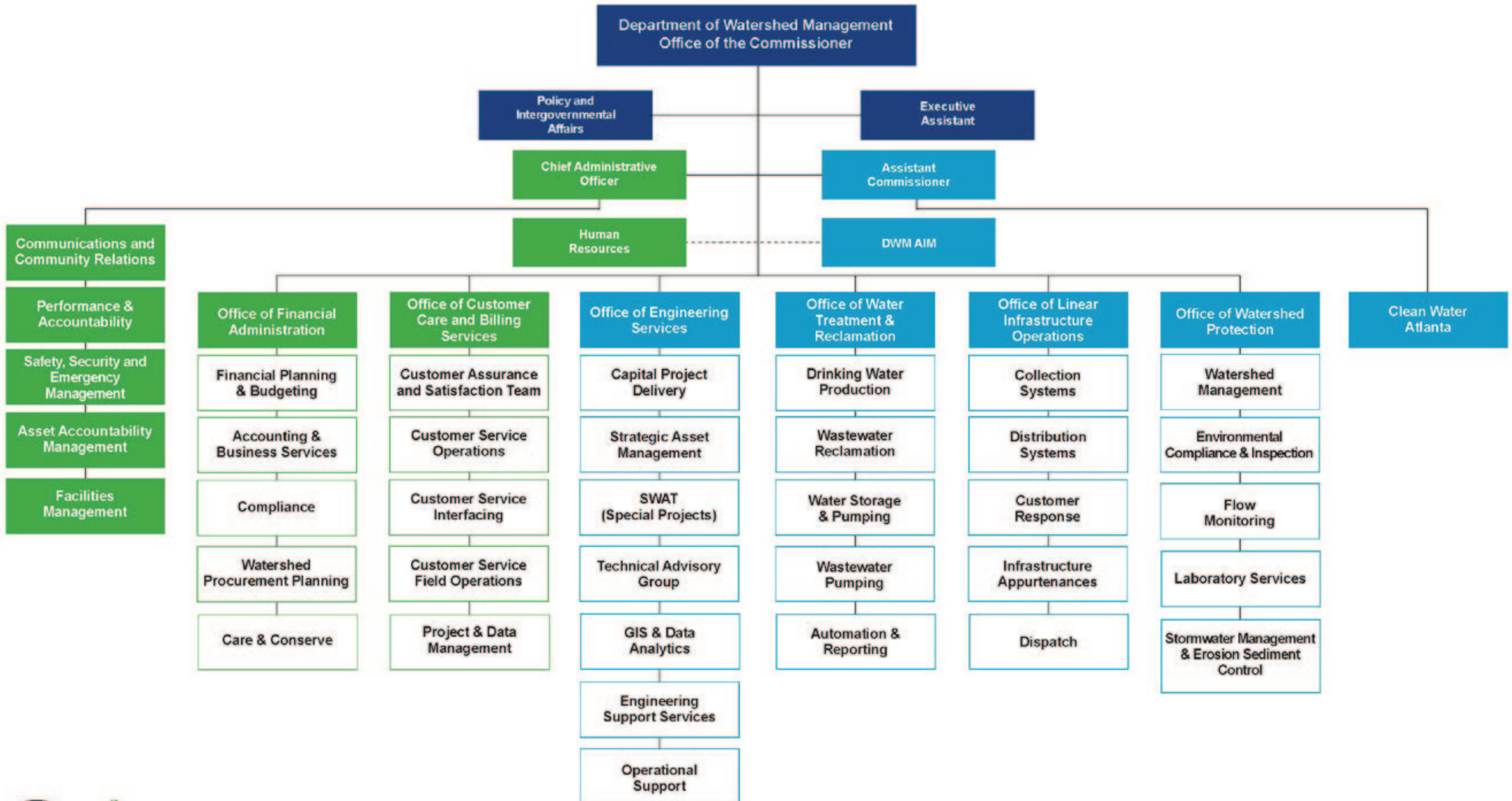
FIGURE 2-1
Department of Watershed Management Organization



CITY OF ATLANTA DEPARTMENT OF watershed management

LEGEND
DWM Administration
DWM Operations

2.2.1.2. Communications and Community Relations

The Communications and Community Relations functional area coordinates the Department's engagement with key community groups including the City's Neighborhood Planning Units (NPUs). This group develops and coordinates publication of informational materials on DWM programs and initiatives, and is the designated point of contact with local media. The functional area also has responsibility for coordinating departmental communications through internal newsletters and employee briefings, as well as serving as a liaison to the Mayor's Office. This functional area reports to the Chief Administrative Officer, a position within the Office of the Commissioner. The FY 2018 budget provides for funding of 22 positions.

2.2.1.3. Performance and Accountability

The Performance and Accountability area coordinates the development and evaluation of performance measures to institutionalize accountability for System performance and support continuous improvement efforts. The area is responsible for reporting on progress related to DWM's priorities, currently oriented toward improved customer service, workplace safety and loss prevention, regulatory compliance and environmental protection and efficient operations. Performance and Accountability also includes the Department's Internal Audit function responsible for evaluation of internal controls and business processes. This team reports to the Chief Administrative Officer. The FY 2018 budget provides for funding of 13 positions.

2.2.1.4. Office of Safety, Security & Emergency Management

The Office of Safety, Security & Emergency Management has responsibility for implementing and monitoring compliance with the Department's workplace safety programs, ensuring compliance with US Department of Homeland Security regulations related to System safety and security measures, and emergency preparedness planning and training initiatives. This functional area reports to the Chief Administrative Officer and the FY 2019 budget provides for funding of 62 positions.[19]

2.2.1.5. Asset Accountability Management

The Asset Accountability Management team is responsible for maintenance of DWM's approximately 1,200 services vehicles and heavy equipment, seven warehouses and three inventory control service centers. The fleet services staff works in collaboration with the Department of Public Works (Fleet Services) to ensure all vehicles and equipment are fully operational. This team reports to the Chief Administrative Officer. In FY 2019, the budget provides funding for 50 positions.

2.2.1.6. Facilities Management

The Facilities Management team is responsible for maintenance of DWM's 117 facilities and grounds. Facilities Management coordinates with the Mayor's Office of Enterprise Asset Management (OEAM) for facility capital improvement needs and the maintenance and upkeep of the Department's Headquarters at 72 Marietta Street. This team also reports to

[19] While personnel in these groups report to the Commissioner's Office, these positions are funded separately and not included in the Office of Commissioner position count.

the Chief Administrative Officer. The FY 2019 budget provides for funding of 61 positions for this group.[20]

2.2.1.7. Atlanta Information Management (AIM)

The Atlanta Information Management team is a component of the centralized City-wide Information Technology organization and provides IT solutions and services including application development and support, technology Quality Assurance / Quality Control services, and end user support. The area coordinates acquisition and updating of IT and communication resources across the Department to promote compatibility of applications, facilitate data warehousing and sharing, and promote operating efficiencies. It provides technology support for ongoing business process evaluation and redesign initiatives. The FY 2019 budget provides for funding of 61 positions.

2.2.1.8. Clean Water Atlanta

The Clean Water Atlanta initiative team—which is comprised of personnel from other Department offices—is responsible for planning, design, and construction of improvements to the City's drinking water and wastewater systems, as well as environmental compliance reporting, to comply with the City’s consent decrees and administrative orders. The Clean Water Atlanta team reports to the Assistant Commissioner within the Office of the Commissioner. The FY 2019 budget provides for funding of 15 positions.

2.2.2 Office of Financial Administration

The Office of Financial Administration is responsible for the preparation, evaluation and monitoring of the Department's budget, updating of the Department's strategic financial plan, support of its capital financing program, and capitalization of fixed assets. It is responsible for accounting functions including recording of revenues and expenses, and support of the annual external audit as well as cash collections, payroll, and billing of inter-jurisdictional partners. The FY 2019 budget provides for funding of 64 positions.

2.2.3 Office of Customer Care and Billing Services

The Office of Customer Care and Billing Services manages the Department’s customer service operation, including management of the customer service billing system, call centers and walk-in customer service functions. In addition, the Office coordinates investigation of small metering issues as well as service cuts and repairs. The FY 2019 budget provides for funding of 147 positions.

2.2.4 Office of Engineering Services

The Office of Engineering Services is responsible for the capital program related to the Department’s Consent Decree compliance, as well as in-house project design, construction, project and asset management, Geographic Information System (GIS), leak detection and water loss programs, inter-governmental agency agreements, surveying, master planning, hydraulic modeling and utility locates. The FY 2019 budget provides for funding of 206 positions.

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[20] While personnel in these groups report to the Commissioner’s Office, these positions are funded separately and not included in the Office of Commissioner position count.

2.2.5 Office of Water Treatment and Reclamation

The Office of Water Treatment and Reclamation is responsible for drinking water production and wastewater treatment. Drinking water production involves operation and maintenance of the water supply intakes, three water treatment plants (WTPs), finished water storage and distribution system pumping - including System pressure management and provision of fire flows. Wastewater treatment involves operation and maintenance of four wastewater treatment facilities, six permitted combined sewer discharge sites, and sewage pumping stations. The Office is responsible for complying with all applicable regulatory requirements including the Safe Drinking Water Act (SDWA) and Clean Water Act (CWA) on which it reports to the Georgia Environmental Protection Division (EPD). The Office also includes a Division of Automation and Sustainability oriented toward enhancing efficiency and environmental performance of Office operations, in part through the implementation of new automation technologies. The FY 2018 budget provides for funding of 319 positions.

2.2.6 Office of Linear Infrastructure Operations

The Office of Linear Infrastructure Operations is responsible for all aspects of the management, operation and maintenance of the Department's over 2,800 miles of water distribution lines and 2,150 miles of sanitary sewer pipe, including all City-owned storm sewers and structures. The Office provides 24/7 incident and request response, performs both preventive and reactive maintenance and repairs of System assets (including pipelines, valves, hydrants and other appurtenances) and tests, repairs and replaces service meters throughout the System. The movement of the dispatch function within this Office enables efficient deployment of field service personnel and improved customer service by facilitating "one-stop" field work order resolution. The FY 2019 budget provides for funding of 534 positions.

2.2.7 Office of Watershed Protection

The Office of Watershed Protection leads the Department's holistic approach to integrated water resource management. It manages water policy initiatives, leads the development of watershed plans (including: Basin Assessments, Watershed Protection Plans, Watershed Improvement Plans, Total Maximum Daily Load (TMDL) Implementation Plans), and guides ecosystem restoration capital improvements. The Office performs wastewater flow monitoring, inter-jurisdictional flow metering as well as floodplain modeling and management activities. In addition, the Office has responsibility for the Department's stormwater compliance programs; Fats, Oil and Grease (FOG) management; industrial pre-treatment permitting and inspections, and manages the Department's laboratories, providing analytical services related to treatment plant performance.

The Office has responsibility for ensuring, monitoring and reporting compliance with all pertinent state and federal environmental regulations. By providing analytical and compliance monitoring services independently of the Department's Offices responsible for treatment plant and linear infrastructure operations, a segregation of duties is in place to assure compliance with all applicable environmental regulations. The FY 2019 budget provides for funding of 165 positions.

2.3 Inter-Jurisdictional Agreements

The City provides water and wastewater service on a wholesale basis to counties and municipalities outside of the City's boundaries. Generally, these services are provided under long-term (30 years or longer) inter-jurisdictional (IJ) agreements. The City is operating under wastewater service agreements with DeKalb and Fulton Counties, and the municipalities of College Park, East Point and Hapeville. The City is operating under wholesale water service agreements with the Coweta County Water and Sewerage Authority, Clayton County Water Authority, and the City of Hapeville. Wholesale water services are also provided to Fayette County and the cities of Fairburn and Union City under current wholesale rates, but the City does not have wholesale water service agreements with these entities.

Under the current terms of the wastewater agreements, the City provides conveyance and treatment services for wastewater flow volumes. The contracting governmental entities, referred to as the City's IJ partners, pay their share of associated operational costs and are required to implement and enforce sewer use regulations that are no less restrictive than those imposed by the City. The IJ partners share in capital costs based on the capacity they have reserved in City facilities, pursuant to the relevant agreements. Treatment plant monthly operating costs are based on the IJ partners' proportionate share of flows entering facilities in which they have reserved capacity. In addition, the IJ partners are obligated to pay a pro rata share of wastewater transmission and collection operations and maintenance costs based on the portion of the System from which they benefit. Alternatively, some IJ partners can elect to pay a wholesale wastewater rate, as defined in the relevant agreements. Capital cost payments are billed according to IJ partners' share of costs for particular capital projects in the wastewater system.

Long-term wholesale water service contracts with IJ partners provide for water sales at bulk wholesale rates set by the City, pursuant to its rate ordinance.[21] The City may adjust rates at its discretion; System-wide rate adjustments over the last decade have also been applied to wholesale service rates.

2.4 Atlanta-Fulton County Water Resource Commission

The City and Fulton County have constructed, and operate as a joint venture, the Atlanta-Fulton County North Area Drinking Water Treatment Plant with a rated capacity of 90 million gallons per day (mgd). The plant is operated by Veolia/KHAFRA, a joint venture between Veolia Water North America, Inc., (formerly U.S. Filter Operating Services, Inc.) and KHAFRA Engineering Consultants, Inc. The City uses its 50 percent share of this capacity to supply water to part of its service area north of the City.

[21] Long-term wholesale service agreements have varying contract terms and expiration dates. Wholesale water service has been provided under terms of these contracts under circumstances in which these agreements have expired.

2.5 Department Strategic Plan 2020: A One Water Vision

In 2017, the Department initiated an inclusive strategic planning process that led to publication of its Strategic Plan 2020: A One Water Vision.[22] This strategic plan furthers the Department's industry leading commitment to holistic water resource management, embraces the attributes of Effectively Managed Utilities[23], and supports implementation of innovative, sustainable, and resilient solutions. The Plan articulates new Mission, Vision and Values statements:

VISION

- To distinguish ourselves as leaders in innovation, service and value.

MISSION

- Delivering excellent customer service through a motivated, skilled, and empowered workforce
- Ensuring treatment and delivery of high quality drinking water as well as collection and reclamation of wastewater to a high standard while implementing innovative solutions for resource recovery
- Sustainable stormwater management, integrated planning and mitigation of the adverse impacts of flooding, while leveraging partnerships to protect, restore and enhance our watersheds
- Building the capacity to be a strong partner in the resilience of our City

VALUES

- Teamwork: focusing our collective strengths to deliver service
- Integrity: adhering to high ethical standards; doing the right thing at the right time for the right reasons
- Customer Centric: understanding needs and delivering on our promises
- Accountability: accepting responsibility for our actions
- Employee Commitment: valuing our employees as our most valuable resource

These statements underscore strategic directions characteristic of industry leaders in the area of water resource management where sustainability and resiliency considerations are incorporated into utility decision-making as a matter of practice. These statements were referenced in the strategic planning process to establish a set of eight priority areas for the FY 2018 – 2020 period. Goals for each of the priority areas are provided below.

[22] The SP 2020: One Water Vision plan updates and supersedes the Strategic Plan reported in the Series 2015 Municipal Advisor report, reflecting the strategic direction of new executive leadership and informed by extensive staff, customer and stakeholder engagement.

[23] Effective Utility Management: A Primer for Water and Wastewater Utilities published by USEPA, AMWA, APWA, AWWA, NACWA, NAWC, WEF.

TABLE 2-1
Priorities for Department's Strategic Plan 2020: A One Water Vision

No.	Priority Area	Goal Statement
1	Service Delivery	Deliver highly-effective customer service and outreach to all classes of customers through the use of technology and proactive communication.
2	Infrastructure Reliability	Plan for and sufficiently invest in our infrastructure assets to facilitate full compliance with regulatory requirements, including the public health needs of our stakeholders and protection of our environmental resources.
3	Workforce Development	Build a pipeline of highly skilled workers and leverage the skills of current employees to meet our business demands and customer expectations.
4	Operational Efficiency	Deliver efficient performance and services to customers, through ongoing, timely, cost-effective, and sustainable improvements in all facets of operations.
5	Financial Resiliency	Responsibly manage the full life-cycle costs of the utility; establishing and maintaining an effective balance between long-term debt, asset value, operating revenues and operational and maintenance expenditures; resulting in predictable rates consistent with community and regulatory expectations to adequately invest in current and future needs.
6	Compliance	Fulfill our compliance and resilience requirements by focusing on the sustainable triple bottom line of fiscal responsibility, environmental stewardship, and social betterment.
7	Digital Transformation	Develop greater business acumen through the continuous collection and integration of information and data across the department to analyze operations and service delivery for actionable insight that enables better decision making.
8	Safety and Security	Develop, implement, and communicate comprehensive policies and processes aimed at protecting the health, well-being, and security of our employees, our assets, and the communities we serve; ensuring the effective management and continuity of our operations in the face of vulnerabilities.

3.0 Wastewater System

3.1 Overview

The City's wastewater treatment and collections system encompasses more than 2,150 miles of sanitary and combined sewers, three permitted water reclamation centers (WRCs), two permitted Combined Sewer System (CSS) Water Quality Control Facilities (WQCF), four permitted Combined Sewage Control Facilities (CSCFs), and 16 pump stations. The collection system in the 11 square mile Combined Sewer Area is connected directly to the separate sewer system for conveyance to one of the WRCs for treatment. The City's wastewater system is operated and maintained by the Department's Offices of Water Treatment and Reclamation and Linear Infrastructure Operations. The three WRCs have a combined hydraulic treatment capacity of 220 mgd and are permitted to discharge up to 188 mgd, based on a monthly average, under a combined permit (NPDES Permit No. GA0039012).[24,25]

The City's wastewater treatment and collections system serves almost 94,000 active retail wastewater accounts in the City (and also bills for wastewater services provided by Fulton County for accounts that receive water service from the City). In addition, the City treats wastewater from wholesale customers including DeKalb and Fulton counties and the cities of College Park, East Point, and Hapeville.

Historical accounts, billed wastewater volumes, and System influent data are provided in Table 3-1.

TABLE 3-1
Wastewater Accounts, Billed Volumes and System Influent, FY 2013 - FY 2018

System History	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
City of Atlanta Retail Wastewater Accounts[1]	88,868	88,804	88,768	89,396	91,532	93,797
City of Atlanta Retail Wastewater – Billed Volumes (mgd)	35.90	36.08	35.95	37.02	38.06	38.65
Wastewater System Average Daily Flow (mgd)[2]	119.8	121.5	127.9	132.3	120.4	129.9

1 Data for FY 2013 – FY 2018 extracted from monthly bill frequency distribution reporting developed to enhance the Department's revenue forecasting.

2 Data compiled by Office of Water Treatment and Reclamation – Consolidated Data. Differences from prior reporting due to calendar vs. fiscal year reporting and adjustments to influent metering data.

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24 Draft permits issued in 2005 for the City's WRCs included more restrictive limits on pollutants such as phosphorus, ammonia, biological oxygen demand, total suspended solids and dissolved oxygen. Between 2005 and 2010, the Department worked with the Georgia EPD regarding consideration of mass loadings to be applied collectively to all of the WRCs rather than applying specific effluent concentration limits to the individual plants. The final NPDES permits issued by the Georgia EPD reduced the Department's discharge limits from its hydraulic capacity of 220 mgd to the current 188 mgd limits to address the assimilative capacity of the Chattahoochee River.

25 The Consolidated NPEDS permit for the WRCs was renewed by Georgia EPD in June 2017 and went into effect on July 1, 2017.

The wastewater system is operating pursuant to environmental permits issued by the State of Georgia in accordance with the requirements of the federal Clean Water Act and the Georgia Water Quality Control Act. In 1998, the City entered into the first of two federal Consent Decrees to establish control over the City's Combined Sewer Overflows (the CSO Consent Decree), which required the City to achieve full compliance with environmental permits, the federal Clean Water Act and the Georgia Water Quality Control Act with regard to the City's CSS Control Facilities.[26] The City completed the work required under the CSO Consent Decree in October 2008, including partial separation of three combined sewer areas and tunnel construction. It then completed a two-year post-compliance evaluation period and successfully avoided substantial noncompliance, as defined by the CSO Consent Decree, during that timeframe.

In 1999, the City entered into a second Consent Decree, referred to as the First Amended Consent Decree, which required the City to achieve, by 2014, full compliance with the City's environmental permits, the federal Clean Water Act and the Georgia Water Quality Control Act with regard to the City's WRCs, collection system and pump stations, to eliminate all unpermitted discharges, and to eliminate all sanitary sewage overflows (SSOs). Numerous improvement projects designed to achieve these objectives have been completed. These improvement projects include upgrades to treatment facilities, System-wide inspection and rehabilitation of the collections system, and additional tunnel construction. The City's CIP has been developed to meet these objectives as well as ensure the renewal and operational efficiency and reliability of the System. Based on the work completed, the provisions for the WRCs were terminated as part of the second amendment to the FACD in 2012.

As more fully discussed below, in April 2010, the City submitted a Financial Capability-Based Schedule Extension Request Report seeking an extension of the completion date required for wastewater system improvements required under the FACD. On September 24, 2012, an order providing for important modifications to the FACD, including the extension of the final completion date from July 1, 2014 to July 1, 2027 was filed in U.S. District Court, Northern District of Georgia. The CIP discussed in Section 6 reflects the agreed-upon FACD schedule revisions.

3.2 Wastewater System History

Construction on Atlanta's sewer system began in the late 1800s. By 1880, there were 8 miles of stone, masonry and small pipe sewers ranging in size from 12-inches to 6-feet in diameter. In 1910, $1.35 million in bonds was issued to construct three sewage treatment plants: Proctor Creek, Peachtree Creek and Intrenchment Creek. Between 1935 and 1945 the R.M. Clayton, Utoy Creek and South River treatment plants were added and two of the existing plants, Proctor Creek and Peachtree Creek, were decommissioned.

In 1972, the City placed the Flint River treatment plant into operation, but by the early 1980s it was clear that discharging to the Flint River was cost prohibitive. In 1985, the Three Rivers Water Quality Management Program was completed. This program included the construction of the Three Rivers Tunnel, the Flint River Transmission Main and the Intrenchment Creek

[26] The terms "CSO Control Facilities", "Combined Sewer Control Facilities", and "CSS Control Facilities" are used interchangeably in this report.

Force Main. The Three Rivers Tunnel linked the South River WRC with the Chattahoochee River, thereby eliminating inter-basin transfers and effluent discharges into the South River. The Flint River Water Pollution Control Plant was converted into a pump station and the Flint River Transmission Main was constructed to link the Flint River Pump Station to the South River WRC. Thus, the discharge of effluent into the Flint River was eliminated. Likewise, the Intrenchment Creek Force Main was constructed at this time and discharge of treated effluent from the Intrenchment Creek WRC into Intrenchment Creek was eliminated. Rather, effluent from the Intrenchment Creek WRC is pumped to the South River WRC where it receives further treatment at the South River WRC. Upgrades to the South River and Intrenchment Creek WRCs were also completed at this time.

In the mid- to late-1990s, the City completed a $630 million Phosphorus Reduction Program (frequently identified as the Senate Bill 500 Improvements) whereby the City’s WRCs were upgraded to comply with new limits on the amount of phosphorus the City may discharge to the Chattahoochee River. These improvements included upgrades to many processes, as well as the addition of new processes such as disinfection using ultraviolet light and odor control. The City’s wastewater treatment facilities and collection system have been expanded and upgraded to meet the demands of the service population and increasingly stringent regulatory requirements. Over the last two decades, the City has invested more than $3.0 billion in its wastewater system to meet federal and state requirements, protect water quality and rehabilitate its existing infrastructure.

3.3 Service Area

The City’s wastewater service area is regional. The area is bordered on the west by the Chattahoochee River and extends into northwest DeKalb County, a small portion of Clayton County, and parts of north and south Fulton County. Together, the City’s WRCs serve a total area of 225 square miles; with the City’s WQCFs and CSS Control Facilities providing supplemental capacity for an area of approximately 11 square miles. Figure 3-1 illustrates the City’s wastewater service area and shows the location of the City’s treatment facilities.

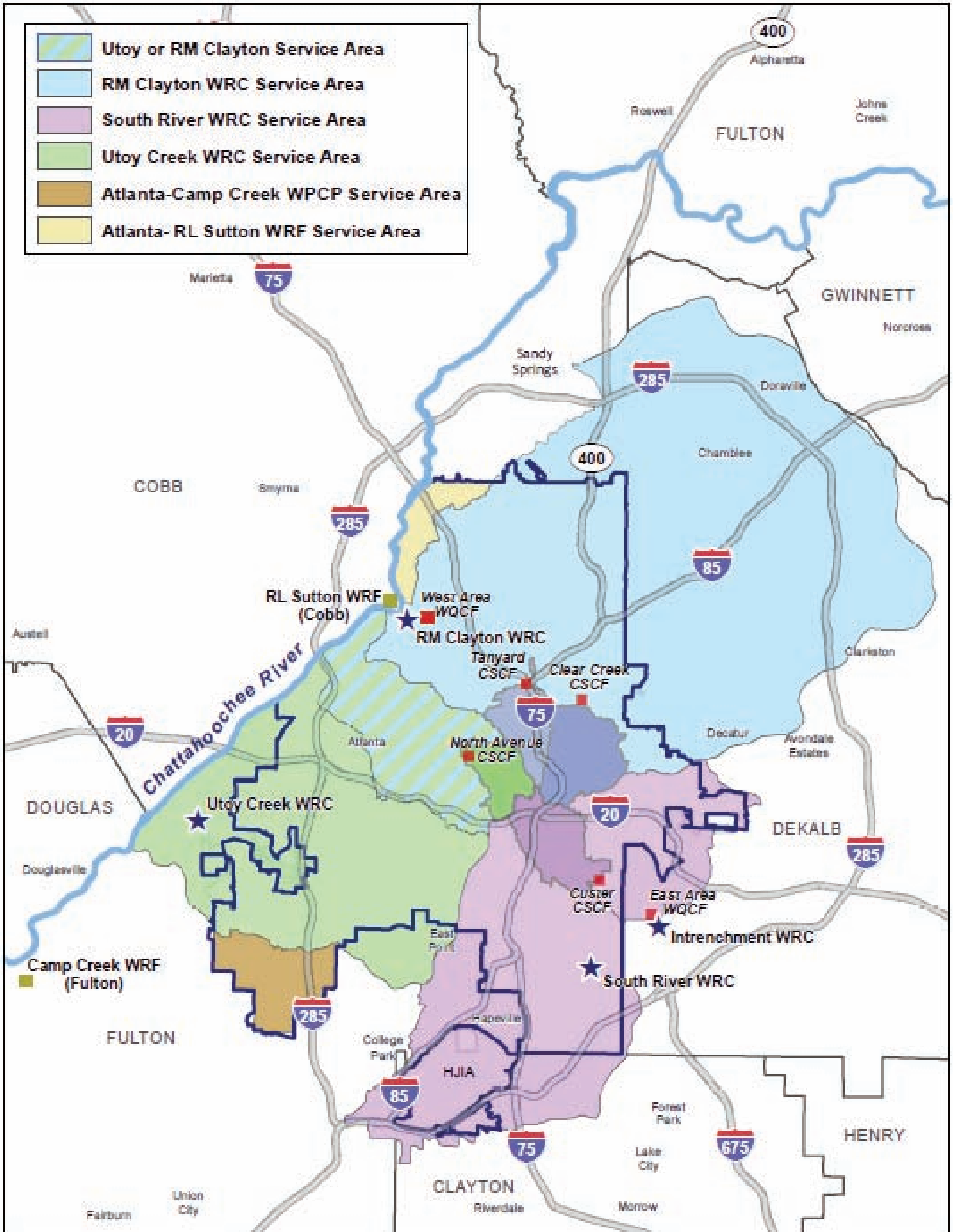
Wastewater from a small portion of northeast Atlanta is treated at the R.L. Sutton Wastewater Treatment Plant (WWTP), which is owned by Cobb County. Wastewater from a small portion of southwest Atlanta is treated at the Camp Creek WRC, which is owned by Fulton County.

The R.M. Clayton WRC provides wastewater treatment for a service area that encompasses the City (primarily north of Interstate 20), a portion of Sandy Springs and most of northern DeKalb County. The Utoy Creek WRC provides wastewater treatment for the wastewater service area that encompasses portions of southwest Atlanta, northwest Atlanta, East Point and Fulton County. The South River WRC provides wastewater treatment for the South River wastewater service area that encompasses Hapeville and portions of Atlanta, East Point, College Park, DeKalb County and Clayton County. The South River WRC also treats partially treated effluent from the Intrenchment Creek facility that serves portions of Atlanta and a small portion of DeKalb County.

3.4 Water Reclamation Centers

As noted above and shown on Figure 3-1, the City owns three permitted WRCs: the R.M. Clayton WRC in northwest Atlanta, the Utoy Creek WRC in unincorporated Fulton County and the South River WRC in southeast Atlanta. Each WRC receives wastewater from one or more pump stations and multiple trunk sewers. All three of the permitted WRCs discharge treated effluent to the Chattahoochee River. The Intrenchment Creek WRC sends partially treated effluent to the South River WRC where it receives further treatment. Since the effluent from the Intrenchment Creek WRC is discharged via the NPDES-permitted outfall for the South River WRC, the Intrenchment Creek facility does not have a NPDES permit. Table 3-2 presents general information on each of the three permitted WRCs and the Intrenchment Creek WRC.

FIGURE 3-1
Wastewater Service Area



Wastewater Service Area

3-5

TABLE 3-2
General Information – Water Reclamation Centers

Water Reclamation Center	R.M. Clayton	Utoy Creek	South River	Intrenchment Creek
Year of Original Construction	1935	1932	1936	1914
Service Areas	Proctor Creek, Nancy Creek and Peachtree Creek	Utoy Creek, Proctor Creek and Sandy Creek	South River, Flint River and Intrenchment Creek WRC Effluent	Intrenchment Creek
Control Facilities in the Service Area	Clear Creek, North Avenue, Tanyard Creek and West Area [1]	North Avenue [1]	Custer Avenue, Intrenchment Creek WQCF	Intrenchment Creek WQCF and Custer Avenue (including Boulevard Regulator)
Influent Pump Stations	N/A	Utoy Creek WRC Influent PS	Jonesboro Road PS Flint River PS	N/A
Discharge Point	Chattahoochee River	Chattahoochee River	Chattahoochee River	South River WRC

[1] Flow from the Proctor Creek sub-basin can be diverted for treatment at the Utoy Creek WRC instead of at the R.M. Clayton WRC.

Table 3-3 presents the permitted system treatment capacities and historical maximum month daily flows through each WRC between calendar years 2011 and 2017. The treatment plant capacities listed in Table 3-3 are the plant's NPDES effluent discharge permitted capacities.

TABLE 3-3
WRC Capacities and Maximum Flows, CY 2011 to 2017

Plant	Current Maximum Average Daily Discharge Limit (mgd)	Maximum Month Average Daily Flow (mgd) Calendar Years Ended December 31						
		2011	2012	2013	2014	2015	2016	2017
R.M. Clayton WRC	100	83	72	92	88	98	95	84
Utoy Creek WRC	40	28	24	28	26	22	28	25
South River WRC	48	30	27	30	29	33	32	32

3.4.1 WRC Treatment Facility Descriptions

The R.M. Clayton, Utoy Creek and South River WRCs employ similar advanced primary, secondary and tertiary processes for treating wastewater. At all three facilities, wastewater passes through mechanically cleaned bar screens, fine mesh rotary drum screens and vortex grit collectors. The screened wastewater then undergoes primary clarification, nutrient removal in the aeration basins/biological nutrient removal (BNR) tanks, secondary clarification, effluent filtration, ultraviolet (UV) disinfection and post-aeration prior to being discharged to the Chattahoochee River.

In the solids handling portion of the treatment facilities, primary sludge is sent directly to the digesters, and waste activated sludge from the secondary clarifiers is thickened before being sent to the digesters. The digested biosolids from the R.M. Clayton WRC and a portion of South River WRC are dewatered and incinerated. Ash from the incinerators is sent to a landfill for disposal. The digested biosolids from the Utoy Creek WRC, Intrenchment Creek WRC and the remaining portion of the South River WRC are disposed in a landfill.

The Intrenchment Creek WRC influent passes through mechanically cleaned bar screens and aerated grit collectors to remove large debris and dense solids. These screenings and grit are hauled to a landfill for disposal. Smaller solids and scum are removed in primary clarifiers. Primary clarifier effluent goes to trickling filters and secondary clarifiers prior to being pumped to the South River WRC for further biological treatment and disinfection. Solids from the Intrenchment Creek WRC solids holding tank are sent to the dewatering centrifuges.

3.4.2 Water Reclamation Center - Physical Condition Evaluation

As noted in Section 1.2, the asset condition assessments presented herein were conducted in conjunction with a series of facility assessments that have informed the Department's integrated master planning process. In general, engineering evaluations included limited visual inspections of selected major above ground facilities operated by the City, interviews with key staff responsible for operation of facilities, and reviews of ongoing and planned capital improvement projects. No field-testing or detailed evaluation of facility maintenance records was performed to confirm scoring or to assign more refined condition scores. As defined in Table 1-1, a five-point scale from "Very Poor" to "Very Good" was used to assign condition scores.

3.4.2.1. R.M. Clayton WRC

Overall, the condition of this facility appears to be in Fair condition, with a condition score of 3. However, the condition of individual components ranges from Very Poor to Good. In general, the condition of structures is higher than the condition of mechanical equipment. Capital improvements are underway to upgrade the existing headworks, replace aging primary clarifier equipment, add a thickening centrifuge, and potentially raise the flood protection berm around the facility.

The 2012 South Area Study identified facility headworks as an area of critical need. The plant has experienced extraordinary grit loading, particularly during storm events, and operation and maintenance of the plant's grit removal systems has been problematic. These issues are believed to have contributed to higher than anticipated maintenance costs for downstream unit processes, from basin cleanout to centrifuge dewatering. The headworks were scored in Poor to Very Poor condition (grit pumps were rated Very Poor). A new headworks with improved screening and an advanced grit removal system was completed in February 2018. This project was funded as part of the Department's FY 2015–2019 capital improvements project list.

During the 500 year flooding event in September 2009, this facility sustained extensive damage. While major repairs to damaged equipment and structures were completed in 2011, some backup treatment capabilities, such as post-treatment chemical feed, were not replaced and some repairs, such as for aeration basin mixers, have not provided the anticipated service life. This has reduced the plant's treatment capability. The mixer equipment has been maintained and repaired under the facility's annual maintenance budget. Replacement or improvements to some of the chemical feed systems in the secondary treatment system are included in the projects scheduled in the Department's FY 2019–2024 capital improvements project list.[27]

Biosolids are currently handled at the plant through operation of two incinerators. The incinerators overall are in Fair condition. Some accessories such as belt feed conveyors and dewatering centrifuges are in Poor condition. USEPA air quality regulations which went into effect in March 2016 will necessitate upgrades to the incinerators. The City intends to move away from incineration to drying for future biosolids handling of R.M. Clayton solids. The Department plans to eliminate the incinerator system by 2020. This will be achieved by upgrading the anaerobic digesters under the Department's FY2019-2024 capital improvement program and constructing a new sludge dryer system as a project under the Department's Energy Conservation Measures contract with NORESCO, as discussed in Section 6.5. The digester upgrades and new dryer system will result a lower volume of biosolids, which will reduce hauling costs. The biosolids will also be Class A, which can be sold commercially.

The plant currently uses medium pressure ultraviolet disinfection equipment to meet permit requirements. While these facilities are currently in Good condition, this equipment is nearing the end of its service life and needs to be replaced. A new ultraviolet disinfection system will be installed through the Department's Energy Conservation Measures contract with NORESCO as discussed in Section 6.5. Replacement with updated, more efficient low-pressure, high-output equipment should result in lower electrical usage, providing operational savings and energy management benefits.

3.4.2.2. Utoy Creek WRC

Due primarily to the extensive reconstruction that occurred at the Utoy Creek WRC under the Phosphorus Reduction Program, the Utoy Creek facility overall appears to be in Good condition, with a condition score of 2. The South Area study noted some areas of needed improvement including chemical feed systems and biosolids handling, which are in Fair condition. Most of the chemical system upgrades have already been implemented, and those remaining are included on the Department's FY 2019–2024 capital improvements project list.

The City determined that the incinerators at Utoy Creek WRC were unable to meet new USEPA air quality regulations that went into effect in March 2016. As a result, the Utoy Creek WRC incinerators were permanently decommissioned on March 18, 2016. The City is currently disposing of biosolids at a nearby landfill and is investigating options for other biosolids management approaches.

[27] For purposes of this reporting on DWM systems, the FY 2019 – 24 capital projects list includes projects that have been encumbered but not yet placed under contract.

The Department's 10-year capital improvements project list encompasses the design and construction of biosolids improvements at Utoy Creek, including digester improvements, dewatering improvements, cake receiving facilities, and replacement of the incinerator with dryers.

The plant currently uses medium pressure ultraviolet disinfection equipment to meet permit requirements. While these facilities are currently in Good condition, this equipment is nearing the end of its service life and needs to be replaced. A new ultraviolet disinfection system will be installed through the Department's Energy Conservation Measures contract with Schneider Electric as discussed in Section 6.5. Replacement with updated, more efficient low-pressure, high-output equipment should result in lower electrical usage, providing operational savings and energy management benefits.

3.4.2.3. South River WRC

The work at the South River WRC was not as extensive as that performed at the Utoy and R.M. Clayton WRCs under the Phosphorus Reduction Program, and the facility appears in overall Fair Condition (condition score 3). Some components, such as the recently completed South River Tunnel and pump station, and odor control facilities, appear in Good condition. However, individual components including primary clarifiers, digesters, and dewatering centrifuges are in Poor condition. Ongoing work associated with the decommissioning of the Intrenchment Creek WRC includes new primary clarifiers and chemical dosing improvements at the South River WRC. Other recommended capital improvements for anaerobic digestion and solids optimization at the plant will be completed through the Schneider Energy Conservation Measures (ECM) contract discussed in Section 6.5.

The plant currently uses medium pressure ultraviolet disinfection equipment to meet permit requirements. While these facilities are currently in good condition, this equipment is nearing the end of its service life and needs to be replaced. A new ultraviolet disinfection system will be installed through the Department's Energy Conservation Measures contract with Schneider Electric as discussed in Section 6.5. Replacement with updated, more efficient low-pressure, high-output equipment should result in lower electrical usage, providing operational savings and energy management benefits.

3.4.2.4. Intrenchment Creek WRC

The Intrenchment Creek WRC is an older facility with dated treatment technology and is in relatively Poor condition. Unlike the R.M. Clayton, South River and Utoy Creek WRCs, this facility does not discharge to waters of the State and does not have an NPDES discharge permit. Rather, wastewater handled by the Intrenchment Creek WRC is partially treated before being pumped to the South River WRC for further treatment and ultimate discharge. Given these attributes, the Intrenchment Creek WRC is scheduled for decommissioning since doing so will not decrease the Department's permitted wastewater treatment capacity and will improve the Department's ability to allocate resources across other facilities.

3.4.3 Permit Compliance

Each WRC is subject to the conditions of the 2017 Consolidated NPDES permit, which was issued in order to meet the requirements of the federal Clean Water Act and the Georgia

Water Quality Control Act. The NPDES permit program, authorized by the federal Clean Water Act and delegated to the State of Georgia, regulates point sources that discharge pollutants into waters of the United States. The USEPA has delegated authority to the Georgia EPD to administer the NPDES program within the state.

The Consolidated NPDES permit for the WRCs was most recently issued to the City's WRCs on June 15, 2017. This permit includes revised discharge limits for several pollutants based on constituent concentration (measured in milligrams per liter [mg/L] discharged) or mass (measured in kilograms discharged per day [kg/d]. The mass loading limits were established for each WRC as well as combined limits for the cumulative discharge from the three WRCs during each month. Weekly concentration and mass loading limits were also included in the 2017 NPDES permit.

Table 3-4 presents the current average daily discharge limits, which are calculated on a per-month basis and the actual levels reported from the three most recent calendar years, 2015 through 2017. The Intrenchment Creek WRC is not subject to NPDES discharge limits because its effluent is conveyed to the South River WRC for additional treatment prior to being discharged; however, the operation of Intrenchment Creek WRC is still subject to compliance with NPDES requirements.

For the most recent three-year period, the Water Reclamation Centers have operated in overall compliance with requirements set forth in the Consolidated NPDES Permit (Permit No. GA0039012). This permit specifically includes the RM Clayton, South River, and Utoy Creek WRC individually and has consolidated limits for the three facilities that discharge treated wastewater, combined. The South River and Utoy Creek WRC facilities, constructed in the mid- to late-1900s, have had consistently reliable daily, weekly, and monthly compliance records over the three-year 2015-2017 period. The RM Clayton and Intrenchment Creek WRCs, constructed in the early 1900s, each had notable exceptions in 2015 and RM Clayton continued to have operational challenges in 2016 and 2017.

With respect to RM Clayton, the facility headworks started experiencing serious operational issues in 2015. Excess silt and soils were entering the treatment process and causing upsets to the treatment system efficiencies. These upsets were more likely to occur during severe storm events characterized by relatively higher plant inflow rates. Many of the exceedances shown in Table 3-4 occurred concurrently due to a single incident. For example, a severe weather event from January 2 to January 4, 2015 caused the facility to be hydraulically overloaded, resulting in 9 separate violations, as defined by the NPDES permit:

- Exceedance of the RM Clayton effluent limits for (1) total suspended solids and (2) phosphorous effluent concentration limits;
- Exceedance of the RM Clayton (3) weekly phosphorous effluent concentration limit;
- Exceedance of the RM Clayton (4) weekly phosphorous loading limit;
- Exceedance of the RM Clayton monthly (5) phosphorous and (6) ammonia limits; and
- The occurrence of major spills to the Chattahoochee River (7).

TABLE 3-4
WRC NPDES Permit Violations, CY 2015 to 2017

	Consolidated Permit			RM Clayton WRC			Intrenchment Cr. WRC			South River WRC			Utoy Creek WRC			
Violation	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017	2015	2016	2017	**TOTAL**
Ammonia	14	0	0	15	0	0	0	0	0	0	0	0	0	0	0	**29**
Biological Oxygen Demand	1	1	0	1	0	0	0	0	0	0	0	0	0	0	0	**3**
Chemical Oxygen Demand	0	0	0	0	2	0	0	0	0	0	0	0	0	0	0	**2**
Dissolved Oxygen	0	0	0	0	0	0	0	0	0	2	0	6	0	0	0	**8**
Fecal Coliform	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	**2**
Failure to Collect Sample	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	**1**
Major Spill	0	0	0	15	5	4	14	7	0	0	0	0	0	0	0	**45**
Phosphorous, Total	0	0	0	10	10	29	0	0	0	0	0	0	0	0	0	**49**
Phosphorous, Loading	6	6	20	0	0	0	0	0	0	0	0	0	0	0	0	**32**
Stream Temp. Monitoring	0	0	0	0	0	0	0	0	0	0	1	0	0	1	8	**10**
Total Suspended Solids	0	3	0	15	7	12	0	0	0	0	0	0	0	0	0	**37**
Unpermitted Discharge	0	0	0	0	0	0	2	0	0		0	0	0	0	0	**2**
Annual Totals	**21**	**10**	**20**	**57**	**24**	**45**	**16**	**7**	**0**	**3**	**1**	**6**	**0**	**2**	**8**	**220**
3-Year Total		**51**			**126**			**23**			**10**			**10**		

Note: The Consolidated NPDES Permit for the WRCs includes daily, weekly and monthly limits. In some instances, a one-time exceedance can trigger as many as 7 violations.

Also, additional violations occurred because these exceedances are factored into the consolidated loading limits specified by the NPDES permit:

- Exceedance of the weekly consolidated effluent loading limit for phosphorous (8); and
- Exceedance of the weekly consolidated effluent loading limit for phosphorous (9).

The operational problems at the headworks were recognized before the incident described above. As a result, DWM initiated repair and replacement design activities in November 2014 and construction was completed in February 2018. The contractor and plant operators are currently in the process of optimizing operations for compliance.

Intrenchment Creek WRC operational issues in 2015 related to 14 major spills of raw sewage into Intrenchment Creek (see Table 3-4). These incidents were also largely associated with severe storm events but nevertheless should not have occurred based on the design of the flow transfer system from the Intrenchment Creek WRC to the West Area Tunnel. However, in early 2016, a subsurface structural fracture was found to be leaking into the transfer system and was using up to 40 percent of the dry weather transfer pumping capacity. Given this claim on pumping capacity, less transfer capacity was available during wet weather events. This fracture was repaired in early 2016 and no similar incidents have occurred since the repair was completed.

In July 2018, the Georgia Department of Natural Resources Environmental Protection Division (GaEPD) proposed three (3) Consent Orders related to violations of the Department's permits for its Water Reclamation Centers and East Area and West Area Combined Sewer Systems (NPDES Permit Nos. GA0039102, GA0037168 and GA0038644). The GaEPD Consent Orders relate to:

- Permit violations related to various record keeping and reporting issues, operation of sewage sludge incinerators[28] outside of acceptable parameter levels in 2016 and 2017, and incinerator ash emissions. DWM is currently addressing all violations and conducting a quality assurance / quality control review, though no permit violations have occurred since late 2017. The remedial measures required to be taken by the Department under this GaEPD Consent Order are not anticipated to result in significant costs. The Department's long-term plan is to eliminate incineration of biosolids.
- Permit violations primarily for unpermitted discharges and effluent limit exceedances between September 2015 and May 2018. The proposed Consent Order requires payment by the Department of $365,513 for unpermitted discharges, outfall spills fish kill, effluent permit limit exceedances, and other narrative violations. This GaEPD Consent Order also calls for submission of summaries of operational and control measures implemented at the R.M. Clayton facility to optimize phosphorous removal, and for the facilities to come into compliance with permit limitations within 90 days. These operational and control improvements are in progress. Under the

[28] Sewage Sludge Incinerators – Title V (Part 70) Operating Permit No. 4952-121-0268-V-02-0

proposed Consent Orders, DWM is also required to submit an approvable schedule for substantial completion of the decommissioning of Intrenchment Creek WRC and upgrades at South River WRC, for which a semi-annual progress report will be required. DWM has already encumbered $21 million for initial related projects and the FY 2019-24 capital improvement program provides funding for remaining projects (as discussed in Section 6.7.2).

- DWM's request for an extension, due to drought conditions, to complete required reporting and permit sampling for metals required under DWM's East Area and West Area Combined Sewer System permits. DWM has already retrieved historical data for the metals, TSS and hardness from the 2013-2016 period and a contractor has been engaged to update and execute the sampling plan. Prospective compliance for these remedial measures under the proposed GaEPD Consent Orders is not anticipated to result in significant costs; DWM's ongoing sampling program costs are embedded in the Department's current operating budget.

3.5 Collection System

The City's wastewater collection system includes both combined and separate sanitary sewers. Both the separate and combined sanitary sewers collect untreated wastewater and convey it to a WRC for treatment. However, wet weather flows from the combined sewer system (i.e., a single-pipe sewer system that carries wastewater under dry weather conditions and combined wastewater and stormwater under wet weather conditions) can be treated at one of the two WQCFs and four CSCFs if additional treatment capacity is needed.

Routine, day-to-day sanitary sewage flows from the East and West CSSs are connected downstream directly to the separate sanitary sewer system and are transmitted to one of the City's WRCs for treatment and discharge on a continuous basis, in accordance with the Consolidated NPDES Permit for the Water Reclamation Centers (Permit No. GA0039012). When a storm event occurs, stormwater runoff within the 11 square mile combined sewer area enters the CSS via stormwater inlets and catch basins where it mixes with the sanitary sewage flows to create combined sewage. This also results in an increased volume of the total flow moving through the CSS, to the separate sewer system and the WRCs for treatment.

As required by the NPDES permits, and consistent with the Nine Minimum Controls established in the Clean Water Act for combined sewer systems, combined sewage flows from lower intensity and/or shorter duration storms continue to be transmitted via the CSS to the separate sewer system and then to the WRC for treatment. In the event of more intense and/or longer duration storms, the volume of flow within the CSS can reach levels that may exceed either the transmission capacity of the separate sewer system and/or the operational capacity of the WRC that receives the flow. When this occurs, the additional flow volumes generated as a result of stormwater runoff within the Combined Sewer Areas are managed by the Combined Sewage Control Facilities following a specified, step-wise sequence of events, which are based on the volume of combined flows leaving the Combined Sewer Area and in a manner that is consistent with the requirements of the NPDES permits and USEPA's Combined Sewer Overflow (CSO) Control Policy, as incorporated into the federal Clean Water Act in 2002.

The City's NPDES permits require that combined sewage flows be treated at the WRCs and that the available storage in the transmission system be utilized. The City's CSS Control systems are permitted to operate only if the WRCs are operating at maximum capacity or the collection systems are at or nearing their maximum transmission capacity as a result of increased flows due to stormwater runoff within the combined sewer areas. If either of these circumstances occurs then the City may initiate operation of its CSS Control Facilities to provide supplemental treatment capacity, as follows:

1. Combined sewage flows are passed through one of the CSCFs for screening prior to being transferred to either the East Area or West Area tunnels for storage;
2. If tunnel storage is nearing capacity, the WQCFs will be brought online to provide supplemental treatment capacity for the WRCs;
3. The CSCFs (also known as the "remote facilities") are brought online on an "as needed" basis to provide additional supplemental capacity only if the WQCFs and the WRCs are operating at capacity and the tunnels are nearing their storage capacities individually.

Following the end of a storm event, the process is reversed with the CSCFs being shut down first, followed by the WQCFs. Remaining combined sewage stored in the tunnels is then treated once capacity again becomes available at one of the WRCs.

3.5.1 Collection System Components

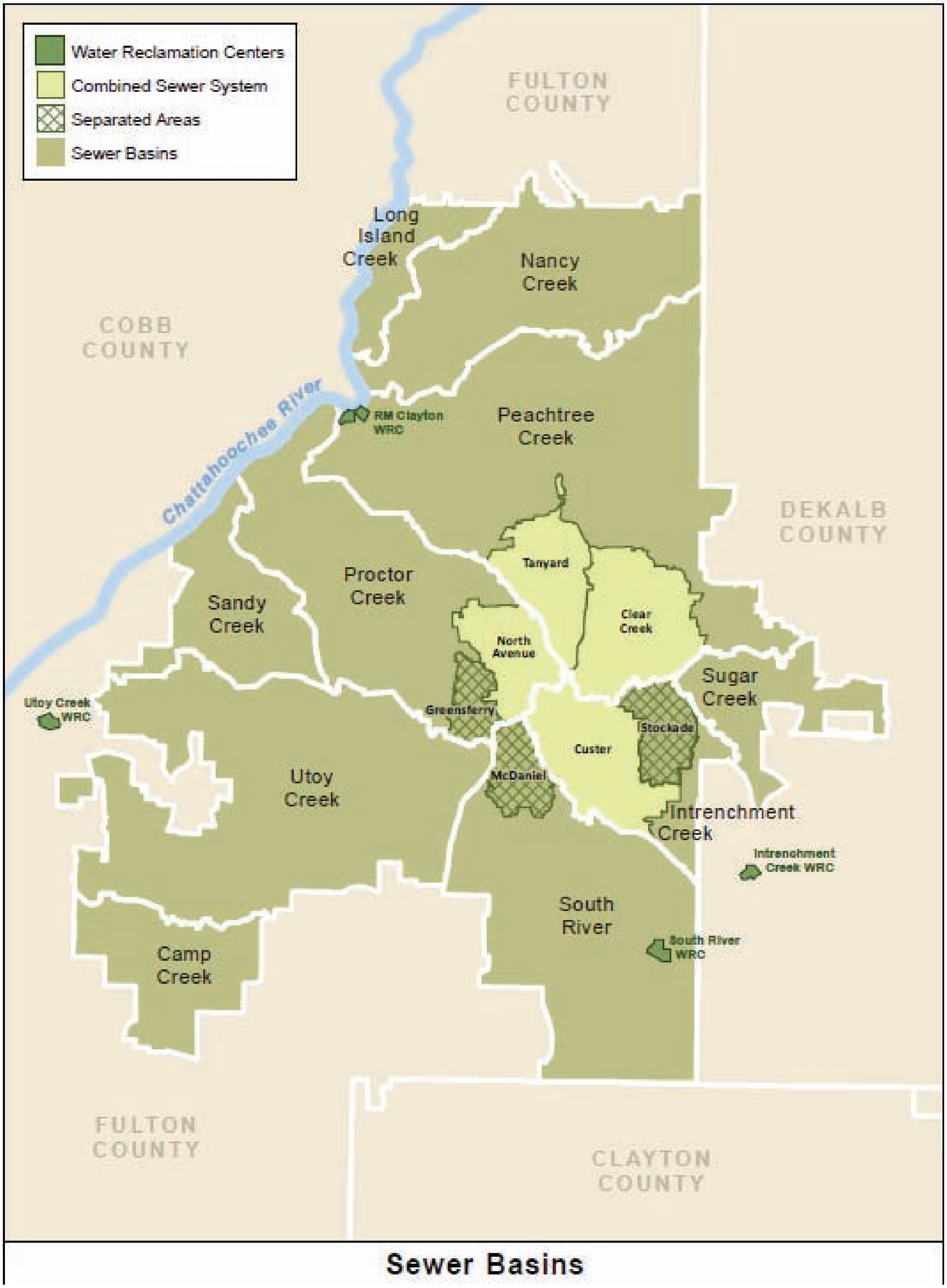
3.5.1.1. Pipelines

The City's collection and transmission system is comprised of approximately 2,150 miles of combined and separate sewer pipe. The system consists of lateral, collection and trunk sewers that convey wastewater from homes, businesses and institutional and industrial facilities to a treatment facility. This includes an estimated 62 miles of combined sewers, 1,659 miles of separate sanitary sewers (exclusive of sewer lines serving the Hartsfield-Jackson Airport), and 430 miles of lines of service laterals in public rights-of-way. The collection system contains a variety of pipe materials ranging in size from 6 to 180 inches in diameter as well as brick and concrete arch sewers constructed as part of the combined sewer system. The collection system also includes the wastewater pumping stations, force mains, and tunnels that convey flow to pump stations, WRCs and combined sewage treatment facilities that provide additional treatment capacity for wet-weather events. Effluent transmission mains include force mains, tunnels and gravity flow pipelines that are used to convey treated wastewater from a WRC to a receiving stream or river.

The City's wastewater collection and transmission system, with a few exceptions, is geographically located within the City's corporate limits. This system collects wastewater from the City of Atlanta and is also used to convey wastewater from portions of Clayton County, College Park, DeKalb County, East Point, Fulton County and Hapeville customers to the City's WRCs for treatment.

As shown in Figure 3-2, the City's collection system services 10 sewer basins, including the Camp Creek, Intrenchment Creek, Long Island Creek, Nancy Creek, Peachtree Creek, Proctor Creek, Sandy Creek, South River, Sugar Creek and Utoy Creek Basins.

FIGURE 3-2
Sewer Basins



3.5.1.2. Pump Stations

The City's collection system includes 16 remote pump stations that are used throughout the system to pump wastewater to high points, after which the wastewater flows by gravity to the next pump station or a WRC. In addition, the Utoy Creek Influent Pump Station and the Jonesboro Road Pump Station, located at the Utoy Creek WRC and the South River WRC respectively, are used to pump wastewater from a low point in the collection system to the elevation of the WRC treatment process. The Utoy Creek Influent Pump Station and the Jonesboro Road Pump Station, along with the pump stations that are part of the WRC treatment processes, are considered part of the WRCs.

Figure 3-3 shows the locations of the remote pump stations. Table 3-5, which follows Figure 3-3, identifies the capacity of each pump station along with the general attributes of the pump stations.

All of the 16 remote pump stations are centrifugal pump stations. The pump stations range in capacity from 20,000 gpd to 59 mgd. Four of the pump stations — Flint River, Bolton Road, Phillip Lee and Rebel Forest – are capable of pumping peak flows greater than 1 mgd.

Supervisors and licensed operators from the Office of Water Treatment and Reclamation operate the pump stations. Mechanics, process control technicians and electricians are routinely available during the day shift and are available "on call" during all other shifts to maintain the stations. Fourteen of the 16 pump stations are monitored by telemetry.

FIGURE 3-3
Wastewater System Facilities

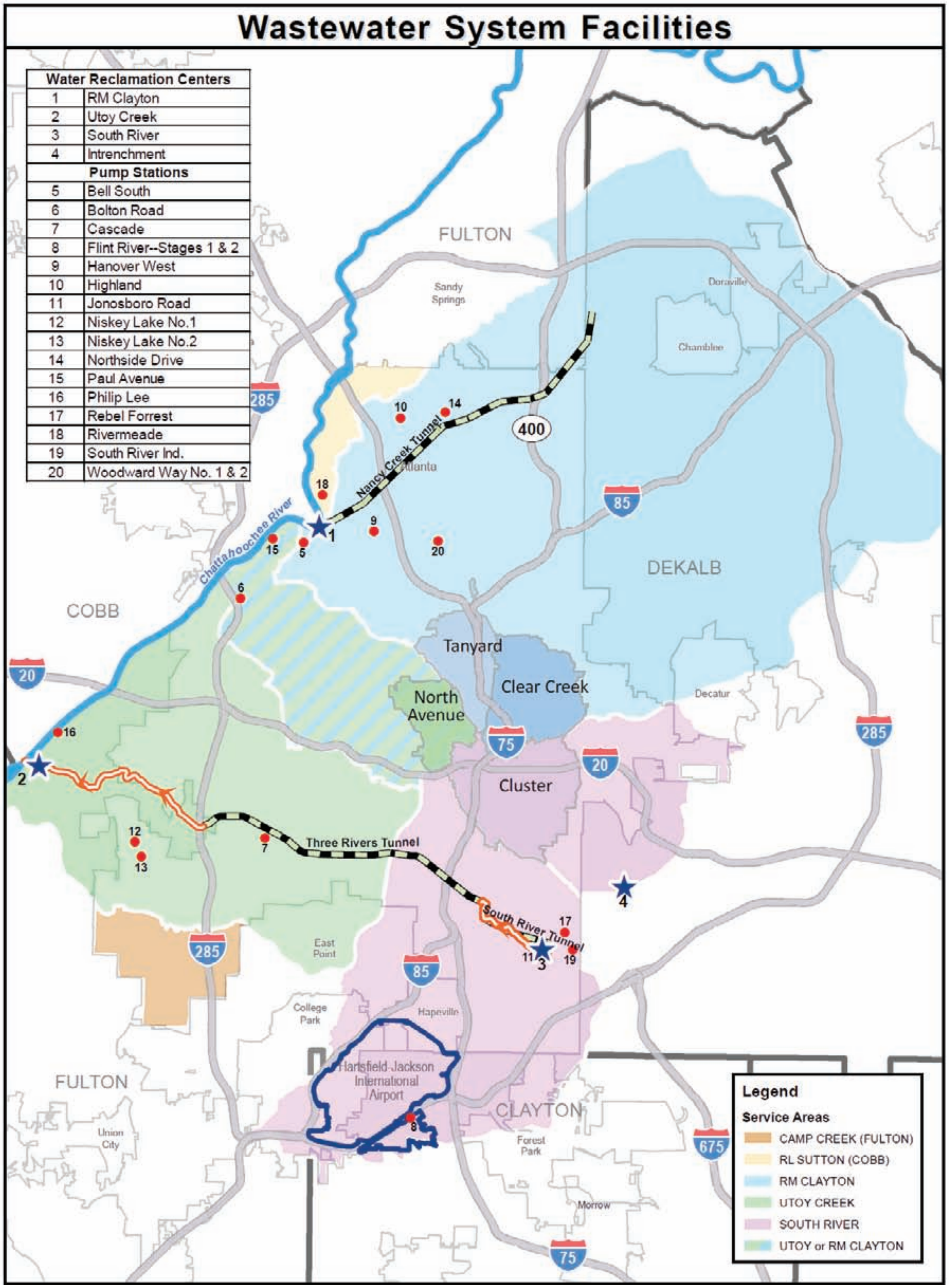


TABLE 3-5
Collection System Pump Stations

Facility [1]	Year Constructed	Average Daily Flow [2] (gpd)	Low Flow Rate [3] (gpd)	Peak Hour Flow Rate [4] (mgd)	No. of Pumps	No. Pumps Run at ADF	Pump Station Capacity (mgd)
Bell South PS	1998	211	----	0.0044	2	1	0.0518
Bolton Road PS	1972	13,250,000	4,090,000	39.7000	4	1	45.1
Cascade PS	1968	35,136	5,625	0.1560	2	1	0.2608
Flint River (2nd stage)	1987	4,650,000	2,600,000	21.6000	5	2	21.89
Flint River PS (1st stage)	1987	3,085,000	1,260,000	18.1000	7	3	19.35
Hanover West PS	1992	49,315	13,306	0.3145	2	1	0.2101
Highlands PS	1992	3,070	263	0.0610	2	1	0.1359
Niskey Lake PS No. 1	1968	37,208	2,197	0.5286	2	1	0.5760
Niskey Lake PS No. 2	1983	54,199	25,843	0.4086	2	1	0.3600
Northside PS	1998	2,082	200	0.0626	2	1	0.0527
Paul Avenue PS	1958	61,327	11,698	0.1750	2	2	0.0840
Philip Lee PS	1973	14,831,000	8,700,000	52.0000	4	2	57.0
Rebel Forest PS	1960	366,240	215,049	1.4767	3	1	1.2421
Rivermeade PS	1963	23,839	10,054	0.3291	2	1	0.5850
South River Industrial PS	1985	13,299	575	0.6206	2	1	0.6623
Woodward Way PS No. 1	1985	48,732	6,767	0.4522	2	1	0.3845
Woodward Way PS No. 2	2005	3,140	---	0.0068	2	1	0.4088

[1] Data reflects testing performed in 2008. Testing is performed annually to verify that performance conforms to 2008 parameters.
[2] Annual Average Daily Flow = total volume of wastewater entering a wastewater facility during any consecutive 365 days, divided by 365.
[3] Low Flow Rate = lowest flow rate the pumping station equipment can accommodate.
[4] Peak Hour Flow Rate = highest observed flow rate.

3.5.1.3. Force Mains

Each of the wastewater pump stations listed above has an associated force main. These wastewater force mains vary in length from less than 1,000 to over 30,000 linear feet; and in diameter, between 8 and 42 inches. Three of these wastewater pump stations are of significant size and length:

- 3,000 linear foot, 36-inch-diameter Bolton Road Pump Station Force Main
- 2,700-linear-foot, 42-inch-diameter Philip Lee Drive Pump Station Force Main
- 30,300-linear-foot, 24- and 30-inch-diameter Flint River Pump Station Force Main

Additionally, the South River pumps treated wastewater into effluent force mains - the 14,800 linear-foot, 54-inch diameter South River WRC effluent force main and the 11,400 linear-foot, 36- and 42-inch diameter Intrenchment Creek WRC effluent force mains.

3.5.1.4. Tunnels

The City's collection and transmission system includes five operating tunnels: four wastewater conveyance tunnels and one effluent discharge tunnel (Figure 3-3).

The wastewater transmission tunnels are:

- The 16-foot-diameter Nancy Creek Tunnel, which extends approximately 8 miles and conveys wastewater from the City (specifically the Nancy Creek Basin), DeKalb County and Roswell (through a contract with Fulton County) to the R.M. Clayton WRC. This tunnel and the associated Nancy Creek Pump Station were completed in December 2005.
- The South River Tunnel, a 10-million gallon combined storage and conveyance tunnel, which was placed into service in the summer of 2011. This 14-foot-diameter tunnel spans approximately two miles and provides equalization and storage for peak flows collected within the South River Basin for treatment at the South River WRC.
- The West Area Conveyance Tunnel, which is a 24-foot-diameter, 8.5 mile tunnel (and also collects wastewater from the West Combined Sewer Area)
- The Intrenchment Creek Conveyance Tunnel, which is a 24-foot-diameter, 1.8 mile tunnel (and also collects wastewater from the East Combined Sewer Area)
- The Three Rivers Tunnel System, which is approximately 13 miles long and transmits treated effluent from the South River WRC to the Chattahoochee River.[29]

3.5.1.5. Proctor Creek Diversion Structure

The Proctor Creek Diversion Structure is also part of the collection system. This structure is located on the Proctor Creek Trunk off of Perry Boulevard in northwest Atlanta as shown in Figure 3-3 and was completed in 2007. This diversion facility includes two electrically actuated sluice gates for diverting flow going to the R.M. Clayton WRC to the Utoy Creek WRC via the Bolton Road Pumping Station.

3.5.2 Collection System - Physical Condition Evaluation

3.5.2.1. Collection System Piping

The City has an ongoing program to meet the requirements of the First Amended Consent Decree to reduce sanitary sewer system overflows. With the extension of the compliance schedule from 2014 to 2027, remaining collection system improvements are scheduled for completion over the extended time frame. The Wastewater Management Plan effort reviewed ongoing programmatic improvements, and based on program and utility records and utility staff feedback, the wastewater collection system piping is rated in Good Condition.

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[29] The term "Three Rivers Tunnel" is commonly used to refer to the entire effluent transmission line from the South River WRC to the Chattahoochee River; however, this "tunnel" is actually comprised of three sections: a force main, a tunnel, and a gravity outfall sewer.

3.5.2.2. Pump Stations

Influent pumping stations at the City WRCs are included in the WRC condition assessments. The City's wastewater collection system includes additional remote pump stations that are used throughout the system to pump wastewater to high points, after which the wastewater flows by gravity to the next pump station or a WRC. The overall condition for the pump stations ranges from Very Poor (Flint River) to Fair. Future capital improvements to the wastewater pump stations (delineated in Section 6) will accommodate growth in projected flows, enhance operational reliability and efficiency, and provide for appropriate renewal and rehabilitation.

3.6 Combined Sewage Control Facilities

The City owns and operates six combined sewage system control facilities: two WQCFs and four CSCFs, which operate under two separate NPDES permits; one for the East Area Facilities, which discharge into Intrenchment Creek, a tributary to South River; and a separate permit for the West Area Facilities, which discharge into the Chattahoochee River or local streams.

As shown in Figure 3-1, the combined sewer system is located in an 11-square-mile area of the City in downtown Atlanta. The combined sewer area includes portions of the Peachtree Creek watershed (including the Tanyard Creek and Clear Creek sub-watersheds), the Proctor Creek watershed (including the North Avenue subwatershed) and the Intrenchment Creek watershed (including the Custer Avenue sub-watershed). As described above, under dry weather conditions, sewage from the combined sewer areas are transported to a WRC for treatment. During storm events, the flows from the combined sewer areas continue to be transported to the WRCs for treatment. However, if the flow volumes increase to a level that exceeds the collection system's transmission or storage capacity and/or the WRC treatment capacity, a portion of the flow is conveyed to one of the WQCFs for treatment prior to being discharged. Combined sewer flows are typically treated in this manner until such time as their respective collection tunnels are reaching storage capacity. When the heaviest rain events occur, flow volumes can exceed the combined treatment capacities of the WRCs and the WQCFs and tunnel storage capacity. In these instances, individual CSCFs are brought online, as needed, to provide additional treatment capacity prior to discharge to their respective receiving streams.

The East Area Facilities include the East Area WQCF[30] and the Custer Avenue CSCF. When activated, these facilities discharge to receiving streams located in the South River Basin, which generally flows to the east and are tributaries to the Ocmulgee River.

The West Area Facilities include the West Area WQCF and the Clear Creek, North Avenue and Tanyard CSCFs. Flows from the corresponding sub-basins are conveyed to the RM Clayton WRC via the West Area Tunnel. During some wet weather events, flows from the West Area Tunnel are diverted to the West Area WQCF to provide additional treatment capacity. Both the RM Clayton WRC and the West Area WQCF discharge to the

[30] Historically, the East Area WQCF was referred to as the Intrenchment Creek WQCF. However, in order to eliminate confusion between the Intrenchment Creek WRC and the Intrenchment Creek WQCF, the WQCF was re-designated as the East Area WQCF in the 2015 East Area NPDES permit.

Chattahoochee River, which generally flows to the south and the west. The three CSCFs, when operating, discharge to Clear Creek, Proctor Creek, and Tanyard Creek, which also flow to the Chattahoochee River.

As the City completed the projects required by the CSO Improvement Plan under the requirements of the CSO Consent Decree, two East Area Control Facilities (McDaniel Branch and Stockade), along with the Confederate Avenue Regulator, and one West Area Control Facility (Greensferry) were decommissioned following separation of the combined sewer system in these areas.

Table 3-6 presents a summary of the facilities currently in use by the City to manage and treat combined sewage flows, along with their corresponding receiving streams and the year each facility was constructed.

TABLE 3-6
Summary of Combined Sewage Area Control Facilities

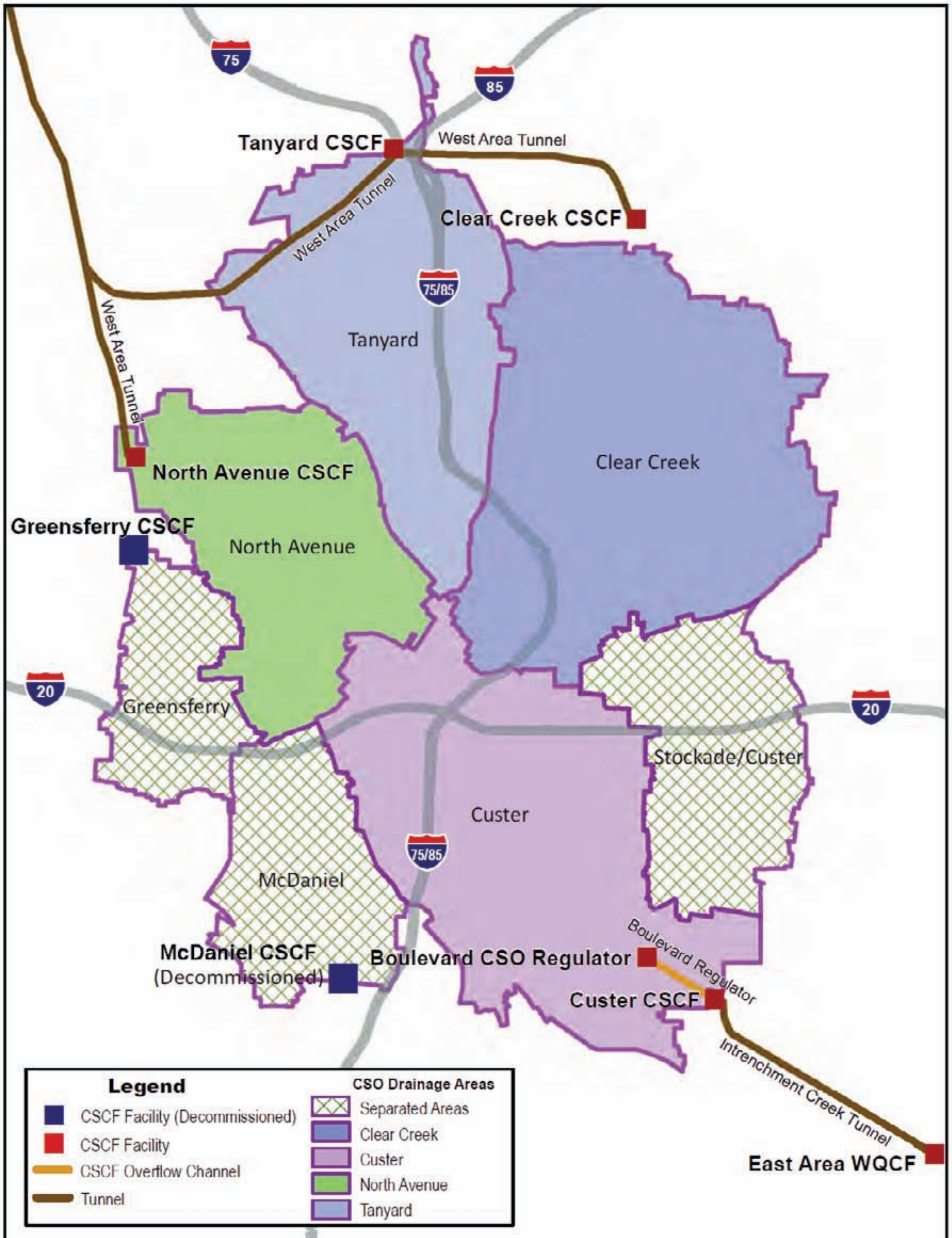
Facility	Wet Weather Discharges To	Year Constructed
East Area Facilities		
East Area WQCF	Intrenchment Creek	1983
Custer Avenue CSCF	Intrenchment Creek	Mid-1980s, upgraded 2007
West Area Facilities		
West Area WQCF	Chattahoochee	2007
Clear Creek CSCF	Clear Creek	1996
North Avenue CSCF	Proctor Creek	1994
Tanyard Creek CSCF	Tanyard Creek	1994

3.6.1 Combined Sewage Tunnels

The Intrenchment Creek Tunnel and the West Area Tunnel are part of the City's collection and transmission system and are included in the Consolidated NPDES permit for the WRCs. In addition to serving as sewage transmission tunnels for the RM Clayton and South River WRCs, the tunnels are also used to collect, convey and store combined sewage and stormwater from the combined sewer areas in response to wet weather conditions. These tunnels are shown in Figure 3-4. The Intrenchment Creek Tunnel is a 24-foot-diameter, 1.8 mile tunnel and the West Area Tunnel is a 24-foot-diameter, 8.5 mile tunnel.

The West Area Tunnel, which collects combined flows from the Clear Creek, North Avenue, and Tanyard Creek sub-basins, was completed in 2008. Since that time, dry weather flow and some wet weather flow from combined sewer areas has been transmitted to the RM Clayton WRC for treatment. Flows can be transferred to the West Area WQCF and the CSCFs if additional treatment capacity is needed during wet weather events.

FIGURE 3-4
Current Combined Sewage Collection System



Current Combined Sewer Areas

3.6.2 Flow Equalization Facilities

Although the 11-square-mile area is referred to as the ”Combined Sewer Area”, not all of the wastewater collection lines located within this area are combined sewers. Numerous locally-separate sanitary sewer collection lines exist within the Combined Sewer Area, but are tributary to downstream combined sewers. Ongoing work associated with the evaluation, rehabilitation, and capacity relief (as needed) of these separate sanitary sewer pipelines is also being performed within the Combined Sewer Areas.

As part of the Nine Minimum Controls listed in the East Area and West Area NPDES permits, the City is required to maximize treatment of combined sewage at the WRCs before bringing the CSS Control Facilities into operations. The City has constructed two flow equalization ponds at the Historic Old Fourth Ward and Dean Rusk Parks. There has been some localized separation of the combined sewer systems upstream from these parks so that, under dry weather conditions, the sanitary sewage is transmitted to a WRC for treatment and under wet weather conditions, the stormwater collected from the locally separated areas is transmitted to the ponds for temporary storage. Once a storm event has ended and there is treatment capacity at the WRCs, the stored stormwater is conveyed to the WRCs for treatment. This allows the City to reduce the operational frequency and the duration of discharge events at the CSS Control Facilities.

3.6.3 Combined Sewage Control Facility Treatment Processes

The East Area and West Area WQCFs use similar processes for treating flow. These treatment facilities include bar screens, fine mesh drum screens, grit removal, sodium hypochlorite disinfection and sodium bisulfite dechlorination.

The 20-mgd capacity East Area WQCF can receive and treat flows of up to 34 million gallons per day during wet weather events. The 85-mgd capacity West Area WQCF receives flow from the West Area Tunnel. Both facilities include grit removal units, primary clarification, filtration, sodium hypochlorite disinfection and sodium bisulfite dechlorination. Settled solids generated at the East Area WQCF are sent to a sludge holding tank and dewatered for landfill disposal. Settled solids at the West Area WQCF are discharged to the primary clarifiers at the R. M. Clayton WRC and processed with the other settled solids.

The four CSCFs (Clear Creek, North Avenue, Tanyard Creek, and Custer Avenue) provide coarse and fine screening of combined sewer flows. Screened waste is transferred to nearby roll-away dumpsters for landfill disposal. Combined sanitary wastewater and stormwater is screened, disinfected with sodium hypochlorite and dechlorinated with sodium bisulfite at these facilities prior to discharge.

Sodium hypochlorite is used for disinfection at each of the WQCFs and CSCFs. The City has optimized the location of the injection point for sodium hypochlorite so that disinfection occurs upstream of screening processes to allow for greater contact time. Odor control is also provided at the Tanyard Creek CSCF.

Table 3-7 shows the size and treatment characteristics for each of the WQCFS and CSCFs and also provides data on the 2017 discharge events lasting at least 50 minutes and occurring at least 48 hours since the last discharge.

TABLE 3-7
Facility Flow Parameters

Facility	Maximum Flow to WRCs (mgd)	Flow Range Through Screening/ Degritting (mgd)	Peak Hydraulic Capacity - Overflow (mgd)	Maximum Event Discharge for 2017 (MG)	Reported Number of Discharges for 2017
East Area Facilities					
Boulevard Regulator [1]	< 20	20 – 2,295	2,295	0	0
Custer Avenue CSCF[2]	< 500	500 – 3,050	3,050	1,564.6	4
East Area WQCF	< 34	20 [3]	20 [3]	59.9	20
West Area Facilities					
Clear Creek Control	< 40	40 – 1,000	5,060	173.6	8
North Avenue CSCF	< 29	29 – 650	2,600	135.0	5
Tanyard Creek CSCF	< 34	34 – 385	3,600	1.8	1
West Area WQCF	< 50	30 – 80	85	314.4	22

1 Regulator facility does not discharge.
2 To Intrenchment Creek Storage Tunnel.
3 Amount that can be pumped from the tunnel.

3.6.4 Combined Sewage Control Facilities – Physical Condition Evaluation

The CSS Control Facilities are in generally Fair condition and meet operational requirements; however, the effectiveness of grit and silt removal equipment needs to be addressed. In addition, the current disinfection practices have periodically resulted in permit violations due to limited flexibility of feed systems that limit the capacity of operational staff to make adjustments. The City is planning to evaluate these systems and implement necessary modifications.

3.6.4.1. East Area Control Facilities

The Boulevard Regulator, Custer Avenue CSCF, and Intrenchment Creek Tunnel and Pump Station are in Good condition overall. Some specific components, including chemical storage and feed facilities, odor control equipment, and controls and equipment at the Custer Avenue CSCF, are in Poor condition. The City has a team of odor control experts reviewing odor issues related to debris accumulation in the channel between the Boulevard Regulator and the Custer CSCF. Recommended repairs and replacement projects have already been encumbered and are scheduled for completion in the forecast period.

3.6.4.2. East Area Water Quality Control Facility

The East Area CSCF is in Fair to Poor condition. Some specific components, including solids thickening and dewatering are in Very Poor condition. Difficulties have been encountered with the vortex grit removal units. The facility also has significant corrosion in the filter building, ineffective filter performance and a residuals handling facility that needs to be replaced. Recommended repairs and replacements projects have already been encumbered and are scheduled for completion in the forecast period.

3.6.4.3. West Area Facilities

The Clear Creek, North Avenue and Tanyard CSCFs are in Good condition overall. Some specific components at these facilities, including odor control and chemical feed equipment, are in Very Poor condition, and replacement/repair projects have already been encumbered and are scheduled for completion in the forecast period.

3.6.4.4. West Area Water Quality Control Facility[31]

The West Area CSCF is relatively new and in Fair condition. Specific components, including the filters, have not operated as efficiently as originally intended and some hydraulic and operational problems have been noted in the plant. The Wastewater Management Plan CIP includes a project to provide upgrades prior to FY 2019 which has already been encumbered and is scheduled for completion in the forecast period.

3.6.5 Permit Compliance

There are two NPDES permits covering the City's CSCFs and Control Facilities. The permits define fecal coliform limits, which are summarized in Table 3-8. The limits are the same for each of the effluent discharge locations.

TABLE 3-8
NPDES Permit Requirements

Permit Period	Fecal Coliform (per 100 mL)	Limit Definition
May – October	200	Geometric monthly mean (based on 4 or more samples in 1 month)
November – April	1,000	Geometric monthly mean (based on 4 or more samples in 1 month)
Maximum during any discharge event (May-October) [1]	2,000	One sample per discharge event
Maximum during any discharge event (November-April)	4,000	One sample per discharge event

[1] Permit requirement as of January 31, 2005.

Table 3-9 summarizes CSO Consent Decree violations that have required payment of Stipulated Penalties over the past three calendar years for the six facilities in service. The system has been designed to achieve water quality standards with the addition of storage and treatment systems and runoff reduction/retention projects affecting both the West and East Areas. The total number of system-wide combined sewage overflows in 2004 was 155 versus 11 in the 10 years since capital improvement projects mandated by the CSO Consent Decree were completed in 2008. In addition, three control facilities (the Greensferry and McDaniel Control Facilities and the Confederate Regulator) were permanently decommissioned due to sewer separations that were completed for these formerly combined sewer areas which have further decreased the risk of occurrence of future CSO events.

Nine of the eleven CSO events occurred in the West Area with a 3-year rolling average of 0.67 CSO events per year and two in the East Area with a 3-year rolling average of 1.0 CSO events per year. Consistent with EPA's CSO Control Policy and the current NPDES Permits,

[31] Note that replacement funding for encumbered East Area and West Area Water Quality Control Facility projects totaling $34.54 million (West Area WQCF - $25 million, East Area WQCF - $9.54 million) is anticipated with GEFA loan approvals scheduled for FY 2019.

the System should have no more than four (4) CSO events annually based on a three-year rolling average.[32]

With respect to stipulated penalties and instances of permit violations, DWM implements several actions following a non-compliance incident to decrease the potential for future violations including equipment inspections, operational reviews, and personnel re-training. Moving forward, DWM is also implementing a variety of programs that will reduce the frequency and duration of discharge events from these facilities, thereby reducing the potential for future CSO events or permit violations. These programs include repair and capacity projects, as well as system monitoring required to comply with the Department's consent decrees. Projects include:

- Reducing dry weather flows on the collection and transmission system to allow additional storage of wet weather flows;
- Retaining peak stormwater runoff within the combined sewer area until the collection and transmission system has adequate capacity to transfer flow to a Water Reclamation Center for treatment;
- Certifying availability of collection, transmission, and treatment capacity;
- Construction of green infrastructure on a city-wide basis to help reduce the overall amount of stormwater runoff entering and requiring treatment within the combined and separate sewer areas; and
- Evaluation and condition assessment, on an ongoing basis, to optimize operation and system efficiencies.

TABLE 3-9
CSO Consent Decree Violations (CY 2015–CY 2017)

Facility	Failure To Sample	TRC Exceedances	Fecal Exceedances	Total
Tanyard Creek	1	0	7	8
Clear Creek	1	0	4	5
North Avenue	0	0	2	2
West Area WQCF	1	1	0	2
Sub-Total	3	1	13	17
Custer	1	1	2	4
Intrenchment WQCF	4	2	1	7
Sub-Total	5	3	3	11
TOTAL	**8**	**4**	**16**	**28**
Source: CSO Control Facilities Remedial Action Program Consent Decree, Status Report, January 30, 2018				

[32] If the 3-year rolling average exceeds 4 CSO Events, the EPA and EPD will request a system design review to determine whether or not the design is adequate to meet the requirements of the EPA CSO Policy (which became law as part of the Clean Water Act in 2002).

3.7 CSO Consent Decree Compliance

The City entered into the CSO Consent Decree on September 24, 1998. Through this decree, the City agreed to achieve full compliance with new NPDES permits for the CSO Control Facilities, the Georgia Water Quality Control Act and the Clean Water Act. The decree required that the combined sewage treatment facilities not violate water quality standards. The Consent Decree program was designed to improve water quality in the receiving streams by controlling and treating combined sewage prior to being discharged. This CSO improvement program required upgrades to the City's combined sewage storage and treatment facilities.

In order to comply with the CSO Consent Decree, remedial measures required under the Consent Decree were required to be substantially complete by November 4, 2008. The City completed all 58 CSO Consent Decree milestones on or ahead of schedule. Also included in the CSO Consent Decree was the Greenway Acquisition Project, which was completed by the deadline of March 31, 2007.

After substantial completion of the CSO remedial measures, the City completed a two-year compliance evaluation period and successfully avoided substantial noncompliance during that timeframe. No CSO Consent Decree projects remain to be completed.

3.8 FACD Compliance

The City signed the FACD on July 29, 1999, to address issues related to operation of the WRCs and sanitary sewer overflows throughout the City. Portions of the City's sanitary sewer system were aged and allowed a significant amount of inflow and infiltration into the System. The resulting strain on capacity, compounded by growth-related increases in flows, resulted in sanitary sewer overflows.

The City developed a systematic, comprehensive approach to achieve the goals of the FACD using industry-standard approaches to define and prioritize projects. In addition, the City implemented a Short Term Capacity Certification program that requires the City to certify it has adequate capacity before allowing additional development. This program has successfully allowed billions of dollars of development to continue while the City continues to complete its SSO Consent Decree work.

The FACD included a series of deadlines for completion of projects based on the priority of the projects. Projects were placed into six priority Sewer Groups. First priority capital improvement projects and other studies were placed into Sewer Groups 1 and 2, which were completed by the deadline of July 1, 2009. The FACD originally set a schedule for the remaining sewer groups for completion by July 1, 2014.

Non-compliance with milestone dates could have resulted in penalties for:

- Failure to meet schedule for submittals
- Uncorrected audit deficiencies
- Each prohibited sewer connection
- Each records and documentation deficiency

- Wastewater treatment project delays
- Each unpermitted discharge
- Each sewage overflow to dry land

In September 2009, the Department met with USEPA to discuss re-scheduling of FACD milestones in light of revisions to forecasted revenues occasioned by economic downturn and declining customer water usage. In April 2010, the Department submitted its Financial Capability-Based Schedule Extension Request Report to obtain approval of the proposed schedule relief. The CIP discussed herein (Section 6) reflects the Department's project re-scheduling based on a revised 2027 deadline, formal approval of which was provided in the September 24, 2012 Second Amendment to the First Amended Consent Decree filed in US District Court, Northern District of Georgia.

Prior to the issuance of the Financial-Capability Based Schedule Extension Request Report in April 2010, the Department's capital program was focused on consent decree compliance, affording limited opportunity for investment in other System components. The current CIP reflects prioritization of capital projects informed by integrated master planning and engineering assessments of facility conditions. The master plan identifies and prioritizes projects to ensure operational integrity of the Department's water and wastewater system components as well as certain watershed protection assets and services necessary to support the water and wastewater system components. It reflects requirements of the Second Amendment to the First Amended Consent Decree as scheduled, and also reflects Departmental initiatives to enhance water system reliability, improve treatment plant efficiency, and protect receiving stream water quality.

In the event that future regulations impose additional revisions to the Department's capital program, such revisions will be developed under a protocol that largely preserves the level of the annual project encumbrances delineated in the Department's financial plan (Section 7) for which financial feasibility is demonstrated. This "zero-sum" protocol requires that, in the event that selected project milestones are accelerated, other projected deferrals will be instituted to ensure that net capital financing requirements will be constrained within the Department's financial capabilities while the Department continues to meet its regulatory obligations.

4.0 Watershed Protection Services

4.1 Overview

The Department delivers a broad variety of watershed protection services, frequently in collaboration with other City departments such as the Department of Public Works and the Department of Parks and Recreation. As described below, these services include a variety of activities required under the Department's NPDES permits and other water-quality related regulatory requirements.[33] The Department works collaboratively to perform a number of stormwater management and drainage functions. The City's watershed protection assets serve the 132.4 square miles of area within the City of Atlanta jurisdictional boundaries. Assets are comprised of the combined sewer system (approximately 11 square miles) as discussed earlier in Section 3.6, and approximately 122 square miles of separate storm sewer management infrastructure. These systems are comprised of a broad array of stormwater management / drainage assets (e.g., culverts, inlets, outfalls) constructed primarily in conjunction with land and road development.

As defined in the City's Stormwater Management Plan, as approved by the Georgia EPD, stormwater management and control infrastructure is specifically limited to that which:

- Is located within the City of Atlanta's right-of-way along municipal roadways; or
- Discharges directly through a municipally-owned stormwater outfall; or
- Has been formally deeded to the City; or
- Was constructed by the City; or
- Is located on private property and for which a written easement has been recorded.

Nearly 65 percent of the stormwater infrastructure within the City limits has been installed to provide additional developable land for the benefit of private properties or other non-municipal government lands and has not been dedicated to the City. If the City does not have an easement, legal right or duty to access such structures; it cannot manage it as improvements to private property at public expense are prohibited under the Georgia Constitution.

Further, the City has jurisdiction only over stormwater infrastructure that is municipally owned, and excludes systems installed to facilitate travel along state and federal roads and highways. As such, City-responsible stormwater infrastructure is comprised of systems, facilities, and features that transfer, control, convey, infiltrate, or otherwise influence either the movement of stormwater runoff or water quality, which:

[33] While stormwater management activities are a fundamental requirement of the Department's NPDES permit requirements for the WRC and CSS Control Facilities, a review of the Department's historic and budgeted expenditures was conducted in 2013, prior to issuance of the current NPEDS Permits, to assess the extent of expenditures on primarily stormwater management measures outside of the combined sewer areas and required for the City's compliance with MS4 stormwater management regulations (often performed by General Fund Departments in other jurisdictions). However, given the regulatory pressures to address stormwater management in a more robust manner, DWM has increased investment in stormwater management since 2013.

(1) are either owned by the City or for which the City has accepted an offer of dedication of an easement or other legally binding permanent right of use for stormwater drainage as defined in Part 15-07.0004 of the City's Code of Ordinances or for public use and maintenance under Title 44 of the Official Code of Georgia or as otherwise determined by Georgia law; or

(2) are structures or features that drain water from the City right-of-way and are located within the City right-of-way of the municipal street system that the City is responsible for maintaining in a condition reasonably safe for travel in the ordinary mode under Title 32 of the Official Code of Georgia.[34]

Consequently, about 35 percent of the stormwater infrastructure within the City is the responsibility of municipal government. As of 2009, the City had responsibility for an excess of 19,700 known structures and their associated transmission pipelines. Though the historical cost of these (primarily contributed) assets is approximately $1,048.7 million; as of 2012, accumulated depreciation of approximately $915.3 million resulted in stormwater fixed asset book value of approximately $133.4 million.[35]

The Department places heightened emphasis on these aspects of the Department's responsibilities in response to emerging regulatory trends and infrastructure development opportunities. These regulatory changes, aspects of which have been incorporated into wastewater treatment plant permit requirements, reflect a focus on water quality improvement that requires effective management of both point source and non-point discharges to receiving waters. While System revenues historically deployed to ensure compliance with these aspects of its wastewater system regulatory requirements have been relatively limited, the Department anticipates new opportunities with emerging "green infrastructure" approaches and embrace of integrated planning by the USEPA.[36]

4.2 Regulatory Requirements

4.2.1 Regulatory History

In 1990, under the NPDES, the USEPA established a stormwater management program to regulate stormwater discharges from municipal separate storm sewer systems (MS4s). Most stormwater discharges are considered point sources and operators of these sources including the City were required to obtain an NPDES MS4 permit. The City of Atlanta was classified as a Phase 1 community – a community with a resident population greater than 100,000 people. The City applied for and obtained its initial MS4 Permit in 1992. Since that time, the City has maintained compliance with the permit requirements, as established by

[34] Under Georgia law, Title 32, municipalities are responsible for maintaining the municipal street system in a condition reasonably safe for travel in the ordinary mode. Thus, historically, stormwater infrastructure within the right-of-way has been designed and maintained to protect public safety in the transportation corridors by efficiently and effectively removing water from the right-of-way and not for the purpose of protecting receiving waters.

[35] Fixed asset records for stormwater basins per City of Atlanta ORACLE query dated May 31, 2012.

[36] USEPA Memorandum: "Integrated Municipal Stormwater and Wastewater Planning Approach Framework"; from Nancy Stoner and Cynthia Giles to USEPA Regional Administrators and Regional Permit and Enforcement Division Directors; June 5, 2012.

USEPA and Georgia EPD, and in accordance with the MS4 Stormwater Management Plan (SWMP), as approved by the Georgia EPD.

In 2015, with reissuance of the NPDES permits for the East Area and West Area CSS Control Facilities, the Georgia EPD included new requirements for development and implementation of an Integrated Plan regarding the City's approach to address metals in stormwater runoff discharged via the City's six Combined Sewage Control Facilities. The Integrated Plan was submitted on schedule to the Georgia EPD on August 18, 2017.

4.2.2 Watershed Approach

Over the last decade, USEPA has placed increasing emphasis on watershed-based approaches to implementation of the Clean Water Act - the same law that precipitated the NPDES program under which the City's wastewater operational permits are issued.[37]

As described by the USEPA, a watershed approach is:

> *…a flexible framework for managing water resource quality and quantity within specified drainage areas, or watersheds. This approach includes stakeholder involvement and management actions supported by sound science and appropriate technology.*[38]

With this concept in mind, the Georgia EPD, in conjunction with USEPA, has incorporated language into the City's Consolidated NPDES Permit for its WRCs that requires the City to "conduct a watershed assessment and to develop a protection plan for all the watersheds that are contained within the permittee's Assessment Area." [39] The permit defines an "Assessment Area" as "…all basins or subbasins that are served by the facilities and for the watersheds contained within the permittee's jurisdictional boundaries." There are 15 sub-watersheds that are either wholly or in part located within the City's jurisdictional limits. For the purpose of developing required Watershed Improvement Plans, the City has consolidated these into 10 watershed planning units. All ten Watershed Improvement Plans have been completed well ahead of the December 2019 deadline.

4.2.3 Regulatory Requirements – Stormwater Management Programs

Within the City, stormwater is currently managed under five primary NPDES permits:

- R.M. Clayton, South River & Utoy Creek – Permit No. GA0039012
- East Area Combined Sewer Overflows – Permit No. GA0037168
- West Area Combined Sewer Overflows – Permit No. GA0038644
- Atlanta Municipal Separate Storm Sewer System Permit – Permit No. GAD000100

[37] Twelve years ago, the City recognized this trend and developed the Department of Watershed Management, which was given the responsibility for providing the highest quality drinking water and wastewater services to residential, businesses and wholesale customers at the lowest possible cost, while protecting urban waterways, conserving natural resources, and providing clean, safe water for downstream customers.

[38] USEPA, 2008, DRAFT Handbook for Developing Watershed Plans to Restore and Protect Our Waterways, page 2-2.

[39] NPDES Permit GA0039012, Part C.; effective September 15, 2010.

- Georgia General Permit for Storm Water Discharges associated with Industrial Activity – Permit No. GAR050000.

A description of each of these permits is provided below.

RM Clayton, South River & Utoy Creek – Permit No. GA0039012. This consolidated permit addresses the treatment and discharge of wastewater, including combined sewage, at the City's three WRCs – R.M. Clayton WRC, South River WRC and Utoy Creek WRC. Part C.8 of this permit requires that the City develop watershed assessments and watershed protection plans for all the watersheds that are in the basins or sub-basins served by WRC facilities or are contained within the City's jurisdictional boundaries. This permit was most recently renewed by the Georgia EPD on June 7, 2017 and went into effect on July 1, 2017.

- The watershed assessment plan must document baseline water quality and identify stressors that affect the quality of the water resources in the area. Requirements also include identification of water quality parameters and specification of monitoring frequencies for all streams within the area.
- The watershed protection plan must address the findings of the watershed assessment including determinations of baseline water quality conditions, long-term monitoring activities, and a schedule to correct water quality problems, and implementation of best management practices (BMPs) to prevent future water quality standards violations.

East Area Combined Sewage Control Facilities – Permit No. GA0037168. This permit[40] addresses operation and management of facilities that provide supplemental treatment capacity to address increased flows associated with stormwater runoff combined with sewage. Two CSS Control Facilities are included in this permit: the East Area Water Quality Control Facility and the Custer Avenue Combined Sewage Control Facility. Under routine conditions, the permit anticipates that combined stormwater and wastewater flows from the eastern portion of the Combined Sewer Area will be transmitted to the South River WRC for treatment prior to discharge per the Consolidated NPDES Permit for the WRCs. The East Area permit outlines control and compliance requirements for operating the permitted facilities, which were designed to address the 2-year statistical storm event and anticipates an average of no more than four combined sewage overflow events annually, based on a 3-year rolling average.

A new requirement of the East Area permit issued in August 2015 requires that the City develop and implement an Integrated Plan that focuses on the use of Green Infrastructure to help reduce the amount of dissolved cadmium, copper, lead, nickel and zinc being discharged in the treated effluent from these facilities.

West Area Combined Sewer Overflows – Permit No. GA0038644. This permit[41] addresses operation and management of facilities that provide supplemental treatment capacity to address increased flows associated with stormwater runoff combined with

[40] This permit historically included the McDaniel Street CSO Control Facility until the separation of the McDaniel Street combined sewer system was completed.

[41] This permit historically included the Greensferry CSO Control Facility until stormwater and sanitary sewage separation was completed in this area.

sewage. Four CSS Control Facilities are included in this permit: the West Area WQCF, the Clear Creek CSCF, the North Avenue CSCF, and the Tanyard Creek CSCF. Similar to the East Area permit, under routine conditions, the West Area permit anticipates that combined stormwater and wastewater flows from the western portion of the Combined Sewer Area will be transmitted to the R.M. Clayton WRC for treatment prior to discharge per the Consolidated NPDES Permit for the WRCs. The West Area permit also outlines control and compliance requirements for operating the permitted facilities, which were designed to address the 2-year statistical storm event and anticipates an average of no more than four CSO events annually, based on a 3-year rolling average. As with the East Area permit, the West Area permit issued in August 2015 requires that the City develop and implement an Integrated Plan that focuses on the use of Green Infrastructure to help reduce the amount of dissolved cadmium, copper, lead, nickel and zinc being discharged in the treated effluent from these facilities.

Municipal Separate Storm Sewer System Permit – Permit No. GAD000100. For its municipally-responsible stormwater infrastructure, the City is required by the Georgia EPD, pursuant to NPDES Municipal Separate Storm Sewer System (MS4) Permit Number GAS000100, to implement a stormwater management program that is outlined and described in the City's EPD-approved Stormwater Management Plan (SWMP). This program is incorporated by reference into the City's MS4 permit issued, most recently, on June 11, 2014. The purpose of the SWMP is to document the City's MS4 stormwater management program and establish implementation protocols to achieve, to the maximum extent practicable, the objective of controlling pollutants discharged from the MS4 and to prevent the discharge of non-point stormwater into the MS4.[42]

Georgia General Permit for Storm Water Discharges associated with Industrial Activity [43] – Permit No. GAR050000. In accordance with both federal and state requirements, four WRC facilities are required to obtain coverage and meet the requirements of the Georgia General Stormwater Permit:

- Intrenchment Creek WRC and East Area WQCF;
- RM Clayton WRC and West Area WQCF;
- South River WRC; and
- Utoy Creek WRC.

Per the terms and conditions of the Georgia General Stormwater Permit, each of these facilities is required to implement a facility-specific Storm Water Pollution Prevention Plan (SWPPP), which includes routine stormwater inspection requirements along with facility-

[42] See Section 4.2.4 for information regarding City-wide structural and source control measures required by the MS4 permit.

[43] As a provision of the Clean Water Act, the USEPA has regulated activities that take place at industrial facilities which may be exposed to the weather, on the basis that, as runoff from rain or snowmelt comes into contact with these activities, the stormwater can pick up pollutants and transport them to a nearby storm sewer system or directly to a river, lake, or coastal water. To minimize the impact of stormwater discharges from industrial facilities, a state-wide general permit was developed by the Georgia EPD to include an industrial stormwater permitting component that covers 10 categories of industrial activity and that require authorization under an NPDES industrial stormwater permit for stormwater discharges.

specific water quality monitoring, and operation and management procedures that must be implemented.[44]

4.2.4 Structural and Source Control Measures

City-wide structural and source control measures[45] required by the MS4 permit, as described in the Georgia EPD-approved SWMP, include:

- Inventory of municipally-responsible permanent stormwater control structures;
- Inspection, Maintenance and Repair for municipally-responsible permanent structural controls;
- Inspection and Enforcement of stormwater compliance requirements for municipal facilities, industrial operations and other "highly-visible" pollutant sources operating within city limits;
- Stream Walks of all major stream segments within the city limits to assess the health of habitats and native species and identify visible uncontrolled impacts from the urban environment;
- Planning Procedures to develop, implement and enforce post-construction controls in areas of new development and significant redevelopment;
- Implementation of Best Management Practices (BMPs) to control the introduction of constituents of concern into the environment including activities such as street sweeping[46]; education; and source control measures;
- Erosion and Sedimentation Control activities are inspected and monitored for all construction projects within the City that have greater than one acre of disturbed area to prevent discharge of soil and construction-related waste streams to the surface water;
- In-stream water quality monitoring under Total Maximum Daily Load (TMDL), Metro District, and Dry Weather Flow Monitoring programs.
- Pesticide, Fertilizer, Herbicide Application Program to reduce pollution by commercial and municipal applicators including training and education.

4.3 Stormwater Management Assets

Historically, stormwater management assets referred almost exclusively to constructed assets such as pipelines, drains, catch basins, retention and detention ponds and other "hard" assets commonly referred to as "gray infrastructure". However, the definition of stormwater management assets has evolved substantially over the past 20 years as

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[44] Fourteen municipal facilities qualified for the No Significant Exposure Exemption provided for in the regulations.

[45] The City's various stormwater control and management permits each have specific requirements that must be implemented in accordance with their respective stormwater management plans. In addition, the City is required to implement a number of City-wide measures.

[46] The street sweeping function remains with the Department of Public Works (DPW), but DWM funds seven full time positions within DPW as part of its watershed protection programs. In addition, in FY 2014, DWM purchased four large-capacity street sweepers for DPW. Both parties are working on a formal interdepartmental agreement to standardize the street sweeping processes and protocols in support of the requirements of the City's MS4 permit.

designers, planners and engineers have come to recognize that natural processes can be used to supplement more traditional "hard" assets.[47]

4.3.1 "Gray" Infrastructure

As of April 2016, the City had over 19,700 "gray" stormwater assets identified by its stormwater structure inventory program.[48] The inventory also includes almost 800,000 linear feet of stormwater conveyance pipes and over 37,000 linear feet of stormwater culverts. Table 4-1 lists the most recently compiled estimate the City's MS4 "gray" asset inventory. The Department intends to update this information with ongoing field verification activities and as new structures are installed by (or dedicated to) the City.

TABLE 4-1
Municipal Responsible Stormwater Management Structures as of April 2016

Asset Category	Number (All Basins)	Asset Category	Number (All Basins)
Catch Basins	9,579	Headwall Outlets	710
Headwall Inlets	281	Outlet Control Structures	38
Drop Inlets	2,326	Structureless Outlet	512
Single/Double Wing Catch Basin	1,818	Other Outlets	243
Other Inlets	2,396	Stormwater Manholes	1,860
		Total Structures[1,2]	19,763

1 These totals represent what is currently present in the stormwater database.
2 The number of reported structures is lower than in previous published reports because the Department has modified the way stormwater pipe and culvert segments are recorded in the asset database.

4.3.2 "Green" Infrastructure

"Green" infrastructure is an alternative approach to managing stormwater that emphasizes the use of natural drainage features to slow and clean stormwater runoff or enable it to infiltrate natural surfaces. Green infrastructure can encompass passive techniques such as greenspace and forest conservation, stream bank restoration, and floodplain protection; as well as engineered approaches using site-specific conditions and construction of structures such as green roofs, vegetated swales, permeable pavement, infiltration planters and wells, and rain harvesting/gardens. These types of green infrastructure assets are designed to mimic natural hydrologic functions and decrease the amount of stormwater runoff from sites.

[47] Structural assets for collection and transmission of combined sewage in the Combined Sewer Area are covered under the Consolidated NPDES Permit for the WRCs and are excluded from the East Area and West Area NPDES permits. This is also consistent with the requirements of the First Amended Consent Decree. However, there are locally separated stormwater in the Combined Sewer Area that discharge directly to waters of the State that are covered under the MS4 Permit.

[48] The City has completed converting hard copy and electronic (PDF) maps into a GIS compatible electronic database and conducted surveying in previously unmapped areas. This information has been incorporated into a database that identifies known municipal-responsible structures. The City continues to conduct field verification of stormwater management structures. The field verification work includes locating previously mapped structures documenting newly identified structures, surveying existing structures, collecting detailed construction information, and identifying ownership. These efforts are being conducted throughout the City's entire jurisdictional area using a basin-by-basin approach.

The City was an early adopter of green infrastructure and water conservation efforts to help reduce the demands on the City's limited drinking water supplies while simultaneously increasing long-term wastewater treatment capacity by reducing the amount of stormwater runoff processed through its wastewater treatment facilities. The first governmental green roof project in the southeastern US was installed on top of City Hall in 2005. In addition, the City has constructed or is in the process of designing and constructing projects such as bioretention basins and pervious pavement retrofits of parking lots and streetscapes with the goal of reducing the amount of stormwater being treated at the WRCs by as much as 10 million gallons per storm event. The City has championed and/or installed other green projects such as:

- 5 bioretention/rain gardens in the Mechanicsville Community in South Atlanta
- 3 bioretention/rain gardens in the Summerhill Community in Southeast Atlanta
- 6,600 square foot green roof at the Woodruff Arts Center
- Rain gardens at Atlanta's Adair Park and Fire Station 16
- Bioretention swales at the Chattahoochee Water Treatment Plant and other DWM facilities
- Over 254 acres of passive greenspace acquired in conjunction with the Consent Decree mandated Greenway Acquisition Project
- Rehabilitation of over 7,800 linear feet of streambanks in conjunction with water and sewer infrastructure projects (using biorevetment techniques vegetative stabilization)
- A 5 million gallon combined system storage vault constructed in the Media Lot at Turner Field

4.4 Future Directions: Integrated Water Management

The City's wastewater and stormwater management services, as recognized by emerging regulatory regimes like the USEPA-endorsed Integrated Planning framework, are inextricably related. The City has been required, through its consent decrees, to construct a network of tunnels to transport combined stormwater/wastewater flows to the R.M. Clayton and South River WRCs for treatment prior to discharge. In addition, in August 2007, the City completed separation of the sanitary and stormwater sewers in those sewersheds where such separation was feasible, which included the Greensferry, Stockade and McDaniel sewersheds.[49]

Based on experiences gained within the City and by other utilities throughout the U.S., cost-effective and environmentally responsible solutions to these claims on WRC operations and System capacity are being implemented. These projects will help accommodate future growth with the City's existing infrastructure systems. Stormwater management and control measures, along with green infrastructure practices, increase natural infiltration and rainfall harvesting. These measures can attenuate the amount of stormwater runoff being managed

[49] Because of the nature of early twentieth century construction and development patterns, it is not logistically, economically, or socially feasible to extend separation further into the urban core. As a result, the urban core will continue to discharge combined stormwater and wastewater to the WRCs.

by the WRCs and make available valuable treatment capacity without substantial investment in new gray infrastructure.

The City's NPDES permit for the WRCs requires the City to conduct and implement a Watershed Assessment and Watershed Protection Plan; the East Area and West Area NPDES permits require an Integrated Plan for Utilization of Green Infrastructure to reduce the amount of runoff entering the streams and sewer systems; and the MS4 NPDES permit a Stormwater Management Plan, as an expressed condition of providing public sewer service and discharging treated effluent. These documents specifically require the City to:

- Perform long-term water quality monitoring;
- Assess streams in the service area for water quality and habitat stressors;
- Develop and implement a City-wide Watershed Protection Plan and Watershed Improvement Plans for each sub-basin to address TMDLs to improve water quality in streams where needed. Sub-basin plans require:
    a. Installation and maintenance of structural best management practices (BMPs) to mitigate runoff impacts including both green and gray infrastructure, retrofits of stormwater infrastructure, stream restoration, etc.;
    b. Long-term maintenance of structural BMPs; and
    c. Development of non-structural BMPs which include inspection and enforcement programs such as erosion control and stormwater illicit discharge detection, as well as public education programs.

These capacity management and permit requirements underscore the causal connections between wastewater treatment capacity, in-stream water quality, and urban runoff impacts from homes and businesses in the City's jurisdictional area. On a City-wide basis, design and construction of future stormwater control and management projects will help the City comply with the requirements of its federal and state environmental permits required for its wastewater and watershed protection sub-systems.

The City-wide Watershed Protection Plan was submitted in the latter part of 2015. To date, the Department has not yet received comments from the respective regulatory agencies. The Department is in the process of developing the Integrated Plan for Utilization of Green Infrastructure. The Stormwater Management Plan, which is required by the City's MS4 NPDES permit, is complete.

5.0 Water System

5.1 Overview

The City obtains its drinking water from the Chattahoochee River through two raw water intakes located downstream of Lake Lanier, a multi-purpose water reservoir owned and operated by the U.S. Army Corps of Engineers. The City is permitted to withdraw a combined total of approximately 225 mgd. The raw water is treated at the City's three water treatment plants, one of which (along with a raw water intake) is jointly owned with Fulton County. The WTPs have a combined treatment capacity of 246.4 mgd. The City's distribution system includes over 2,800 miles of water distribution pipelines, four finished water pump stations, three re-pump stations, 11 booster pump locations (eight of which are in reserve[50]), two raw water pump stations, one reservoir emergency draw-down pump station, four surge tanks and 12 ground and elevated storage tanks.

The City's retail water system serves over 162,000 active water accounts. The City's retail water service area includes the City, unincorporated areas of Fulton County (south of the City), the areas located within the cities of Sandy Springs and Chattahoochee Hills and portions of incorporated areas located in South Fulton. The City's wholesale water customers include three cities in Fulton County (Hapeville, Fairburn and Union City), and the counties of Coweta (Coweta County Water and Sewerage Authority), Clayton (Clayton County Water Authority) and Fayette. The City supplies water needed by the wholesale customer cities and a limited portion of the total water needed by the wholesale customer counties.[51]

The two water treatment plants within the City (Hemphill and Chattahoochee) are operated and maintained by the Office of Water Treatment and Reclamation; water transmission and distribution system assets are operated and maintained by the Office of Linear Infrastructure Operations. Table 5-1 provides a water system sales history for the period FY 2013 through FY 2018.

The drinking water system operates under permits issued by the State of Georgia Department of Natural Resources (DNR), Georgia EPD, requirements of the Federal and State Safe Drinking Water Acts, and two Administrative Consent Orders issued in 1997 and 2003 by Georgia EPD. To comply with these Administrative Consent Orders, which require the City to increase System reliability and to meet the demands of a growing regional population base, the City is undertaking a CIP that includes raw water supply and treatment plant upgrades, pump station improvements and the installation of new water mains.

[50] These 8 booster pump stations were in place to provide service from the Hemphill WTP in the area currently served by the Atlanta-Fulton County WTP. These stations are no longer required for daily operations due to the construction of the AFCWTP and are held in reserve in the event of emergency requirements.

[51] While these customer counties continue to have active wholesale water meters, their water demands are limited to exceptional circumstances reflecting recent demand patterns and their respective development of alternative water supply arrangements.

TABLE 5-1
Account and Water Sales History, FY 2013 through FY 2018

System History[1]	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Water Utility Accounts	151,575	152,067	152,447	154,938	158,531	162,631
Water Wholesale Customers	6	6	6	6	6	6
Total Water Sales (mgd)	65.11	64.20	63.48	66.62	70.46	69.99
Wholesale Water Sales (mgd)	3.02	2.92	2.53	2.75	2.97	3.53
Retail Water Sales (mgd)	62.09	61.28	60.95	63.87	67.49	66.46
1 Data for FY 2013 – FY 2018 extracted based on monthly bill frequency distribution reporting, which was developed to enhance the Department's revenue forecasting.						

A leak detection program is in place and there are annual contracts in place for the installation of new or replacement water mains, the testing and repair of large meters and the location, and repair and replacement of distribution system isolation valves. In addition, a contracted valve and hydrant asset assessment and main repair project was completed in FY 2012 and the Department is in the process of implementing an in-house valve and hydrant maintenance program to address flow and pressure issues, reduce customer service issues, enhance System reliability and bolster fire protection capabilities.

5.2 Water System History

The original City of Atlanta water system was constructed in 1851 and consisted of five artesian wells. In 1891, the City's Water Commission recommended withdrawing up to 10 mgd from the Chattahoochee River to address water shortages. In 1893, the City's first river intake, a 30-inch pipeline located on the east bank of the Chattahoochee River just north of Peachtree Creek, was constructed to transfer water from the river to the Hemphill WTP complex. A 36-inch main was added in 1910 and a 48-inch main was added in 1923.

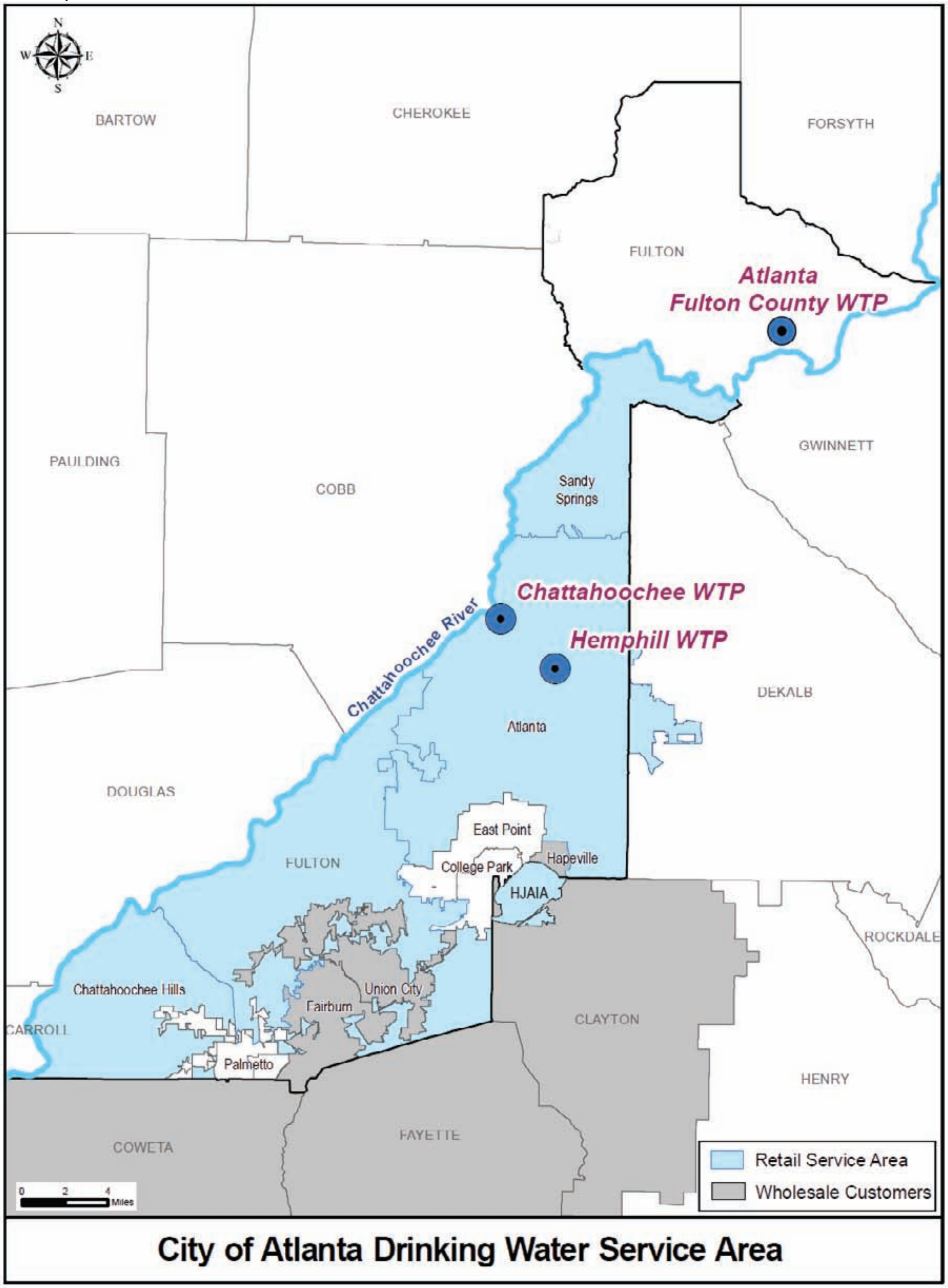
The Chattahoochee WTP was constructed and placed in service in 1960. The Atlanta-Fulton County WTP (a.k.a., the North Area WTP) was constructed and placed in service in 1991. Additionally, the City constructed 60-inch and 72-inch pipelines to transfer water from the raw water pump station to the Chattahoochee and Hemphill WTPs. Today, these three treatment plants serve more than one million people in the metropolitan Atlanta region, providing approximately 100 mgd of water each day within a 650-square-mile service area.

5.3 Service Area

The City's retail water service area is described in Section 5.1 and shown in Figure 5-1.[52]

[52] The City also has many individual retail customers located within various South Fulton municipalities due to agreement and individual situations over time and recent annexations. This level of detail is not shown in this general service area map.

FIGURE 5-1
Water System Service Area



5.4 Water Treatment Facilities

The City owns the Chattahoochee WTP and the Hemphill WTP, and has fifty percent ownership in the Atlanta-Fulton County WTP. The Chattahoochee and Hemphill WTPs obtain water from the City-owned Chattahoochee River Intake and Raw Water Pump Station under a combined surface water withdrawal permit for the two treatment plants. The Atlanta-Fulton County WTP also obtains water from the Chattahoochee River, but at a different, jointly owned location and under a separate surface water withdrawal permit.

As shown on Figure 5-1, the Chattahoochee WTP is located in northwest Atlanta adjacent to the Chattahoochee River, the Hemphill WTP Plant is located in central Atlanta and the Atlanta-Fulton County WTP is located north of the Chattahoochee River in north Fulton County.

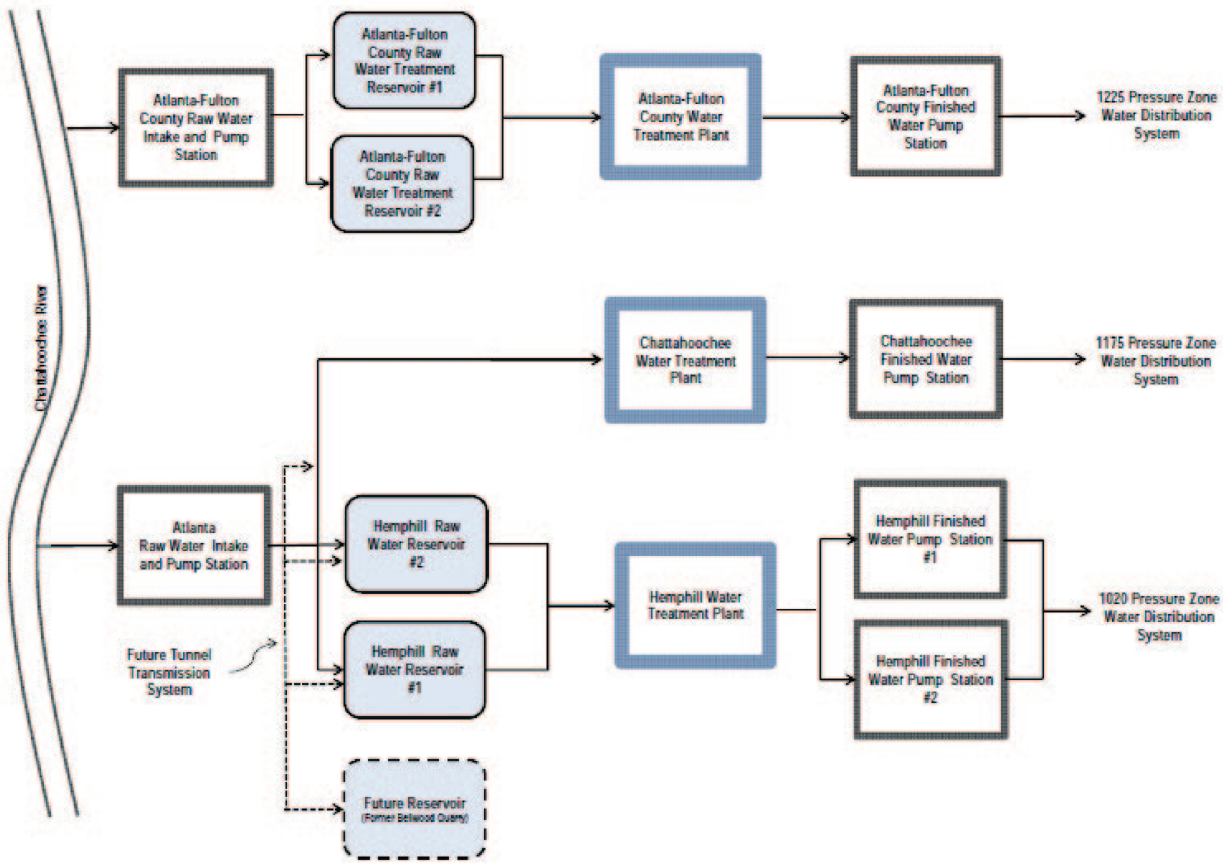
Table 5-2 presents the average and maximum daily water production for the City's water treatment plants for the period between FY 2012 and FY 2018.

TABLE 5-2
Water Plant Production, FY 2012 through FY 2018

System History	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Average Daily Production (mgd)							
Chattahoochee WTP	35.74	34.60	34.51	35.41	36.80	37.52	37.16
Hemphill WTP	47.58	45.80	45.32	46.01	47.78	46.51	47.73
Atlanta-Fulton County WTP	12.00	11.12	11.07	11.53	12.36	13.55	11.94
Total	95.32	91.52	90.90	92.96	96.93	97.57	96.84
Maximum Daily Production (mgd)							
Chattahoochee WTP	45.31	42.67	51.87	42.79	43.39	52.30	43.12
Hemphill WTP	70.61	61.33	64.87	58.61	60.80	61.00	57.60
Atlanta-Fulton County WTP	17.68	18.38	14.78	17.22	20.31	18.57	16.17
Sources: City of Atlanta Department of Watershed Management's Monthly Operating Reports (MORs).							

The following subsections describe the water treatment plants and water withdrawal facilities. Figure 5-2 provides a simple process diagram for these major treatment facilities.

FIGURE 5-2
Water Treatment Facility Schematic[53]



5.4.1 Water Treatment Facility Descriptions

5.4.1.1. Chattahoochee River Intake and Raw Water Pump Station

The Chattahoochee River Intake has been the source of raw water for the City of Atlanta since 1893. Raw water is transferred to the Chattahoochee and Hemphill WTPs for treatment and operates under a Surface Water Withdrawal Permit (No. 051-0192-01) issued by the Georgia EPD. The permit, which was renewed on November 6, 2013, allows for the withdrawal of up to 180 mgd (daily average on a per month basis). Absent revocation pursuant to the Georgia Water Quality Control Act, the permit will be in effect until November 1, 2021. The raw water intake is located approximately 250 yards upstream of the junction of Peachtree Creek and the Chattahoochee River. The water enters through three intake pipes (48-inch, 60-inch and 78-inch diameter) and passes through a set of bar screens to remove large debris.

Raw water flows by gravity to the Chattahoochee Raw Electric Water Pump Station, which consists of five high volume service pumps that transfer water to the Hemphill WTP Reservoirs and four low volume service pumps that transfer water to the Chattahoochee

[53] The Atlanta-Fulton County WTP raw water reservoir complex is comprised of 2 raw water reservoirs.

WTP. The station is remotely operated 24 hours per day 7 days per week, and has a total pumping capacity of 340 mgd. The pump station has dual-feed utility power sources and backup generators. Prior to entering the wet well, raw water travels through fine screens to further remove debris that may have passed through the bar screens at the intake.

5.4.1.2. Chattahoochee Water Treatment Plant

The Chattahoochee WTP was originally constructed in 1961 and 1962. The plant was upgraded between 1968 and 1970 with the addition of seven filters to the original six plant filters. The Chattahoochee WTP has a maximum capacity of 64.9 mgd and provides approximately 40 percent of the drinking water for the City and parts of Fulton County. The Chattahoochee WTP provides water to the Northside and Adamsville Re-pump Stations, which deliver the water to the Buckhead and south Fulton County areas of the System, respectively.

The plant employs conventional treatment, consisting of rapid mixing, three-stage flocculation, sedimentation, dual media filtration, disinfection, finished water chemical application and finished water storage. Treated water is stored in two clear wells at the facility until it is pumped into the distribution system. Solids removed during the treatment process are transferred to the City's R.M. Clayton WRC for processing in accordance with the requirements of the Georgia General NPEDS permit for Filter Backwash Discharges (GAG640000).

5.4.1.3. Hemphill Water Treatment Plant

The Hemphill WTP was originally constructed in 1893 and has been expanded several times, most recently in 1987. The current permitted capacity of the plant is 136.5 mgd. This plant supplies approximately 48 percent of drinking water to retail, residential, commercial, industrial and institutional customers within the City and portions of Fulton County south of the Chattahoochee River, and to the City's wholesale water customers.

Raw water is pumped to this facility from the Chattahoochee Raw Water Pump Station. The Hemphill WTP has two raw water reservoirs with a total capacity of approximately 550 million gallons. Reservoir #1 has recently undergone repairs, as discussed below, and was restored to service in 2017. The reservoirs are designed to receive water from the Chattahoochee Raw Water Pump Station through 30-inch cast iron, 36-inch cast iron, 48-inch cast iron and 72-inch steel pipelines. Both reservoirs are capable of providing water to the Hemphill WTP utilizing the Hemphill electric station. Under low water conditions, emergency pumps can draw water directly from Reservoir #2, though there is also a direct connection between Reservoirs #1 and #2.

The Hemphill WTP employs conventional treatment consisting of rapid mixing, hydraulic flocculation, sedimentation, dual media filtration, disinfection, finished water chemical application and finished water storage. Solids are presently being processed at the Hemphill Settled Solids Facility. Finished water is stored in two clearwells at the facility until it is pumped into the distribution system. Future replacement of a third inactive clearwell is scheduled for later in the planned CIP, beyond the FY 2019–2024 forecast period.

5.4.1.4. Atlanta-Fulton County North Area Water Treatment Plant

The Atlanta-Fulton County WTP is a high-rate surface water filtration plant located in north Fulton County, and is managed by the Atlanta-Fulton County Water Resources Commission – a joint venture of the City and Fulton County. The facility serves approximately 12 percent of the Department's water demand in the northernmost portion of the City's service area.

The Atlanta-Fulton WTP is staffed by a contract operator. The plant employs conventional treatment consisting of the following components and unit processes: raw water pumps and transmission lines, raw water metering, raw water storage, rapid mixing, flocculation, sedimentation, solids thickening, gravity filtration, washwater decanting, solids dewatering, chemical handling, clearwell storage and finished water pumping. All solids removed during the treatment process are treated on site through gravity thickening and dewatered using plate and frame presses. Treated water is stored in the clearwell at the facility until it is pumped into the distribution system.

The Atlanta-Fulton County North Area WTP is located on the Chattahoochee River in Alpharetta and is permitted to withdraw up to 90 mgd of raw water at this location. The City has rights to half of the plant capacity, or 45 mgd. Raw water from the Chattahoochee River is withdrawn at the jointly owned Atlanta-Fulton County Raw Water Intake via dual 54-inch pipes and transferred to two raw water reservoirs for storage prior to treatment.

Phase 1 of the facility was completed in 1991 with an initial production capacity of 45 mgd. Phase 2 was completed in 1998 bringing plant capacity to 90 mgd. In May 2007, Phase 2.5 was completed at a cost of $66.0 million. These latter improvements expanded raw water pumping capabilities and increased the capacity of raw water reservoir storage to approximately 800 million gallons. The Phase 2.5 improvements also upgraded the instrumentation and filter backwash systems resulting in improved reliability, security and energy efficiency. A Phase 3.0 project has recently been completed to convert the treatment process from using chlorine gas disinfectant to a liquid sodium hypochlorite disinfectant which has much lower safety risk. In addition, new filter underdrain and plate settler replacements were installed in the sedimentation basins.

5.4.1.5. Bellwood Quarry

In June 2006, the City purchased the former Bellwood Quarry located in northeast Atlanta. The rock quarry is being converted into a 2.4-billion-gallon raw water reservoir. The quarry pit will be filled with water from the Chattahoochee River to a depth of approximately 300 feet and a surface area of 40 acres. The reservoir will augment the City's water supply during high demand periods or droughts, serve as a backup water source for the Chattahoochee and Hemphill WTPs, and can serve as an emergency water source for up to 30 days. The reservoir will provide capacity to extend the City's ability to meet peak day water demands to year 2060 as currently projected. A 180 mgd deep shaft pump station and a 23,800-foot long, 10-foot-diameter tunnel will be required to connect the Bellwood Quarry Reservoir to the Hemphill WTP. Construction of the tunnel and new pump stations at the Quarry and Hemphill WTP is scheduled for completion in October 2019. A new 90 mgd Chattahoochee Raw Water Intake pump station is scheduled for completion in 2020.

5.4.2 Water Treatment Plant Physical Condition Evaluation

As noted in Section 1.2, the asset condition assessments presented herein were conducted in conjunction with a series of facility assessments that informed the Department's integrated master planning process. In general, engineering evaluations included limited visual inspections of selected major above ground facilities operated by the City, interviews of key staff responsible for operation of facilities and reviews of ongoing and planned capital improvements. No field-testing or detailed evaluation of facility maintenance records was performed to confirm scoring or to assign more refined condition scores. As defined in Table 1-1, a five-point scale from "Very Poor" to "Very Good" was used to assign condition scores.

5.4.2.1. Chattahoochee River Intake and Raw Water Pump Station

The Chattahoochee River Intake is in Fair condition. The Chattahoochee Raw Water Pump Station is in Fair to Good condition overall. Raw water conveyance from the pump station to the water treatment plants is in Poor condition due to age. The City is in the process of implementing an overall upgrade and replacement of the raw water conveyance and storage system by constructing a raw water tunnel, pump stations and use of the former Bellwood Quarry for raw water storage (see Section 5.4.1.5).

The City's raw water mains are some of the oldest pipes in the City's water system, dating back to the 1890s. Three of the four mains feeding the Hemphill reservoirs are reaching the end of their expected useful lives. The fourth main is steel, laid in the early 1970s, with a history of failures and documented design deficiencies. A complete failure in the raw water main system would compromise the City's ability to provide drinking water to the Hemphill WTP service area. Accordingly, the Department has evaluated a variety of strategies to meet service demands on an interim basis in the event of pipeline failures including, for example, use of currently available capacity at the Atlanta-Fulton County WTP and use of rehabilitation techniques. The Department has completed a detailed assessment of the most vulnerable sections of the raw water pipeline network (in particular, sections below the CSX Railroad Complex). The Water Supply Program will improve the intake and address any identified deficiencies, as described in Section 6.4.1.1.

5.4.2.2. Water Treatment Plant Physical Condition Evaluations

Assessment of the condition of the Department's water treatment facilities was based on observations made during prior site tours, review of operating records and review of previous evaluations prepared for the Department.

5.4.2.3. Chattahoochee Water Treatment Plant

The conditions of Chattahoochee WTP components range from Fair to Good. Areas of concern include the need for a permanent residuals handling facility, high service pump capacity and reliability, the fluoride storage and feed system, the need for plate settlers in the sedimentation basins and a powdered activated carbon feed system.

5.4.2.4. Hemphill Water Treatment Plant

The conditions of Hemphill WTP components range from Fair to Good. Areas of concern include the need for a permanent residuals handling facility and a powdered activated carbon feed system. Replacements are required of Clearwell No 1, baffle walls and weirs in the sedimentation basins, and all of the plant's filter media. Analyses are required to address hydraulic restrictions that limit plant production to less than permitted capacity.

5.4.2.5. Atlanta-Fulton County Water Treatment Plant

As noted in the description for the Atlanta-Fulton County WTP, the initial phase of this facility was completed in 1991, a second phase was completed in 1998, and upgrading of the raw water pumping, filter under-drains, conveyance and storage capacity of the facility has recently been completed. As a result, this facility is in Very Good condition with the exception of some of the plate settlers. Some of the plate settlers have been replaced recently with those remaining scheduled for near-term replacement.

Future expansion of the WTP capacity to 135 mgd, with the City maintaining rights to 50 percent of the plant capacity, is included in the City's long-term capital improvement plan. However, the timing of the expansion of this facility remains to be determined and the costs associated with such expansion are not included in the FY 2019–2024 CIP.

5.4.3 Permit Compliance

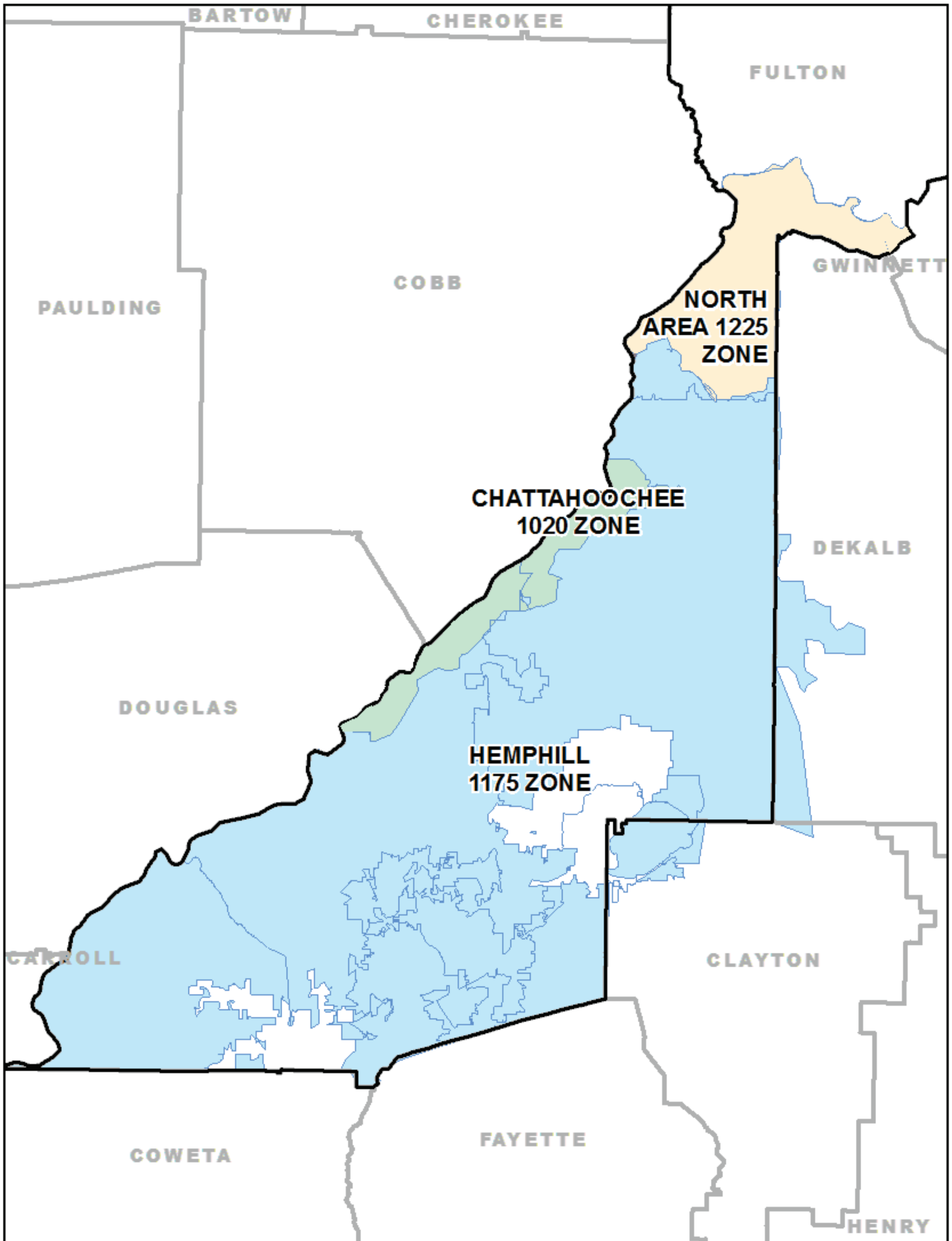
The City's drinking water system operates under permits issued by the Georgia EPD, requirements of the Federal and State Safe Drinking Water Acts, and two Administrative Consent Orders issued in 1997 and 2003 by EPD. The Office of Water Treatment and Reclamation is in compliance with its applicable permits. The water treated and delivered by the City meets or exceeds all drinking water standards established by both the U.S. and Georgia Safe Drinking Water Acts.

5.5 Water Distribution System

The City's distribution system service area varies significantly in elevation, from an elevation high of approximately 1172 feet North American Vertical Datum (NAVD) to a low of about 759 feet NAVD. Generally, the highest elevations are in the northern part of the service area, and the lowest elevations are in the areas to the west at the Chattahoochee River. Due to the range of elevations and the need to provide consistent water pressures to customers throughout the service area, the distribution system is divided into three major pressure zones.

The pressure zones, shown in Figure 5-3, are named according to a combination of their associated water treatment facilities and the water level elevations of the storage tanks that "float" (fill and draft by gravity) in each zone. Booster pump stations that control the transfer of water between the pressure zones establish the pressure zone boundaries. The three pressure zones are the Chattahoochee 1020 zone, the Hemphill 1175 zone and the North Area 1225 zone.

FIGURE 5-3
Water System Pressure Zones



Water System Pressure Zones

5.5.1 Distribution System Components

The City's service area is depicted in Figure 5-1. The network extends north from the City across Sandy Springs to the Chattahoochee River and south of the City into South Fulton County. The City's drinking water distribution system is also used to convey water to the City's wholesale water customers that include Hapeville, Union City and Fairburn, the Clayton County Water Authority, the Coweta County Water and Sewerage Authority and Fayette County.

5.5.1.1. Pipelines

Potable drinking water is delivered to the City's retail and wholesale customers through a network of over 2,800 miles of water mains and pipelines. Water is piped to customers through pipelines ranging in diameter from 2 to 96 inches. Table 5-3 summarizes the lengths and the relative distribution of the various pipe sizes in the System.

TABLE 5-3
Water Distribution Pipelines by Size

Pipe Diameter (inches)	Length (feet)	Length (miles)	Percent of Total (%)	Pipe Diameter (inches)	Length (feet)	Length (miles)	Percent of Total (%)
<1	7,838	1	0.05%	20	229,179	43	1.54%
1	12,407	2	0.08%	24	347,491	66	2.34%
1.25	1,033	0	0.01%	30	153,495	29	1.03%
1.5	7,187	1	0.05%	32	12	0	0.00%
2	345,824	66	2.32%	36	103,121	20	0.69%
2.5	889	0	0.01%	42	33,186	6	0.22%
3	36,966	7	0.25%	48	88,292	17	0.59%
4	39,121	7	0.26%	54	3,431	1	0.02%
6	4,076,251	772	27.40%	60	6,705	1	0.05%
8	6,473,357	1,226	43.51%	66	493	0	0.00%
10	112,665	21	0.76%	72	29,631	6	0.20%
12	1,802,674	341	12.12%	78	1,431	0	0.01%
16	757,723	144	5.09%	96	1,930	0	0.01%
18	1,048	0	0.01%	Unknown	204,915	39	1.38%
				Totals	**14,878,296**	**2,818**	**100.00%**

Updated information provided by Department's GIS Division, October 2016

Nearly all (95 percent) of the water supply lines in the City's distribution system are ductile or cast iron and range in age from 1 year to over 75 years. The older pipes are cast iron while ductile iron was installed starting in the 1960s.

5.5.1.2. Pump Stations and Storage Tanks

The City's distribution system contains 12 storage tanks (below ground, ground level and elevated) and eleven booster station locations dispersed throughout the System to manage instantaneous water demand and pressure fluctuations in the service area. In addition, there are 4 surge tanks protecting the finished water system. Many of the pump stations are designed as in-line booster stations to augment water pressure in the outlying reaches of the distribution system. The various tanks in the distribution system have a combined finished water storage capacity of approximately 37 million gallons. The tanks provide backup water during peak demand and stabilize pressure in the System especially during peak demands.

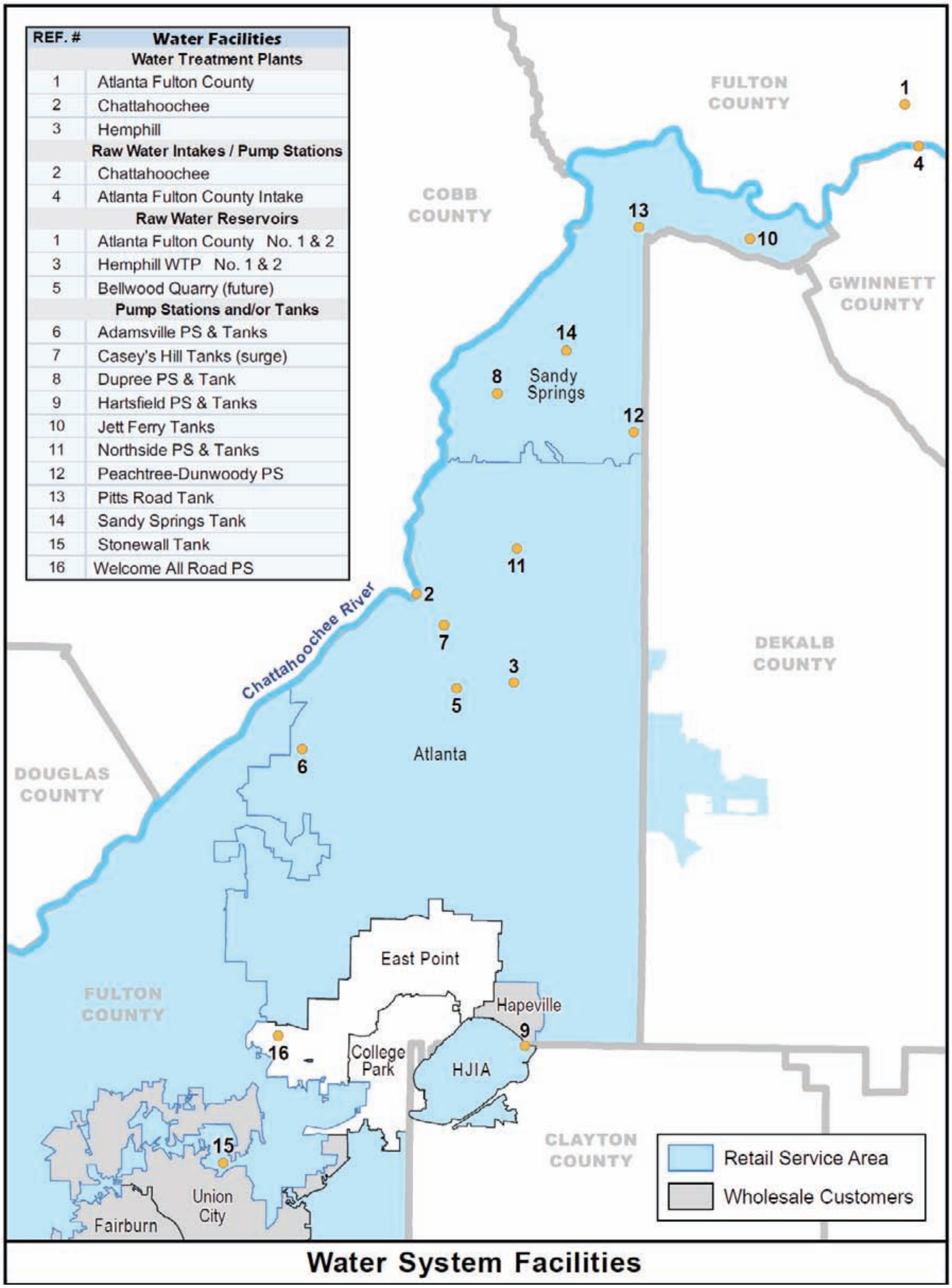
The location of the storage tanks and the booster and re-pump stations in service within the City's distribution system are listed and summarized in Table 5-4 and shown in Figure 5-4. The facilities are presented by pressure zone; information provided includes the capacity, type and status of each facility.

TABLE 5-4
Distribution Facility Summary Table

Facility	Type	Rated Pump Capacity[1] (mgd)	Potable Water Storage Capacity[2] (mg)	Status
Chattahoochee 1020 Pressure Zone				
Adamsville	Re-pump Station (zone transfer)	45.0	N/A	Operating
	Steel Above Ground Tank	N/A	5.0	Operating
	Concrete Above Ground Tank	N/A	5.0	Operating
Northside	Re-pump Station (zone transfer)	40.0	N/A	Operating
	Steel Above Ground Tank	N/A	4.0	Operating
	Concrete Below Ground Storage Tank	N/A	6.0	Operating
Hemphill 1175 Pressure Zone				
Casey's Hill[3]	Complex Surge Tank (2 tanks)	N/A	0.8 each	Operating
Dupree	Booster Station (re-pump, zone transfer)	9.0	N/A	Operating
	Steel Above Ground Tank	N/A	3.0	Operating
Hartsfield	Re-pump Station (booster)	20.0	N/A	Operating
	Concrete Below Ground	N/A	5.0	Operating
	Concrete Below Ground	N/A	5.0	Operating
Peachtree-Dunwoody	Booster Station (in-line, transfer)	1.7	N/A	Out of Service
Stonewall	Steel Elevated Tank	N/A	1.5	Operating
Welcome All Road	Booster Station (in-line)	5.0	N/A	Operating
North Area 1225 Pressure Zone				
Jett Ferry I & II	Steel Elevated Tank	N/A	0.5	Operating
	Steel Elevated Tank	N/A	0.5	Operating
Pitts Road	Steel Elevated Tank	N/A	1.0	Operating
Sandy Springs	Steel Elevated Tank	N/A	0.5	Operating
	Total Capacities	**124.7**	**37.0**	

[1] Storage tanks feed the distribution system by gravity and thus do not have rated pump capacities.
[2] Similarly, pump stations do not have potable water storage capacities.
[3] The tanks located at Casey's Hill are raw water tanks used for surge protection. They are not included in the Potable Storage Capacity total.

FIGURE 5-4
Water System Facilities



REF. #	Water Facilities
	Water Treatment Plants
1	Atlanta Fulton County
2	Chattahoochee
3	Hemphill
	Raw Water Intakes / Pump Stations
2	Chattahoochee
4	Atlanta Fulton County Intake
	Raw Water Reservoirs
1	Atlanta Fulton County No. 1 & 2
3	Hemphill WTP No. 1 & 2
5	Bellwood Quarry (future)
	Pump Stations and/or Tanks
6	Adamsville PS & Tanks
7	Casey's Hill Tanks (surge)
8	Dupree PS & Tank
9	Hartsfield PS & Tanks
10	Jett Ferry Tanks
11	Northside PS & Tanks
12	Peachtree-Dunwoody PS
13	Pitts Road Tank
14	Sandy Springs Tank
15	Stonewall Tank
16	Welcome All Road PS

5.5.2 Distribution System Evaluation

The City's distribution network condition ranges from Very Good to Poor depending on the structural integrity of the pipelines within the network, the ability of the pipelines to deliver the necessary flow meeting minimum pressure requirements, and the ability of the System to deliver water without impacting water quality (e.g., dead ends in the System which create brown water). The condition of the network is a function of a variety of factors including pipe age, pipe material, soil conditions, past maintenance, initial construction, activities in the vicinity of the pipeline, the amount of growth which has occurred since the pipeline was designed and constructed, and the design of the System itself.

The City evaluates the condition of its water distribution system using a variety of techniques and information. Assessments employ field inspection, hydraulic modeling, leak detection and the evaluation of complaints as well as historical operating data.

Based on the projected growth for the metropolitan Atlanta region and the condition of portions of the City's distribution system, rehabilitation and replacement of portions of the System is needed. Accordingly, the City is continuing to evaluate its water mains (while implementing asset management practices) to identify pipes needing rehabilitation or replacement, to sequence the projects to address highest priority needs, and to coordinate work on both the water and sewer pipeline systems. The replacement and repair of water lines in conjunction with the completion of sewer collection replacement and repair work is an example of such coordination.

The City plans to expand transmission and distribution piping, specifically the Adamsville Road Transmission Pipeline, Hemphill South I Distribution Pipeline, and the Adamsville to Campbellton Road Pipeline. It will add ground storage tanks with pump stations to support demand in downtown Atlanta, and chlorine booster stations to improve System-wide water quality.

5.5.2.1. Major Storage Tanks and Pump Station Evaluations

The physical conditions of the booster pump stations are varied. Currently, only three of the 11 booster pump stations are needed for normal day-to-day operation: Northside, Adamsville and Hartsfield. They are in Fair condition. The other booster pump stations are useful in emergency conditions within the North Area 1225 zone, if necessary.

The Northside and Adamsville Stations provide System storage and pressure control to a significant portion of the north and southwest areas of the distribution system. These stations have undergone recent upgrades to the electrical systems, instrumentation and controls, and surge control systems. The programmable logic controls (PLCs) have radio telemetry that relays signals back to the system control center located at the Hemphill pumping station. In addition, the Department has installed standby generators and has recently re-roofed both facilities. These upgrades addressed the reliability issues associated with these pump stations that were identified in the 2003 Administrative Consent Order. As a result of these projects, the Northside Pump Station is in Good condition. The Adamsville Pump Station is also in Good condition; however, the addition of a 15 mgd (fourth) pump, along with improvements to the distribution mains, are required to improve service reliability to South Fulton.

The Hartsfield Re-pump Station supplies the additional pressure required to serve the Hartsfield-Jackson Airport, the South Fulton County area and certain wholesale customers. This pump station is in Good condition. A fourth pump has been installed to add pumping capacity and ensure reliability, in particular during peak summer months. Ensuring adequate pressure is particularly important for providing fire protection to the airport.

A water tank painting and structural repair project for the major above ground water storage tanks (there are 11 in this category) was completed in 2012. These tanks are considered to be in Excellent condition.

5.6 Regulatory Issues

5.6.1 Administrative Consent Orders

As noted earlier, the City entered into two Administrative Consent Orders related to the water treatment and distribution system: the 1997 Administrative Consent Order and the 2003 Administrative Consent Order. Most of the substantial work required for compliance with the Administrative Consent Orders is complete. As reported in the Series 2017A Feasibility Study, the following three projects represent final efforts to address compliance with the Administrative Consent Order. These projects are now complete.

- River Intake Erosion Control Improvements
- Northside Pump Station to Sandy Springs Pressure Zone
- Hemphill Reservoir #1 Embankment Repair Interconnection

Two projects have been indefinitely delayed because projected development and growth in the area has not occurred:

- Fairburn Road Transmission Main
- Koweta Road Pump Station & Water Main

In general, the Administrative Consent Orders for the water system define performance requirements rather than specific projects that must be completed by a defined date. DWM is in a position to request closure of these two Administrative Consent Orders from the Georgia EPD without completion of the above listed projects, which have been deferred in accordance with appropriate system planning and development scheduling.

5.6.2 Fulton County Service Delivery Strategy Agreement

The City of Atlanta is located primarily within Fulton County, Georgia and is a party to the Fulton County Service Delivery Strategy Agreement, dated October 27, 2005 (SDS Agreement)[54]. As a result of the creation of several new cities within Fulton County, the SDS Agreement required an update by the State of Georgia Department of Community Affairs. Many issues were resolved between the parties following mediation. One of the main disputes resolved was over the definition of the drinking water service areas of the City of Atlanta and several municipalities located in the South Fulton area. Service areas of the cities of Fairburn, Palmetto and Union City generally reflect the municipal boundaries of the

[54] As required by the Service Delivery Act, pursuant to O.C.G.A. § 36-70-20, et seq. (SDS Act).

respective jurisdictions, as of May 25, 2012, while recognizing that existing retail customer base of the respective cities remain unchanged (including the City's retail customers located within the cities as a result of annexation).

A dispute in the litigation over water service issues between the City of Sandy Springs and the City of Atlanta was voluntarily withdrawn by Sandy Springs without prejudice.

Unresolved issues are currently part of on-going litigation in the matter of Fulton County Georgia v. City of Alpharetta, Civil Action File No. 2009-CV-17723.

The City has affirmed its commitment to deliver services within its currently designated water service areas, and the City has no plans to accept any proposal to reduce or amend its current retail or wholesale service areas, unless ordered otherwise in the on-going litigation with the City of Alpharetta regarding the SDS Agreement. Except for the wholesale water service to the cities of Fairburn and Union City, the City's financial plans reflect the assumption that it will retain the water service areas to which it currently delivers services and for which it has made and will continue to make major infrastructure investments.

5.6.3 Tri-State Water Supply Litigation

The Chattahoochee River, the raw water supply source for the City, is regulated by several federal dam projects. The most important of these projects is Buford Dam, which impounds the river to create Lake Lanier and is operated by the US Army Corps of Engineers (USACE). The City's raw water intake sits downstream of this project along the Chattahoochee River. The City depends upon the USACE to operate Buford Dam and control the flow of the river to ensure a sufficient water supply is available.

The USACE's authority to operate Buford Dam and Lake Lanier for water supply was once disputed. However, the United States Court of Appeals for the Eleventh Circuit issued a final decision in 2011 holding that water supply is a fully authorized purpose of the project. The decision also gave the USACE one year to reevaluate a request submitted by the State of Georgia, in 2000, to reallocate storage in Lake Lanier to meet the long-term water supply needs of the City and the surrounding metropolitan Atlanta region.[55] In June 2012, the USACE issued a legal memorandum concluding that it is legally authorized to grant 100 percent of the State of Georgia's water supply request. The USACE adopted an updated Apalachicola-Chattahoochee-Flint River (ACF) Basin Water Control Manual on March 30, 2017, confirming the USACE will meet the State of Georgia's long-term water needs. The State of Alabama and environmental groups challenged the decision in federal court in Washington, D.C. In general, Alabama claims the USACE lacks authority to meet Georgia's water needs, while the environmental groups claim that the USACE failed to adequately consider and mitigate environmental harms from its operations. The federal court in Washington, D.C. granted motions to transfer the case to federal court in Atlanta on March 29, 2018, and the case has been assigned to Judge Thomas Thrash, Jr.

Separately, on November 3, 2014, the United States Supreme Court granted a motion by the State of Florida for leave to file an original "equitable apportionment" action against the State

[55] See In re MDL-1824 Tri-State Water Rights Litig., 644 F.3d 1160 (11th Cir. 2011), cert. denied 133 S.Ct. 25 (2012).

of Georgia relating to the waters of the ACF Basin.[56]. Florida's complaint against Georgia requests that the Court enter an order equitably apportioning the waters of the ACF Basin and capping Georgia's overall depletive water uses at the level then existing on January 3, 1992. Note that this original action by Florida is not directly related to the 2011 decision of the Eleventh Circuit relating to the USACE's authority to operate Lake Lanier for water supply. The Court assigned the matter to a Special Master that issued a report to the Court on February 16, 2017. The report recommended the Court deny Florida’s request for relief. Oral argument was held on the report and the Special Master’s recommendation on January 8, 2018.

The City currently withdraws water from the Chattahoochee River under a surface water withdrawal permit issued by the Georgia EPD with a term that runs to November 1, 2021. Future withdrawal permits will be required to be consistent with future regional and State water plans. The City provides return flows of its water withdrawals to the Chattahoochee River via the City’s WRCs and it does not withdraw water from the Flint, Apalachicola, Alabama, Coosa or Tallapoosa River basins.

It may also be noted that the City has several additional options for meeting water demand and public health and safety needs. For example, the City is developing the Bellwood Quarry property, which will provide a 2.4-billion-gallon reservoir and extend its raw water storage up to 30 days. The project is expected to be completed in 2020 (see Section 5.4.1.5).

Furthermore, the City has a long-standing commitment to effective and efficient water resource management and careful use of inherently limited water supplies. The City is practiced in management of its water and wastewater systems under uncertainty (e.g., drought, national credit crisis), and is actively engaged in examining options for water supply augmentation.

[56] See State of Florida v. State of Georgia, No. 22o142 ORG, --- S.Ct. ---- (2013).

6.0 Capital Improvement Program

6.1 Introduction

The Department's Capital Improvement Program (CIP) has evolved significantly since the September 24, 2012 order extending the final completion date of the FACD. Most notable of the changes is the City's recent investment in its Water Supply Program, estimated at a total cost of approximately $411.8 million, as well as significant revisions to other project cost estimates. The Department has also prioritized investment in water distribution and wastewater collection improvements, in part to coincide with the City's investment under the Renew Atlanta Program.[57] The Department is also continuing its investments in green infrastructure enabled with City Council adoption of Ordinance No. 14-O-1453 that allows dedication of up to 10 percent of MOST proceeds for stormwater management projects.

In addition, the Department has executed recent energy management and resource recovery contracts under shared benefit models (discussed below in Section 6.5) to yield operating efficiencies and advance sustainability objectives. These marquee investments build upon a foundation of more balanced System investment that was among the reasons for the Department's request for, and subsequent approval of, Consent Decree schedule relief.

To develop its FY 2019-24 CIP, the Department reviewed proposed capital improvement projects identified through various System evaluation and master planning efforts, as well as revisions to capital project cost estimates. Using a formal prioritization framework, projects were scored and ranked based on their projected performance relative to the following evaluation criteria:

A - Regulatory

B - Reliability

C - Safety

D - Financial

E - Customer Impact

Based on these project evaluations and cost estimate updates, scheduling considerations, and capital financing capacities defined by the Department's financial plan, project encumbrances have been scheduled for the FY 2019 to FY 2024 forecast period. Project descriptions and updated cost estimates for projects in the forecast period—totaling $1,010.5 million in nominal dollars—are summarized by project category herein.[58] Combined with existing (prior year) project encumbrances of $699.0 million summarized in Section 6.4, the Department expects to have $1,709.5 million available for capital expenditures during the

[57] In March 2015, Atlanta voters approved a $250.0 million infrastructure bond to authorize repairs and coordinate improvements to transportation infrastructure and municipal facilities City-wide.

[58] This information updates and supersedes data provided in the Department's *2015-2019 Capital Improvement Plan*, published in March 2016, which updated previous forecasts of water and wastewater capital encumbrance requirements.

six-year forecast period.

This section also provides a brief historical review of the Department's capital program, master planning efforts, and existing project encumbrances. The Department's energy management initiatives are described in greater detail, and the sources and uses of capital project funding are also outlined (though described in greater detail in Section 7).

6.2 Historical Perspective

During the 10-year period between the entry of its SSO Consent Decree in 1999 and completion of its CSO Consent Decree requirements in 2008, the Department implemented one of the Country's most significant wastewater collection system capital improvement programs. By 2009, the Department's compliance with its consent orders, as well as complementary capital projects had resulted in a 97 percent reduction in sewer spill volumes, and a 75 percent reduction in the incidence of spill events.[59] During this time frame, capital program expenditures averaged more than $225.0 million per year and totaled in excess of $2.0 billion. Financing this level of expenditure precipitated rate increases that placed the City's service rates among the highest imposed by major North American metropolitan systems (refer to Section 7.5).

With completion of its CSO Consent Decree obligations, and the extension of its SSO Consent Decree obligations until 2027, the Department has had an opportunity to balance planned capital program expenditures within its financial capabilities. For the FY 2019-24 capital improvement program, this balancing has been informed by facility assessments completed between 2011 and 2013, prioritization efforts led by new executive leadership, an integrated master planning effort completed in 2014[60], and recent condition assessment and asset management evaluations (as described below in Section 6.6). These efforts have identified, reiterated and—in some cases—revised the priority status of several major projects.

These facility assessments also suggested that several projects warranted accelerated project delivery and fundamental changes to the Department's capital project management functions. Changes included: (1) restoration and continuing improvement of program management functions, (2) use of alternative capital project delivery options (e.g., design-build, construction management at risk), (3) use of short-term debt instruments to facilitate cash-flow financing of project expenditures, and (4) use of alternative financing vehicles.

In FY 2018 in particular, DWM initiated new project review and prioritization procedures, as well as revised project management protocols, to improve monitoring of project budgets, encumbrance status and schedules. High priority projects identified in the Department's capital planning processes are advancing through the City's procurement processes. In the near term, these improvements have been reflected in increases in existing encumbrance levels (both contracted and pending contracting) – from $524 million as of June 2017 to $699 million as of June 2018, that are anticipated to provide 40.9% of the $1,709.5 million

[59] First Amended Consent Decree 1:98-CV-1956-TWT - Financial Capability-Based Amendment and Schedule Extension Request, April 30, 2010, p. 2

[60] Draft Integrated Utility Plan, Department of Watershed Management, July 2014

available for capital expenditures during the six-year forecast period. Prospectively, DWM will actively monitor the status of these project encumbrances to ensure timely contract execution and subsequent project delivery; or potential re-programming in the event project priorities, cost estimates, or schedules are revised.

While DWM's substantial level of existing encumbrances provides a measure of financial strength and flexibility, going forward, capital improvement plan revisions will be developed under the discipline of defined financial constraints. While priority project requirements and resource recovery opportunities have occasioned recent incurrence of limited new debt obligations, prospective capital spending will be determined primarily by the pace of delivery of projects for which funding has already been encumbered and annual current revenue funding capacity. DWM currently plans to restrict future borrowing to refunding of outstanding commercial paper notes under the 2018 Commercial Paper Program, its $13.3 million ($12.5 million net proceeds) Environmental Impact Bond, and annual GEFA loans.[61]

6.3 Integrated Utility and Master Planning

As noted, in 2014 the Department drafted an Integrated Utility Plan (IUP) to evaluate and prioritize competing water resource projects and needs, informed in part by facility assessments conducted between 2011 and 2013. The draft IUP provided a framework, based upon the USEPA's Integrated Planning Framework in which to balance the Department's capital investment needs for Clean Water Act compliance with the provision of safe drinking water for the Atlanta Metropolitan region. The cornerstone of the City's IUP framework is a more holistic, integrated water resources management paradigm, including asset management and a focus on resiliency. The primary components of the IUP are detailed in Table 6-1. Though structured to align with individual System components, the IUP also addresses the interrelationships between the water and wastewater sub-systems as well as certain watershed protection assets and services to effect integrated water resource management.

Collectively, the IUP informs the Department's approach to integrated water resource system development and effective asset management. Its framework served as the basis for the Department's Integrated Plan submittal for renewal of its NPDES permits for its East Area and West Area CSO Control Facilities.[62] This Integrated Plan focuses on opportunities to implement innovative technologies and green infrastructure to both meet regulatory requirements and convey broader environmental, economic and social benefits. Additionally, the Department will conduct a master plan update process as required by the Metropolitan North Georgia Water Planning District under its Water Resources Management Plan approved in 2017.

61 DWM has submitted two applications for Water Infrastructure Finance and Innovation Act (WIFIA) loans. In the event of award, the WIFIA loan(s) will effectively supplant planned GEFA borrowing such that total subordinate debt levels will approximate levels forecasted herein. One application is for funding ($92 million) of Infrastructure Resiliency projects that are estimated to cost $188 million. The second application is for funding ($52.0 million) of the North Fork Peachtree Creek Storage and Pump Station estimated to cost $107.7 million.

62 Integrated Plan for the City of Atlanta, East Area Control Facilities (NPDES Permit No. GA0037168), West Area Control Facilities (NPDES Permit No. GA0038644), August 2017

TABLE 6-1
Integrated Utility Plan Components

Plan Component	Plan Objective
Wastewater Master Plan	Plan for long-term management of the collection, transmission, treatment, and disposal of wastewater, consistent with applicable state, regional and federal regulations and guidelines. Delineates capital improvement requirements, capacity management operational and maintenance improvements, and performance indicators /functional benchmarks for monitoring performance.
Water Supply and Conservation Management Plan	Plan that addresses the management of water supply, treatment and distribution. Delineates capital project requirements that address water resource needs in the areas of water supply and intake, treatment, storage and pumping, and transmission considering key facts such as water supply sources and demand forecasts.
Watershed Protection Management Plan	Plan that includes capital program recommendations to enhance watershed protection and support System operations and practices. Reflects an in-depth evaluation of current practices and requirements related to water quality management as required under the Department's wastewater discharge and other System permits as well as general surface water management regulations.

Development of the IUP occasioned a limited restructuring of the Department's CIP whereby project categories were revised to reflect the evolution of the Department's investment emphasis from enforcement action compliance to a more holistic, water resource management approach. Figure 6-1 identifies the Department's current capital planning categories, which are used to summarize both existing and prospective CIP encumbrance requirements.

FIGURE 6-1
Capital Improvement Project Categories

WATER	*Water Supply*
	Drinking Water Facilities
	Water Distribution
WASTEWATER	*Water Reclamation Centers (and related facilities)*
	Wastewater Collection
	Wastewater Consent Decree
	Watershed Protection
GENERAL SUPPORT	*Facilities Management*
	Support Services
CSO FACILITIES	
STORMWATER	

6.4 Existing Encumbrances

Since its FACD extension, the Department's capital program has been highlighted by a more balanced distribution of projects, many of which have been encumbered over the past several years using proceeds of prior bond issues, Commercial Paper, and current revenues. The Department is required to encumber—or set aside—all funds necessary to complete a capital project before beginning the project procurement process (request for proposals, contractor selection, etc.) These contracting procedures impose planning discipline and reduce the potential for project delays due to insufficient resources. Prior year project encumbrances are maintained by the Department in various funds, including bond funds. Project funds that were encumbered with operating revenues of the System are held in the Department's R&E Fund. These cash reserves are restricted to their intended use—namely, to meet future expenditure requirements associated with projects to which they were previously encumbered.[63]

The Department used the 2015 Commercial Paper line of credit to meet encumbrance requirements for one of its largest capital projects, the Water Supply Program. With the expiration of the 2015 Commercial Paper Program, the Department repaid outstanding 2015 Commercial Paper notes and used proceeds from the Series 2018B Bonds to satisfy encumbrance requirements for ongoing contractual obligations of the Water Supply Program as described in Section 1.2.

As shown in Table 6-2, the Department had $699.0 million encumbered as of the end of FY 2018 (June 30, 2018). Of that total, $416.0 million represent projects already under contract while another $283.0 million has been encumbered to priority projects but not yet contracted. This volume of encumbrances reflects, in part, progress on many of the individual projects identified in prior bond feasibility studies. It also represents cash reserves dedicated to the Department's CIP, providing for capital spending across utility systems and asset types. The prospective encumbrances identified in Sections 6.7 and 6.8 (largely for consent decree projects and water pipeline renewal and replacement projects) will provide for additional, yet-to-be contracted capital spending.

63 Restricted cash reserves associated with prior year encumbrances are excluded from forecasted operating fund balances presented herein. Similarly, already-funded capital projects are excluded from forecasted encumbrance requirements of the System delineated in Section 6.7 and summarized in Table 7-4.

TABLE 6-2
Existing Project Encumbrances as of June 30, 2018 (in millions)

	Contracted	Not Contracted	Total	%
Water Supply	$ 98.7	$ 48.7	$ 147.4	21.1%
Drinking Water	0.2	42.2	42.4	6.1%
Water Distribution	21.4	37.7	59.1	8.5%
Water Reclamation Facilities	$ 26.6	$ 45.1	$ 71.7	10.3%
Wastewater Collection	42.6	12.1	54.7	7.8%
Wastewater Consent Decree	73.1	3.7	76.8	11.0%
Watershed Protection	40.4	49.3	89.7	12.8%
Facilities Management	$ 26.9	$ 20.3	$ 47.2	6.8%
Support Services	40.2	13.3	53.5	7.7%
CSO Facilities	$ 28.6	$ 8.4	$ 37.0	5.3%
Stormwater	17.3	2.1	19.4	2.8%
Total Encumbrances	**$ 416.0**	**$ 283.0**	**$ 699.0**	**100.0%**

6.4.1 Security Surcharge Reserves

In addition to the existing encumbrances noted above, the Department has access to approximately $24.2 million in funds held in a restricted reserve to address security issues. These funds were generated through the Department's $0.15/kgal security surcharge imposed from 2004 through 2011. These funds may be accessed to address technology needs that have been identified in response to the recent ransomware incident that impacted City and Department information systems.

6.5 Resource Recovery – Energy Management Contracts

In addition to its encumbrance activity, the Department also executed contracts to advance its resource recovery – energy management objectives. Contract terms for all three projects contemplate sharing of benefits associated with additional revenue streams and/or cost savings, while limiting the Department's project financing requirements and delivery risks.

- **Ostara Nutrient Recovery Process**: In May 2018, the Department contracted with Ostara for a turnkey, fully financed, nutrient recovery system. Ostara's patented process is designed to selectively extract nutrients (phosphorus and nitrogen) from wastewaters and convert these into a slow release fertilizer for agricultural applications. The contract contemplates a lease-purchase arrangement where Ostara is required to design, build, operate and finance the facilities as well as market the fertilizer product. The Department's lease obligations, totaling approximately $1.1 million per year over a 12-year period, are anticipated to be more than offset by wastewater plant O&M expense savings (estimated at up to $1.8 million per year) and a $400,000 per year share of fertilizer revenues. Wastewater O&M expense savings are realized by no longer having to treat these nutrients using chemical treatment methods and avoiding struvite scaling issues.

- **NORESCO Energy Conservation Measures** (ECM): In December 2017, the Department contracted with NORESCO to implement three ECMs projected to cost a total of $77.9 million. The ECMs will be installed over a 36-month construction period. NORESCO will provide turnkey engineering design, project management and start-up and commissioning services as well as training on operation, maintenance and warranty procedures for Department staff. The projects - (1) Water Distribution System Optimization, (2) Biosolids Beneficial Reuse, and (3) Ultraviolet Disinfection System Improvement – will be paid over a 15-year financing period. In aggregate, they are projected to yield between $0.5 and $4.6 million per year in savings during the forecast period. The installed assets are anticipated to have useful lives exceeding the payback period and will accelerate the Department's contribution to the City's goal of a 20 percent reduction in energy consumption by 2020.
- **Schneider Energy Conservation Measures** (ECM): In January 2018, the Department contracted with Schneider Electric to implement seventeen ECMs projected to cost a total of $36.2 million. The ECMs will be installed over a 30-month construction period. Schneider will provide turnkey engineering design, project management and start-up and commissioning services as well as training on operation, maintenance and warranty procedures for Department staff. The projects include South River anaerobic digestion and solids optimization and Utoy Creek low energy thickening equipment and will be paid over a 15-year financing period. In aggregate, they are projected to yield between $1.3 and $1.8 million per year in savings over the forecast period. The installed assets are anticipated to have useful lives exceeding the payback period and will accelerate the Department's contribution to the City's goal of a 20 percent reduction in energy consumption by 2020.

Projected O&M expense savings—as well as corresponding long-term lease obligations—associated with each of these contracts have been incorporated into the Department's updated Strategic Financial Plan discussed in Section 7.

The Department is also continuing to evaluate its biosolids management strategy potentially to include: (1) upgrading the anaerobic digesters and providing thermal drying of digested biosolids at RM Clayton to produce Class A biosolids; (2) co-digestion of high-strength waste streams and municipal sludge at Utoy; and (3) improved recovery of methane from consolidated solids digestion for electricity generation at RM Clayton.

6.6 Asset Management

The Department's Strategic Asset Management Division (SAMD) has completed a draft 3-year asset management plan which further informs the development of the CIP.[64] This comprehensive plan addresses water, wastewater and stormwater linear and vertical assets and has identified over 35 asset management projects or initiatives. Highlights of the Department's emerging Asset Management program are described below.

- In 2017, DWM awarded a contract to assess the physical condition and remaining useful life of up to 30 miles of transmission lines. The condition assessment will be

[64] Draft 3-Year Strategic Asset Management Plan (2018-2020), February 2018

used to determine where sections of pipe require replacement and help prioritize capital projects.

- The City is piloting a non-destructive, remote sensing, satellite technology to identify potential leaks in the drinking water system. This proactive leak detection technology will help improve efficiency in identifying leaks, reducing water loss, and saving on main break repair costs.
- Under the Renew Atlanta Program, DWM has assessed the need to relocate or replace aging water mains prior to resurfacing efforts. To date, over 194 projects have been assessed; 37 water main replacements designed; and approximately 31,000 linear feet of water main have been replaced and are in now service.

The Department's Asset Management initiatives reflect adoption of industry best management practices to collect and analyze asset conditions, model criticality, and prioritize asset renewal and replacements. They are of particular importance as they inform the selection of specific annual project contracts that represent approximately 38 percent of projected encumbrances from FY 2019 to FY 2024.

6.7 FY 2019–2024 Capital Improvement Program

The Department's prospective capital program reflects recent reprioritization efforts informed by its recent facility assessment, asset management and integrated utility planning initiatives – and substantially revised project cost estimates (as discussed further in Section 6.9.1). It reflects the substantial level of existing encumbrances (outlined in Section 6.4) that provides funding for a broad array of projects, including most of that required for the prospective completion of the Department's Water Supply Program at a cost of $411.8 million. As a consequence, the Department's planned capital encumbrances are to:

- ensure timely completion of FACD requirements (in part by encumbering all projects no later than FY 2024 to allow multi-year periods for procurement, delivery, and acceptance),
- place emphasis on previously deferred projects delivered through the Department's annual contracts, and
- fund three (3) selected priority projects – the Peyton Center, Intrenchment Creek WRC Decomissioning, and North Fork Peachtree Creek Storage Tank and Pump Station - whose near-term delivery will address pressing system deficiencies.

The prospective emphasis on FACD projects and those delivered through annual contracts is to be complemented by enhancements to internal capital project delivery capacity to enable the Department to execute capital programs beyond the consent decree deadline, on a sustained basis, without embedded program management support.

6.7.1 Water System

The Water System CIP represents ongoing and planned projects to ensure system reliability, to meet specific facility needs, and to ensure compliance with the Safe Drinking Water Act and operating permits. The Water System CIP includes the following program categories:

- Water Supply
- Drinking Water Facilities
- Water Distribution

6.7.1.1. Water Supply

The Department's recent capital program has been highlighted by implementation of the Water Supply Program – the most substantial water system investment since development of the Chattahoochee WTP. This program will address acute weaknesses in the Department's raw water supply infrastructure identified in facility assessments conducted between 2011 and 2013. The program will improve the reliability of raw water delivery to the Chattahoochee and Hemphill drinking water plants. The program consists of a deep, five-mile tunnel with a diameter of ten to twelve feet to connect the raw water intake on the Chattahoochee River to the Chattahoochee Water Plant, the Hemphill Water Plant, and the Bellwood Quarry. Use of the Quarry will add 2.4 billion gallons (estimated 30 to 90-day supply) of raw water storage to the System, making raw water storage available at the Chattahoochee plant for the first time. Raw water will be pumped up from this tunnel to the Chattahoochee plant and to the Hemphill raw water reservoirs. This conveyance and storage system will replace reliance on three old, cast-iron transmission lines that deliver water from the intake to the Hemphill plant.

Construction of the tunnel and new pump stations at the Quarry and Hemphill WTP is scheduled for completion in October 2019. A new 90 mgd Chattahoochee Raw Water Intake pump station is scheduled for completion in 2020, at which time the project is expected to be operational.

The final project to be encumbered will provide funding for a drill and blast tunnel extension from the Chattahoochee construction shaft to the new Chattahoochee Raw Water Intake pump station and related engineering and construction management services. Water Supply projects will require encumbrances of $20.0 million ($20.2 million in nominal terms) over the forecast period as indicated in Table 6-3.

TABLE 6-3
Water Supply Projects FY 2019–2024: Current Dollar Project Cost Estimates

Project	Cost Estimate
Water Supply Program, Tunnel Extension and Pump Station Connection	$20,000,000
Total – Current Dollar Cost Estimate	**$20,000,000**

6.7.1.2. Drinking Water Facilities

Drinking Water Facilities projects consist of water treatment plant and pump station projects to improve treatment processes for continued compliance, instrumentation and controls, and facilities assets. The Department has prior funded encumbrances of $42.4 million as shown in Table 6-2 but does not anticipate project encumbrances in this category in the FY 2019 - FY 2024 forecast period.

6.7.1.3. Water Distribution

The projects in this category are related to the transmission and distribution of finished water, and represent those projects that are intended to improve efficiency and reliability, or replace /renew assets that have reached the end of their useful life. The distribution system is a large and diverse set of assets for which sustained funding is imperative to provide uninterrupted flow and pressure for health, business productivity, and fire flow. Replacing mains with a high break history or those with chronic leaks also reduces real water loss. In many instances, smaller mains may be replaced with larger pipe based on hydraulic modeling. The Department is responsible for operating over 2,800 miles of water transmission and distribution mains, with the majority of the water distribution system now more than 50 years old. The Department's multi-year capital program prioritizes replacement of defective pipes and also includes reactive maintenance. In recent years, reactive maintenance requirements reflect higher incidence of leaks and water main breaks, due in part to winter periods with sustained, below-average temperatures.

While previous CIPs segregated distribution system projects into three categories of projects—transmission main improvements, distribution system maintenance and improvements, and annual contracts—the Department will procure all water distribution system work through annual contracts during the forecast period.

The prospective capital program outlines requirements for Water Distribution projects totaling approximately $168.0 million ($179.6 million in nominal terms) between FY 2019 and FY 2024 as shown in Table 6-4.

TABLE 6-4
Water Distribution Projects FY 2019–2024: Current Dollar Project Cost Estimates

Project	Cost Estimate
Large Diameter Water System Rehabilitation & Replacement	$24,000,000
Cooperative Purchasing Agreement for Water Meter Installation & Replacement Services	18,000,000
Large Water Meter Installations	36,000,000
Water Facilities Contracts	81,000,000
Large Meter Testing & Repair	9,000,000
Total – Current Dollar Cost Estimate	**$168,000,000**
** These amounts represent incremental encumbrance requirements for the specified project*	

Specific projects include:

- **Large Diameter Water System Rehabilitation and Replacement –** this is a general project category for as-yet identified future water large diameter main improvements. The designated funding amount is anticipated to provide for improving the condition of an estimated 30 miles of main per year, an average of 10% of which is anticipated to be replaced

- **Cooperative Purchasing Agreement for Water Meter Installation & Replacement Services** includes the testing, repair, replacement, and installation of meters that are two inches or less in diameter; repair and replacement of valves and hydrants across the water distribution system; and raising of valves and manhole covers. These services are essential for the following reasons:
    - maintaining meter reading accuracy is essential to revenue collections and elemental to equitable billing and water loss reduction;
    - operational reliability of valves and hydrants is needed for public safety and system performance and to isolate and minimize the impact of infrastructure failures; and
    - valve and manhole covers must be raised coincident with street and sidewalk improvements, and as a routine matter of uncovering access to linear assets.
- **Large Water Meter Installations** - includes installation of meters greater than two inches in diameter to extend service to new commercial and institutional customers. This program is implemented through annual contracts, and program costs are offset by DWM's tap fee revenues.
- **Water Facilities Contracts –** this project category is for reactive work to fix issues and leaks in the water transmission and distribution system. Requirements to respond to water distribution system issues have increased over the last 10 years during which the incidence of water main breaks increased to an average of 471 breaks per year – over 50 breaks more than the average over the 1999 – 2018 period.
- **Large Meter Testing & Repair** - project includes the testing, repair, and replacement of water meters with diameters greater than two inches. There are over 3,000 large meters in the distribution system, through which approximately half the finished drinking water flows. Maintaining accuracy to AWWA standards is important for sustaining revenues, equitable billing, and reduction of apparent water loss. This program is implemented through annual contracts.

6.7.2 Wastewater System

The wastewater capital program is designed to address a number of acute facility needs identified in assessments of System facilities conducted between 2011 and 2013, and more recently through the Department's asset management initiatives. Funded capital projects provide for reinvestment through annual renewal and rehabilitation efforts and ensure compliance with the Clean Water Act, the Georgia Clean Waters Act, and the City's NPDES permits.

6.7.2.1. Water Reclamation Centers and Facilities

Projects under this category are intended to improve efficiency and reliability, renew or replace assets, or address current or prospective regulatory requirements. Funded projects were identified or validated through the Wastewater Master Planning effort. The capital program calls for encumbrances of $60.5 million ($62.3 million in nominal terms) over the 6-year period between FY 2019 and FY 2024 as outlined in Table 6-5.

TABLE 6-5
Water Reclamation Centers and Facilities Projects FY 2019–2024: Current Dollar Project Cost Estimates

Project	Cost Estimate
R.M. Clayton Anaerobic Digester Improvements*	$ 2,255,000
Decommissioning of Intrenchment Creek WRC and consolidating treatment at the South River WRC*	58,252,427
Total – Current Dollar Cost Estimate	**$60,507,427**
** These amounts represent incremental encumbrance requirements for the specified projects*	

Specific projects include:

- **R.M. Clayton Anaerobic Digester Improvements** – The project includes implementing needed equipment improvements at the RM Clayton to upgrade the anaerobic digestion process for improved performance, regulatory compliance, reliability and safety. The upgrades will provide for the flexibility for advanced treatment and Class A biosolids production.
- **Decommissioning of Intrenchment Creek WRC and consolidating treatment at the South River WRC** – This project is expected to reduce the risk of permit noncompliance events, and includes replacing the grit traps, providing new influent and effluent pump stations, and repairing force mains at Intrenchment Creek WRC. To consolidate treatment at South River WRC, new primary clarifiers will be constructed, upgrades will be made at the primary odor control building, the chemical feed building will be replaced, and a new poly aluminum chloride (PAC) chemical feed facility will be constructed. DWM has already encumbered approximately $21.0 million for this project; to limit cost escalation, the Department plans to use a progressive design-build project delivery mechanism that will establish a guaranteed maximum price following completion of initial project phases.

In addition to the projects listed above, the Department is pursuing opportunities to gain efficiencies through facility upgrades, reductions in energy consumption, and taking advantage of resource recovery opportunities (see Section 6.5).

6.7.2.2. Wastewater Collection

The Wastewater Collection projects represent collection system improvements specified to assure appropriate renewal and rehabilitation of wastewater system pipelines. The capital program calls for encumbrances of $79.0 million ($84.2 million in nominal terms) over the 6-year period between FY 2019 and FY 2024 as identified in Table 6-6.

TABLE 6-6
Wastewater Collection Projects FY 2019-2024: Current Dollar Project Cost Estimates

Project	Cost Estimate
Sanitary Sewer Repairs	$78,000,000
Intrenchment Creek Aqueduct Rehabilitation	950,000
Total – Current Dollar Cost Estimate	**$78,950,000**

Project descriptions include:

- **Sanitary Sewer Repairs**- this annual contract project will facilitate the long-term sustainability and structural integrity of critical linear assets. It will help enhance flow capacity of repaired sewers, reduce Infiltration/Inflow or extraneous flows into the sewer system, and contribute to reductions in SSOs. The project will help ensure adequate conveyance capacity and improve treatment capacity at the WRCs. Specifically, the project provides for:
    - Repairing of linear sewer assets using methods such as: Cured-in-Place Pipe (CIPP) and internal and external point repairs; and
    - Ongoing collection system asset management activities (condition assessment, scoring of risk and criticality, which is not mandated for sewer segments listed under the SACD.

- **Intrenchment Creek Aqueduct Rehabilitation** – the viaduct is located just upstream of the Intrenchment Creek WRC and conveys both City of Atlanta and DeKalb flows. The viaduct has structural cracks and related defects that have resulted in sewer spills, fish kill, and odor complaints. This project will replace the aerial influent sewer.

6.7.2.3. Wastewater Consent Decree

The Wastewater Consent Decree projects represent collection system improvements required under the SACD to assure adequate capacity, and appropriate renewal and rehabilitation, of wastewater pipelines. The capital program calls for encumbrances of $276.0 million ($297.5 million in nominal terms) over the 6-year period as identified in Table 6-7.

TABLE 6-7
Wastewater Consent Decree Projects FY 2019-2024: Current Dollar Project Cost Estimates

Project	Cost Estimate
SG3 Niles Avenue Sewer Improvements	8,000,000
SG3 Lower Proctor Creek Trunk	2,000,000
SG4 Capacity Relief – Collier Road Outfall Sewer Improvements	4,427,482
SG4 Pipe Rehabilitation	20,921,975
SG4 - East Lake Outfalls & East Lake Trunk Replacement Capacity Relief (Sugar Creek Basin)	7,746,350
SG4 - Sugar Creek Basin Trunk Replacement Capacity Relief Projects	8,193,469
SG5 Capacity Relief Project - Buckhead Trunk Replacement (Peachtree Basin)	9,567,618
SG5 Capacity Relief Project - Westminster Outfall Replacement (Nancy Creek)	7,852,581
SG5 Capacity Relief Project - Buckhead Trunk Replacement (Peachtree Basin)	5,960,225
SG5 Capacity Relief Project - South Utoy Trunk system replacement	16,296,997
SG5 CSO Rehabilitation & Capacity Relief	80,000,000
SG6 CSO Rehabilitation & Capacity Relief	105,000,000
Total – Current Dollar Cost Estimate	**$275,966,697**

These projects are intended to improve efficiency, reliability, or replace / renew assets that have reached the end of their useful life. These projects support an asset management-based operational approach. Wastewater Consent Decree projects fall into two general categories:

- **Rehabilitation:** sewer facilities and appurtenances requiring structural and service improvements for adequate flow conveyance.
- **Relief:** sewer facilities and appurtenances to provide needed capacity to adequately convey flows based on existing or projected wastewater needs.

By 2013, the Department had completed required Sanitary Sewer Evaluation Survey (SSES) work for all sewer groups. This work provided a complete inventory of the wastewater collection system, including a listing of defects that existed at the time of the evaluation surveys. The inventory, along with the Department's System-wide collection system model, creates the basis for defining projects for rehabilitation or relief needs. This planning basis is being transitioned to the Department's asset management systems to ensure continued and appropriate renewal and replacement of its sewer assets. The Department will implement sewer rehabilitation and relief projects required under the Second Amended Consent Decree to ensure completion within the revised July 2027 completion date. Cost estimates for Sewer Group 5 and Sewer Group 6 projects will be refined over the next several months based on condition assessment information and detailed strategies to address system deficiencies.

Example projects include:

- **Sewer Group 4 Pipe Rehabilitation** – this project will enhance flow capacity of small diameter sewers through the following activities: pre-cleaning sewers, lining sewers with cured-in-place pipe (CIPP), rehabilitating manhole covers, and replacing sections of sewer pipe using various methods (including pipe bursting and open cut methods).
- **Sewer Group 4R- East Lake Outfalls & Trunk Capacity Relief Projects in Sugar Creek Basin** - project is a consent-decree capacity relief project. The project scope includes pipe bursting and thus upsizing between 10,000 and 15,000 linear feet of trunk sewer in the Sugar Creek basin.
- **Sewer Group 5R- Buckhead Trunk Replacement in Peachtree Creek Basin** - project is a consent-decree capacity relief project entailing the replacement and partial realignment of approximately 4,000 feet of 21-inch-diameter sewer in the Peachtree Creek basin. The replacement sewer is planned to be 30-inch-diameter.

6.7.2.4. Watershed Protection

Watershed Protection projects provide capacity relief and stormwater retention and detention. Projects include green infrastructure that mimics the natural environment and wet weather storage facilities that divert and detain stormwater flows. These projects are being integrated with wastewater projects where they will facilitate compliance with recent and anticipated changes in the Department's NPDES permit requirements that call for more proactive management of non-point source pollutant loadings. As indicated in Table 6-8, the

Department plans encumbrances for Watershed Protection projects of $105.0 million ($107.7 million in nominal dollars) during the FY 2019-24 forecast period.

TABLE 6-8
Watershed Protection Projects FY 2019–2024: Current Dollar Project Cost Estimates

Project	Cost Estimate
North Fork Peachtree Creek Storage Tank and Pump Station	$105,000,000
Total – Current Dollar Cost Estimate	**$105,000,000**

Projects include:

- **North Fork Peachtree Creek Storage Tank and Pump Station** – The implementation of this project will provide key capacity relief to meet the consent decree compliance date of July 1, 2026 for Peachtree Creek Basin and offer a resolution to the flooding and sanitary sewer overflow problems in Peachtree Creek and the major trunk system within the basin. The project will include the development of a 15 MG storage tank and 75 MGD pump station, allowing the Department to divert wet weather flows from the main trunk sewer to the pump station wet well (then storage tank) during significant storm events. The storage tank will be dewatered using another set of pumps as soon as downstream conditions permit.

6.7.3 General Support

General Support projects are those that are not specific to the wastewater or water categories defined above but are required to support the Department's capital project initiatives. General Support projects are divided into two sub-categories: Facilities Management and Support Services.

6.7.3.1. Facilities Management

Facilities Management projects include structural and site improvements at various Department properties (including road repairs at plant sites). The capital program identifies encumbrance requirements totaling $62.5 million ($62.7 million in nominal terms) between FY 2019 and FY 2024, as outlined in Table 6-9.

TABLE 6-9
Facilities Management Projects FY 2019–2024: Current Dollar Project Cost Estimates

Project	Cost Estimate
Peyton Center*	$52,500,000
Facility Structural and Site Improvements	10,000,000
Total – Current Dollar Cost Estimate	**$62,500,000**
** The total cost estimate for this project is $56.8 million, but $4.3 million of that total has already been encumbered.*	

Projects include:

- **Peyton Center** – this project has been expanded and become a high priority due to the elimination of the Department's Englewood service yard. It will consolidate operations and maintenance for wastewater collection and water distribution field services, house selected Office of Linear Infrastructure Operations administrative functions and include an auditorium facility. The Department plans to co-locate a training academy and central warehouse at the property owned on Peyton Road. This training center is anticipated to include full-scale simulators and training grounds for equipment operation.

- **Facility Structural and Site Improvements** – this project is comprised of general plant and building maintenance, repair or replacement of roofs, elevators, HVAC, security fencing, pavement, replacement of emergency generators, and the demolition of abandoned structures.

6.7.3.2. Support Services

Support services projects include continuing program management support services; asset management planning, geotechnical investigations; asphalt paving, milling, and resurfacing; and fleet replacement expenditures. Planned encumbrances also include a funding allowance for projects in which utility relocations are required as part of municipal or Georgia Department of Transportation (GDOT) road widening projects, bridge replacements or other improvements.

The capital program calls for encumbrances of $110.4 million ($118.1 million in nominal terms) between FY 2019 and FY 2024, as outlined in Table 6-10.

TABLE 6-10
Support Services Projects FY 2019–2024: Current Dollar Project Cost Estimates

Project	Cost Estimate
Program Management Services	$40,000,000
Asset Management Implementation/Planning (CMMS)	3,750,000
Geotechnical Testing & Investigation	3,600,000
Asphaltic Concrete Pavement Milling & Resurfacing	12,000,000
A/E Services	15,000,000
DWM Fleet Replacement	12,000,000
GDOT/Intra-Governmental Agreements Utility Relocation	24,000,000
Total – Current Dollar Cost Estimate	**$110,350,000**

Specific projects include:

- **Program Management Services** - project will fund professional services related to capital project delivery including planning, tracking, scheduling, and cost estimating as well as ancillary services related to the CIP.

- **Asset Management Implementation/Planning (CMMS)** - in response to a recommendation from an inventory audit, this project will implement a single version of the CMMS (Maximo version 7.1.1.13) across all facilities including warehouses. The project includes developing and implementing an Asset Management Program for vertical and linear assets, implementing one version of the CMMS with periodic upgrades to be used by all staff, and providing CMMS training for all appropriate DWM personnel. The project will enable management of all warehouse inventory using CMMS and development of preventive maintenance programs for vertical and horizontal facilities.

- **Geotechnical Testing** - project will fund a series of contracts to sample and evaluate soil and rock borings. This testing is generally used at the concept and alignment phases of capital projects and facilitates development of good design work, especially with deep excavation or tunneling projects. Reducing the uncertainty of below-grade conditions controls the Department's construction project costs.

- **Asphaltic Concrete Pavement** - project provides for milling and overlay of asphalt to provide continuously smooth roadway surfaces at locations where sewer rehabilitation work has disturbed the existing pavement.

- **Architectural /Engineering (A/E) Services –** a set of six A/E professional services firms were selected in 2015 to provide various capital project delivery services primarily including planning, multi-discipline engineering design, and construction management services. A/E services is a general category for existing capital projects requiring specialized expertise resident in the selected A/E firms.

- **Fleet Replacement** - project will replace vehicles and rolling equipment on a defined schedule based on age, miles, or hours of service. DWM operates approximately 800 items of rolling stock, including construction equipment, trucks, sedans, and mowers. Replacement of fleet vehicles and other rolling stock is a capitalized expenditure.

- **GDOT / Intra-Governmental Agreements Utility Relocation** - project addresses situations where road, bridge, and drainage improvements conflict with existing water and sewer lines. The responsibility of relocating these lines is generally assigned to the utility owner, who is required to maintain uninterrupted service. Transportation-driven water and sewer line relocations are recurring projects in DWM's CIP.

6.7.4 CSO Facilities

As a consequence of completion of the CSO Consent Decree program, relatively limited additional work is required on the Department's CSO Control Facilities themselves. As indicated in Table 6-2, approximately $37.0 million has been encumbered for the remainder of this work and all but $8.4 million has already been contracted. The capital program, for this category of costs, calls for additional encumbrances of $3.3 million ($3.3 million in nominal terms) over the forecast period as shown in Table 6-11.

TABLE 6-11
CSO Facilities Projects FY 2019-2024: Current Dollar Project Cost Estimates

Project	Cost Estimate
West Area Water Quality Control Facility - Outfall	$3,340,000
Total – Current Dollar Cost Estimate	**$3,340,000**

Specific projects include:

- **West Area Water Quality Control Facility - Outfall** – the project entails the reconstruction of the energy dissipation system at the bottom of the concrete apron of the emergency outfall for the West Area Tunnel. The project also includes the repair and reinforcement of the Peachtree Creek streambank where the West Area Tunnel discharges.

6.7.5 Stormwater

In December 2015, the Atlanta City Council adopted Ordinance No. 14-O-1453 that allows dedication of up to 10 percent of MOST proceeds for stormwater management related projects. In March 2016, Atlanta voters approved the extension of the 1 percent Municipal Option Sales Tax for an additional 4 years until October 2020. In early 2018, state legislation was passed (and later signed into law on May 3, 2018) allowing for additional referenda that would extend the MOST through 2032. Given prior overwhelming voter approvals, the Department's financial plan assumes voter approval in 2020 to extend the MOST through October 2024.[65] MOST revenues dedicated to DWM are projected to be $125M per annum over the forecast period. MOST funds for stormwater projects will be used to address structural and capacity deficiencies of the City's MS4. These projects will alleviate surface flooding and provide for water quantity control. Green infrastructure projects will also provide water quality improvement benefits.

The scheduled stormwater projects reflect annual investment in green infrastructure projects that mimic the natural environment yet may provide stormwater detention, retention, and/or natural treatment of non-point pollutant loadings. DWM has identified approximately 80 specific project sites in three or more phases of work for improvement. The capital program calls for encumbrances of $69.7 million ($75.0 million in nominal terms) over the forecast period as shown in Table 6-12.

TABLE 6-12
Stormwater Projects FY 2019-2024: Current Dollar Project Cost Estimates

Project	Cost Estimate
Stormwater Projects	$69,746,340
Total – Current Dollar Cost Estimate	**$69,746,340**

[65] In the event that voters fail to approve the MOST extension in 2020, substantial rate increases would be required in FY 2021 and FY 2022 as indicated in Table 7-11.

6.8 Capital Program Funding Sources, FY 2019–2024

The Department has developed its CIP to effectively prioritize the Department's capital investments in light of prevailing financial constraints as described in Section 7. Table 6-13 presents planned sources and uses of capital project encumbrances from FY 2019 to FY 2024 in nominal dollars.[66] Cost estimates have been inflated based on the assumed start date of each project and an annual capital cost escalation rate of 3.0 percent.

As outlined in Section 7, the Department's funding plan relies upon existing fund balances, revenue bond proceeds, GEFA borrowing, and operating revenues to provide capital financing over the forecast period. Encumbrance requirements will also be met by capital contributions from the City's IJ partners. These contributions relate to the shared costs for upgrades or improvements to wastewater treatment facilities that benefit IJ partners. The Department initially funds such projects and then bills each IJ partner for their respective share of the cost of the improvement based on contractual agreements. Eligible projects represent $210.1 million of projected encumbrance requirements in nominal terms over the forecast period, for which approximately $83.7 million will be shared by IJ partners. Of that $83.7 million, the Department expects to collect and have available $73.1 million for capital projects during the forecast period.[67]

Combined with the $699.0 million of existing encumbrances summarized in Section 6.4, the Department expects to have $1,709.5 million available for capital expenditures during the 6-year forecast period. Revisions to the CIP ensure continued coverage of the City's debt obligations, funding of System operations, and preservation of reserves and fund balances consistent with the Department's financial policies. Table 6-14 presents projected annual encumbrances in nominal dollars for the Department's capital program from FY 2019 through FY 2024 by major cost category.

6.9 Funding Forecasts and Cost Estimation

Forecasts of the Department's encumbrance requirements for water, wastewater and stormwater projects are based on projections of prioritized capital expenditures developed by Department capital project managers with select consultant support. These expenditure forecasts incorporate in-progress improvements to the Department's capital project procurement practices and capital project delivery functions noted in earlier sections. In addition, DWM has instituted a number of measures to enhance the accuracy of project cost estimates. Rather than in-house estimation, DWM is now requiring its on-call architectural/engineering (A/E) consultants to provide cost estimates, using DWM-prescribed standard methods, for projects for which they are engaged to provide planning and design services. Project cost estimates are also subject to independent review by DWM's program management services team (PMST) consultants. Perhaps most fundamentally, rather than applying blanket cost contingency assumptions, DWM is tailoring assumptions to more accurately reflect stages of project planning, design and implementation. In so doing,

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[66] This table excludes the $699.0 million of capital projects identified in Table 6-2 that have already been funded.

[67] Additional capital contributions of approximately $25.6 million are expected to be collected from IJ partners for ongoing (previously funded) DWM projects.

estimates for projects scheduled later in the forecast period reflect higher uncertainty while narrower cost ranges are applicable for near-term projects.

TABLE 6-13
CIP Encumbrance Requirements, Sources & Uses of Funds FY 2019–2024 (in nominal dollars)[1]

System	Project Category	Projected Encumbrances ($ millions)
Water	Water Supply	20.2
	Drinking Water Facilities	0.0
	Water Distribution	179.6
	Total Water Projects	**$199.7**
Wastewater	Water Reclamation Centers & Related Facilities	$62.3
	Wastewater Collection	84.2
	Wastewater Consent Decree	297.5
	Watershed Protection	107.7
	Total Wastewater Projects	**$551.7**
General	Facilities Management	62.7
	Support Services	118.1
	Total General Projects	**$180.8**
CSO Facilities		3.3
Stormwater		75.0
	Total Uses of Funds	**$1,010.5**
SOURCES of FUNDS		
Revenue Bond Proceeds[2]		$110.0
Environmental Impact Bond Proceeds		12.5
Re-programmed CIP Encumbrances		$23.6
GEFA Proceeds		$228.0
Previous Bond Proceeds		$50.0
Operating Revenues and Reserves[3]		$586.4
	Total Sources of Funds	**$1,010.5**

1 Slight calculation discrepancies may exist due to rounding
2 Although DWM will use the 2018 Commercial Paper Program to temporarily encumber $110.0 million of projects, these financial obligations will ultimately be repaid with the Series 2021 revenue bond proceeds
3 Variances from information presented in Table 7-4 attributed to the exclusion of approximately $13.6 million in operating reserves that will be available at the end of the forecast period for future capital projects

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TABLE 6-14
Projected Encumbrances by Major Program Element, FY 2019–2024 (in millions, nominal dollars)

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	TOTAL	% of Total
Water Supply	15.0	5.2	-	-	-	-	20.2	2.0%
Drinking Water Facilities	-	-	-	-	-	-	-	0.0%
Water Distribution	36.5	33.5	30.2	25.7	26.4	27.2	179.6	17.8%
Water Subtotal	$ 51.5	$ 38.6	$ 30.2	$ 25.7	$ 26.4	$ 27.2	$ 199.7	19.8%
Water Reclamation Centers	2.3	60.0	-	-	-	-	62.3	6.2%
Wastewater Collection	17.0	16.5	17.0	10.9	11.3	11.6	84.2	8.3%
Wastewater Consent Decree	46.0	47.4	48.8	50.3	51.8	53.3	297.5	29.4%
Watershed Protection	15.0	92.7	-	-	-	-	107.7	10.7%
Wastewater Subtotal	$ 80.2	$ 216.6	$ 65.8	$ 61.2	$ 63.0	$ 64.9	$ 551.7	54.6%
Facilities Management	57.5	3.1	2.1	-	-	-	62.7	6.2%
Support Services	25.9	19.4	18.4	17.6	18.1	18.7	118.1	11.7%
General Support Subtotal	$ 83.4	$ 22.5	$ 20.5	$ 17.6	$ 18.1	$ 18.7	$ 180.8	17.9%
CSO Facilities	$ 3.3	$ -	$ -	$ -	$ -	$ -	$ 3.3	0.3%
Stormwater	$ 12.5	$ 12.5	$ 12.5	$ 12.5	$ 12.5	$ 12.5	$ 75.0	7.4%
Total CIP Encumbrances	**$ 230.9**	**$ 290.2**	**$ 129.0**	**$ 117.0**	**$ 120.1**	**$ 123.3**	**$ 1,010.5**	**100.0%**

6.9.1 Project Cost Increases

These recently implemented enhancements to the Department's project cost estimation practices and procedures have occasioned significant cost estimate increases in most project categories. Projected annual encumbrances for consent decree projects and projects funded through annual contracts, representing the vast majority of future encumbrance requirements, have increased approximately 63.8 percent relative to estimates provided in the Series 2017A Bond feasibility study.

The profound increase in project cost estimates reflect a host of factors that have been more fully and conservatively accounted for with the Department's revised cost estimation procedures. Paramount among these factors is the current construction market in the Atlanta region. Pricing is not only impacted by robust economic conditions but also specific demand for infrastructure project delivery services. For example, DeKalb County's ongoing wastewater consent decree program, as well as GDOT projects, have contributed to pronounced price escalation in the region. Annual project cost escalation is also attributed to the need to coordinate work with the Renew Atlanta Program, and is due to higher incidence of reactive projects occasioned by unusual weather conditions. Finally, the Department has adjusted previous consent decree project cost estimates that were based on older information and, in many cases, did not include construction management services that are now embedded in consent decree project scopes of work.

6.10 Additional Capital Projects

The Department's capital improvement plan is subject to frequent review and modification based on defined prioritization criteria of the water and wastewater systems. To the extent that actual encumbrances are less than projected encumbrances during the forecast period, or additional financing capacity becomes available, the Department has identified a number of projects that stand "next in line" for funding. High priority projects include:

- **Upper Proctor Creek- Rodney Cook Sr. Park** –Using a Construction Management at Risk (CMR) delivery method, this project will provide a stormwater detention/retention facility consisting of a pond, water features, storm drain pipelines, sidewalks and roadway improvements. The project also includes soil remediation and demolition of remaining residences on the site. This project will provide combined sewer system capacity relief for the Mineral Springs and Beckwith Street Trunks. The Department has funded the initial phase of this project for $22.2 million; additional work is projected to require $15.2 million.
- **Replacements of the Flint River and Bolton Road sewage pumping stations,** each of which provide important flow handling capacity for overall sewer system compliance, have been deferred for several years. Conceptual project cost estimates reported in FY 2015 for the design and construction of these stations were each in the $13-$15 million range.

7.0 Financial Performance

7.1 Overview

The historical and projected financial performance of the System has been significantly impacted by capital improvement needs (including continuing Consent Decree compliance requirements), revenue impacts from dynamic economic conditions, atypical weather patterns, and acute needs for renewal and rehabilitation of select System assets. This section presents an overview of historical financial performance, utility rate adjustments and bill comparisons, and forecasts of future financial performance for the period FY 2019 through FY 2024.[68]

Forecasts have been developed using a strategic financial planning model designed to represent utility cash flows under alternative assumptions related to revenue generation, operations and maintenance expenses, and financing structures for capital investment. The Department's model incorporates recent projections developed through service revenue forecasting and operating and capital budgeting processes.

These financial tools have been used previously to support the Department's proactive management and support of a number of strategic initiatives with significant financial consequences:

- Strategic financial planning model-based cash flow analyses provided the analytical basis for the City's Financial Capability-Based Schedule Extension Request that was submitted in April 2010. Subsequent model reviews and analysis conducted through the course of negotiations with USEPA helped garner eventual approval of Consent Decree schedule relief as reflected in the Second Amendment to the First Amended Consent Decree entered on September 24, 2012 (Civil Action File No. 1:98-CV-1956-TWT).
- Similar analyses delineated the potential adverse consequences of loss of the Municipal Option Sales Tax (MOST) proceeds that support the City's water and wastewater systems and stormwater protection services.[69] This information was used to develop public education materials and helped secure voter reauthorization through 2020.[70] It was also instrumental in garnering support for state legislative approval for up to three (3) additional referenda to enable extension of the MOST through 2032.[71]
- City-wide sustainability initiatives have incorporated a number of activities that promote more efficient water use and water leak reduction. Revenue forecasts incorporate

[68] The City's fiscal year runs from July 1 through June 30

[69] Pursuant to the Master Bond Ordinance, Pledged Revenues do not include the proceeds from the MOST, but such proceeds may be taken into account for purposes of determining compliance with the City's rate covenant and additional bonds test under the Master Bond Ordinance.

[70] The 2016 reauthorization was approved by 74 percent of voters.

[71] Analytical updates have been used to develop response plans that reflect the expiration of the MOST in FY 2021 and outline the Department's strategy for mitigating the potential loss of this important revenue source (see Section 7.12).

assumptions of non-price-induced conservation that will be occasioned by, for example, commercial building owners' commitments to efficiency.

- Updates reported herein also reflect incremental O&M expense changes associated with proposed capital spending, implementation of energy management and nutrient recovery systems (as discussed in Section 6.5), and other initiatives such as programmatic leak detection and reduction measures.

7.2 Historical Performance

Table 7-1 presents a brief overview of the financial performance of the Department from FY 2014 through FY 2018. Information for FY 2014 through FY 2017 is based on the Department's audited financial statements. Information for FY 2018 is based on preliminary (unaudited) data from the Department's accounting systems, and therefore subject to change. Water and wastewater service revenues have increased 7.9 percent, from $418.5 to $451.6 million during this period. Other service revenues, which include operating plant charges from the Department's inter-jurisdictional partners, decreased slightly from $18.1 to $17.7 million. MOST proceeds have slowly increased from recession-era lows in FY 2010. This revenue source, which is dedicated to System expenses, increased from $124.3 million in FY 2014 to $145.2 million in FY 2018 (16.8 percent). Pursuant to the Master Bond Ordinance, Pledged Revenues do not include proceeds from the MOST but such proceeds may be taken into account for purposes of determining compliance with the City's rate covenant and additional bonds test under the Master Bond Ordinance. Other Revenues, which consists primarily of investment income, increased from $14.8 million in FY 2014 to $26.1 million in FY 2018. This increase is attributed primarily to several non-recurring revenues booked in FY 2016, including tax reimbursements, insurance recoveries, and realized gain on investment activities. Total operating revenues, including investment income and other miscellaneous revenue, increased 11.3 percent over the reporting period, from $575.7 million in FY 2014 to $640.6 million in FY 2018.

Over the same time period, operating expenses increased 17.5 percent, from $210.3 million in FY 2014 to $247.0 million in FY 2018.[72] Net revenues available to pay debt service increased 7.7 percent, from $365.4 million to $393.6 million. Annual debt service decreased from $210.3 million in FY 2014 to $202.6 million in FY 2018 (-3.7 percent) due to the City's recent long-term debt refunding.[73]

The Department's minimum parity debt service coverage requirement per its Master Bond Ordinance is 1.10x (times) average annual debt service. However, the Department targets to achieve not less than 1.20x annual debt service coverage. Actual annual debt service coverage ranged between 1.74x (FY 2014) and 2.24x (FY 2015) over the reporting period. Debt service coverage of 1.94x in FY 2018 reflects ongoing efforts by the Department to enhance operational efficiencies of the System, as well as annual debt service savings associated with proactive debt management strategies.

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[72] FY 2018 operating expense includes $17.4 million of reclassified prior period expenses; without this adjustment, operating expenses increased 9.2 percent over the historical reporting period.

[73] Reported annual debt service for FY 2014 and FY 2015 does not include approximately $9.8 million and $26.6 million, respectively, that was contributed to escrow as part of the economic refunding associated with these bonds.

TABLE 7-1
Historical Water and Wastewater System Operating Results[1]

	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018
Water & Wastewater Service Revenue	$ 418.5	$ 435.1	$ 445.7	466.0	$ 451.6
Other Service Revenue	18.1	24.5	21.2	20.3	17.7
MOST Revenue	124.3	131.6	132.7	131.7	145.2
Other Revenue[2]	14.7	10.0	15.1	3.9	26.1
Total Operating Revenue	**$ 575.7**	**$ 601.2**	**$ 614.6**	**$ 621.9**	**$ 640.6**
Operating Expenses[3]	210.3	202.6	225.0	228.0	247.0
Net Revenue Available for Debt Service	**$ 365.4**	**$ 398.6**	**$ 389.7**	**$ 393.9**	**$ 393.6**
Principal	51.4	53.7	56.3	60.1	63.7
Interest	158.9	124.4	155.2	143.8	138.9
Debt Service[4]	**$ 210.3**	**$ 178.1**	**$ 211.6**	**$ 203.9**	**$ 202.6**
Senior Lien Coverage Ratio	*1.74*	*2.24*	*1.84*	*1.93*	*1.94*

1 - Slight calculation discrepancies may exist due to rounding
2 - Includes one-time revenues of $13.6 million in FY 2018 for tax reimbursements, insurance recoveries, and realized gain on investment activities
3 - FY 2018 total includes one-time expense of $17.4 million related to reclassification of certain prior period costs related to the capital program
4 - Reported annual debt service for FY 2014 and FY 2015 does not include approximately $9.8 million and $26.6 million, respectively, that was contributed to escrow as part of the economic refunding associated with these bonds

Source: City of Atlanta, Comprehensive Annual Financial Reports, FY 2014 through FY 2017; FY 2018 unaudited results.

7.3 Financial Management

A system of fund accounting is used to track revenues and expenses associated with the Department's various operating functions and bond ordinances. These are not "funds" as the term is used in generally accepted accounting principles, but are separate accounts used to facilitate the accounting and reporting of operating and capital asset-related financial transactions.

7.3.1 Operating Funds

The Department records operating revenues and operating expenditures in its Revenue Fund (Fund 5051). Within this fund, appropriations are allocated and operating expenditures are accounted for in the Department's offices. At the end of the fiscal year, the remaining balance is transferred to the Renewal & Extension (R&E) Fund (Fund 5052), except for $500,000 that remains in the Revenue Fund as an opening balance for the next fiscal year.[74]

The R&E Fund is the Department's other primary fund originally established to finance capital improvements such as asset renewals, replacements, and extensions of the System. The R&E Fund also includes non-operating revenues received from capital reimbursements owed under IJ service agreements. The available cash balance within the R&E Fund varies

[74] For Strategic Financial Planning purposes, the Department has employed an informal planning policy to retain a minimum Operating Fund balance equal to 60 days of projected Operations and Maintenance expenses consistent with industry standards.

due to carryover from the Revenue Fund and the timing and magnitude of capital project expenditures. In addition, the fund maintains a reserve account that can also be used to meet unanticipated expenditure needs.

7.3.2 Debt Management Funds

Other funds are used by the Department to track and report proceeds associated with various debt instruments such as revenue bonds or GEFA loans. A new fund is created for each debt instrument associated with the capital program. Debt proceeds are deposited into each fund, appropriated to various capital projects, and disbursed as required to pay for invoices and services related to the capital projects.

During the last several years, Department staff have analyzed each of these funds and identified several with remaining proceeds resulting from discontinued projects or re-alignment of capital priorities. To the extent that capital projects associated with these older funds have been completed, these funds have been closed and the remaining proceeds transferred to an account that is used to retire existing debt or pay for alternative capital projects.

The Department's analysis and subsequent monetary transfers represent a proactive approach to fund management, and more closely align existing funds with high-priority projects. A summary of existing bond funds is shown in Table 7-2, which indicates how the Department will use existing balances from two previous bond issues: the Series 2009 Bonds and the Series 2018B Bonds.

TABLE 7-2
Analysis of Outstanding Bond Funds as of August 2018*

Fund Name	Debt Issue	Resulting Action
5066	Series 2009 Bonds	The remaining balance of $53.8 million will be used to meet existing or pending contract obligations.
5076	Series 2018B Bonds	Of the $129.9 million in remaining proceeds, $50.0 million will be used to fund the Peyton Center and $79.9 million will be used to meet existing financial obligations of the Water Supply Program.

** Information provided by City Finance and the Department of Watershed Management*

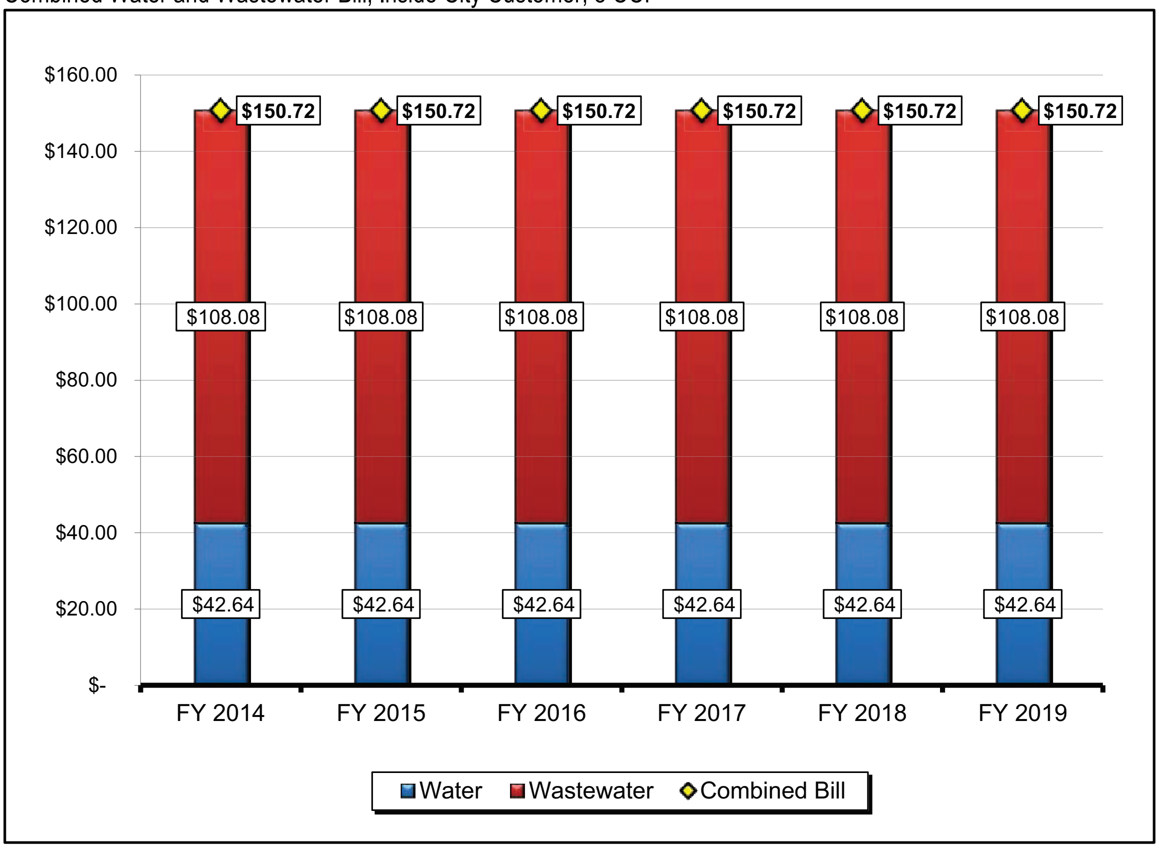
7.4 Historical Rate Adjustments

Between FY 2004 and FY 2012, the City adopted significant water and wastewater rate increases designed to generate sufficient revenues to support financing of the Clean Water Atlanta initiative. In early 2004, a multi-year rate plan was adopted that contemplated the near doubling of water and wastewater bills for typical users. At that time, the City Council voted to make several structural modifications to the Department's uniform volume rate structure. To address the affordability of low-volume usage and encourage conservation, an inclining block rate structure—which imposes higher charges for higher volumes of usage—was established for both water and wastewater service. In addition, the Department offered a discount to low-income seniors and implemented a security surcharge (that ended in 2011) to fund security improvements to the Department's water facilities.

In June 2008, the City Council approved another 4-year rate plan that resulted in a cumulative increase in water and wastewater bills of approximately 80 percent for all Department ratepayers between FY 2008 and FY 2012. At that time, the Department had initiated O&M cost containment measures as customers responded to state-imposed water use restrictions. The rate plan was developed to ensure the Department met its financial performance targets such as debt service coverage and minimum fund balance requirements in the face of decreasing demand patterns. The last of these annual rate increases occurred at the beginning of FY 2012, a 12.0 percent increase implemented on July 1, 2011.

Figure 7-1 presents the combined water and wastewater bill, by component, from FY 2014 through FY 2019. Bill calculations are based on usage of 8 hundred cubic feet (CCF) per month for residential customers living inside the City (equivalent to approximately 6,000 gallons). The combined water and wastewater bill has not increased over this six-year period.

FIGURE 7-1
Combined Water and Wastewater Bill, Inside City Customer, 8 CCF



7.5 2015 Water and Wastewater Bill Comparisons

A national rate survey of combined water and wastewater bills across major metropolitan areas is published bi-annually, with the most recent data available for 2015.[75] Table 7-3

[75] From the 2016 American Water Works Association (AWWA) Water and Wastewater Rate Survey conducted by Raftelis Financial Consulting, Inc; bill information is presented as of 2015. The 2018 survey has not yet been published.

presents this data for selected metropolitan areas for residential users of 10 CCF and commercial users of 500 CCF.

TABLE 7-3
Water and Wastewater Monthly Bill Comparisons as of Calendar Year 2015

	10 CCF Residential User			500 CCF Commercial User		
Service Provider*	Water Charges	Wastewater Charges	Combined W/WW Bill	Water Charges	Wastewater Charges	Combined W/WW Bill
Atlanta, GA	$54.96	$139.46	$194.42	$3,073.36	$7,827.56	$10,900.92
San Francisco, CA	$75.53	$100.52	$176.05	$3,290.59	$2,903.85	$6,194.44
Austin, TX	$54.61	$74.57	$129.18	$2,692.65	$3,473.64	$6,166.29
Richmond, VA	$45.99	$80.24	$126.23	$1,877.76	$412.06	$2,289.82
Charleston, SC	$25.85	$83.83	$109.68	$332.50	$3,669.38	$4,001.88
San Diego, CA	$57.74	$51.31	$109.05	$2,575.72	$2,678.73	$5,254.45
Tacoma, WA	$38.11	$65.79	$103.90	$1,065.30	$3,045.84	$4,111.14
Raleigh, NC	$42.21	$52.11	$94.32	$1,688.32	$2,161.09	$3,849.41
New Orleans, LA	$43.63	$49.58	$93.21	$1,839.50	$2,092.57	$3,932.07
Jacksonville, FL	$24.80	$66.42	$91.22	$795.44	$2,569.08	$3,364.52
Omaha, NE	$29.72	$53.69	$83.41	$848.11	$304.09	$1,152.20
Mobile, AL	$25.19	$56.30	$81.49	$1,161.40	$2,717.24	$3,878.64
Philadelphia, PA	$45.51	$34.62	$80.13	$1,615.07	$1,432.81	$3,047.88
Oakland, CA	$55.83	$23.20	$79.03	$2,309.32	$556.03	$2,865.35
Fort Worth, TX	$34.76	$41.40	$76.16	$1,408.50	$2,178.80	$3,587.30
Plano, TX	$30.57	$44.76	$75.33	$1,249.37	$1,921.89	$3,171.26
San Antonio, TX	$33.58	$33.97	$67.55	$1,436.07	$1,342.00	$2,778.07
Wichita, KS	$32.05	$33.36	$65.41	$3,761.12	$1,265.85	$5,026.97
Glendale, AZ	$25.97	$35.83	$61.80	$915.62	$1,101.28	$2,016.90
Miami, FL	$20.54	$39.48	$60.02	$2,515.87	$2,851.27	$5,367.14
Orlando, FL	$16.52	$42.41	$58.93	$530.87	$1,440.00	$1,970.87
Chicago, IL	$28.52	$28.52	$57.04	$1,426.00	$1,426.00	$2,852.00
Columbus, GA	$21.59	$34.67	$56.26	$87.18	$135.92	$223.10
Scottsdale, AZ	$25.57	$22.67	$48.24	$1,452.90	$1,051.80	$2,504.70
Salt Lake City, UT	$20.74	$17.80	$38.54	$591.72	$1,600.00	$2,191.72

** Table is sorted by combined residential utility bill*

This survey demonstrates that—based upon a comparison at a common water usage level[76]—the City's water and wastewater rates were the highest in the United States among major metropolitan communities that responded to the rate survey.[77] The Department recognizes that these bill impacts may impose hardships, particularly for low-income ratepayers. For ratepayers that may fall behind on bill payments, the Department provides opportunities to establish payment plans. The Department's Care & Conserve program also provides assistance to low income customers through limited payments of their water and wastewater bills, plumbing repairs and retrofit, installation of water-saving conservation

[76] Average water use per customer unit for the City's residential customers is roughly 6.3 CCF (see Section 7.8.1.1).

[77] There are a number of major metropolitan systems that did not provide information for the survey. Some systems – both those that reported rate data and others who did not – have increased general rate levels since 2015.

devices, and conservation counseling. The program is available to customers whose incomes fall below 150 percent of the federal poverty index.[78]

7.6 Municipal Option Sales Tax (MOST) Revenues

The MOST is a 1 percent tax that applies to nearly all goods and services (excludes motor fuels, food and beverages, natural gas used to produce electricity, hotels/motels and motor vehicles)[79] purchased in the City of Atlanta. The MOST was established as a dedicated supplemental funding source for the Clean Water Atlanta program, and provides for a reduction to the Department's operating expenses. Visitors who use the City's water and wastewater infrastructure, but do not pay for service as City of Atlanta residents, help pay for upgrading and maintaining the System infrastructure.

The MOST was initially approved in July 2004, and reauthorized by voters in 2008, 2012, and again in 2016 by wide margins.[80] From implementation of the tax in 2004 through FY 2017, the MOST has provided approximately $1.5 billion to support the Department's operation and maintenance of System assets and distribute costs of the Department's Consent Decree and Consent Order compliance program regionally.

In May 2018, the City of Atlanta secured state legislative approval for additional referenda to continue MOST as a funding source for DWM system improvements. Consistent with the original MOST legislation, voter approvals for the MOST will be required every 4 years – beginning in 2020—with the potential to extend MOST funding through October 2032. The financial plan summarized in this report anticipates local voter approval to extend the MOST through the forecast period. MOST revenues are conservatively forecast to total $125.0 million per annum during the forecast period.

Given the recent legislative approval to extend the MOST subject to voter referenda, previously planned reductions in MOST proceeds to reduce the Department's reliance on this important funding source—as well as proposed service rate adjustments in FY 2021 and FY 2022 outlined in the Series 2017A Feasibility Study—have been deferred.

7.6.1 Long-Term Municipal Option Sales Tax (MOST) Strategy

As noted in the Series 2017A Feasibility Study, the Department has regularly evaluated scenarios that examine capital funding capacity and corresponding service rate scenarios should the City fail to gain voter approval of MOST extensions. Most recently, following state approval of referenda for MOST extensions, it has also evaluated the potential impacts of MOST expiration in October 2032.

[78] While the Department does not have specific income distribution data for its retail customers that may be income-eligible for Care and Conserve program assistance, it may be noted that approximately 14.9% of the population within the Atlanta-Sandy Springs-Roswell, GA Metro Area were reported to be living below the federal poverty line based on the 2012-2016 American Community Survey conducted by the U.S. Census Bureau. For the City of Atlanta specifically, 24.0% of the population were reported to be living below the federal poverty level (Table B17001: POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE).

[79] "Summary of Sewer Sales Tax" Memo from Robert Ashe, Intergovernmental Affairs Manager to Atlanta City Council, June 2, 2004.

[80] The 2008 reauthorization was approved by 71 percent of voters, the 2012 reauthorization by 85 percent, and the 2016 reauthorization by 74 percent.

These evaluations, which inform significantly longer-term capital financing strategies, are not reported on herein. Components of the strategies being evaluated are highlighted below:

- DWM may initiate a wind-down of reliance on MOST proceeds by reducing the share of MOST proceeds available to the Department[81] by 5 – 10 percent per annum;
- DWM may restructure its debt portfolios where:
    1. Funds equivalent to MOST proceeds not used for current project requirements are made available for defeasance of outstanding indebtedness (or held in a rate stabilization reserve), and
    2. New money bond issues are deferred and feature wrap-around debt service structures to level long-term debt obligations;
- DWM may re-initiate previously deferred annual water and wastewater system service rate adjustments beyond those identified for FY 2023 and FY 2024; and
- DWM may implement new fees and charges—such as an impervious area-based stormwater fee and/or impact fees to recover the costs of increasing system capacity for new customers—that could supplant a portion of MOST proceeds.

Long-term strategy development will also consider the potential for DWM to obtain a share of a permanent City of Atlanta MOST, if enabled through state legislation and voter approval, to fund needed infrastructure investments. In the event that the City is able to secure such a permanent MOST, a significant portion of such funding may be designated for DWM projects given the consistent state legislative and local voter support for water and wastewater system funding demonstrated by MOST approvals to date.

While the specific attributes of DWM's longer-term financing strategy will be determined over the course of the next several years, DWM has a plethora of options to ensure an orderly reduction of MOST funding support and plans to continue to evaluate and refine alternative funding strategies for its capital program.

7.7 Capital Financing

The Department's CIP contemplates encumbrance requirements of $954.4 million ($1,010.5 million in nominal terms) between FY 2019 and FY 2024 as outlined in Section 6. Table 7-4 identifies projected capital project encumbrances and matching sources of funds. Capital requirements will be funded through six sources: future revenue bond proceeds ($110.0 million, 10.7 percent), Environmental Impact Bond proceeds ($12.5 million, 1.2 percent), re-programmed CIP encumbrances ($23.6 million, 2.3 percent), GEFA loan proceeds ($228.0 million, 22.3 percent), previous revenue bond proceeds ($50.0 million, 4.9 percent), and

[81] MOST proceeds are, by enabling legislation, used to offset O&M expenses. Forecasted net operating revenues of the System are higher as a result, and represent the primary funding source for future capital project requirements (see Section 7.7).

TABLE 7-4
Capital Program Sources and Uses of Funds[1]

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024	TOTAL	Percent
Projected Capital Encumbrances	**$ 230.9**	**$ 290.2**	**$ 129.0**	**$ 117.0**	**$ 120.1**	**$ 123.3**	**$ 1,010.5**	**100.0%**
2018 Commercial Paper Program[2]	-	110.0	-	(110.0)	-	-	-	
Future Revenue Bond Proceeds[3]	-	-	-	110.0	-	-	110.0	10.7%
Environmental Impact Bond Proceeds[4]	12.5	-	-	-	-	-	12.5	1.2%
Re-Programmed CIP Encumbrances	23.6	-	-	-	-	-	23.6	2.3%
GEFA Loan Proceeds[5]	3.0	25.0	50.0	50.0	50.0	50.0	228.0	22.3%
Previous Revenue Bond Proceeds[6]	50.0	-	-	-	-	-	50.0	4.9%
Operating Revenues and Reserves[7]	150.0	150.0	80.0	75.0	70.0	75.0	600.0	58.6%
Used (Unused) Balance[8]	(8.2)	5.2	(1.0)	(8.0)	0.1	(1.7)	(13.6)	
Total Funds	**$ 230.9**	**$ 290.2**	**$ 129.0**	**$ 117.0**	**$ 120.1**	**$ 123.3**	**$ 1,010.5**	**100.0%**

1 - All numbers in millions, slight calculation discrepancies may exist due to rounding

2 - Positive numbers indicate use of the 2018 Commercial Paper Program for project encumbrances, while negative numbers represent the repayment of obligations associated with the 2018 CommercialPaper Program when it expires (in FY 2022)

3 - Revenue bond proceeds will be used to repay 2018 Commercial Paper obligations in FY 2022

4 - This performance-based financing vehicle will provide funding for green infrastructure projects in economically disadvantaged sectors of the City

5 - Although the Department expects $50.0 million per year to be available, this forecast reflects the delay associated with project approval, completion, and subsequent application for reimbursement

6 - Construction fund reserves from the Series 2018B Bonds that will be used to fund the Peyton Center, a new operational hub (see Section 6.7.3.1)

7 - Represents transfers from the Department's operating funds (System revenues), including capital contributions from inter-jurisdictional (IJ) partners and $25.0 million from the Department's swap termination fund in FY 2019

8 - After making current revenue transfers from the Department's operating funds, approximately $13.6 million will remain (unrestricted balance) for capital projects beyond the forecast period revenues and other reserves from the Department's operating funds ($600.0 million, 58.6 percent).[82]

This financial plan assumes the Department will use the 2018 Commercial Paper Program to initially fund a portion of the North Fork Peachtree Creek Storage and Pump Station project in the amount of $50.0 million in FY 2020 (see Section 6.7.2.4).[83] In that same year, DWM will use the 2018 Commercial Paper Program to meet the $60.0 million of remaining encumbrance requirements for the Intrenchment Creek Decommissioning project (see Section 6.7.2.1). The outstanding notes of the 2018 Commercial Paper Program related to these projects will then be repaid with the issuance of $110.0 million in revenue bonds in early FY 2022 (Series 2021 Bonds) when the 2018 Commercial Paper Program expires.

Proceeds from an Environmental Impact Bond (EIB) in the amount of $12.5 million will be used to fund priority green infrastructure projects. The City was awarded a Rockefeller Foundation grant to provide transaction structuring support for the City's issue of one of the nation's first Environmental Impact Bonds. These bonds will finance green infrastructure project investment largely in economically disadvantaged sectors of the community. The EIBs are unique in that the interest paid on the bonds is based, in part, on the performance of the financed projects. In Atlanta's case, the environmental impacts are yet-to-be defined stormwater management metrics related to a number of green infrastructure projects.

The Department also plans to re-program approximately $23.6 million of existing encumbrances to fund projects identified in the forward-looking capital improvement program. In most cases, this re-programming represents a change in operational strategy or reflects revised System priorities identified through master planning efforts.

Loan proceeds from GEFA totaling $228.0 million are expected to be available to fund the CIP over the forecast period. The costs for eligible GEFA projects are initially encumbered and paid by the Department through the R&E Fund. Once contractor invoices have been paid, the Department submits reimbursement requests to GEFA and deposits proceeds from the low-interest loans back into the R&E Fund. Recently, the Department submitted three different project applications that, if approved, will result in $80.9 million in loan proceeds.[84] The financial plan assumes that the Department will continue to take advantage of this low-interest funding source, with anticipated average annual loan approvals of $50.0 million throughout the forecast period.[85]

[82] Revenue bond proceeds will be used to repay the Department's 2018 Commercial Paper Program through its Series 2021 debt issuance.

[83] The total funding requirements for this project are $105.0 million in current dollars; the Department expects to use operating revenues of the System to fund the remainder of this project.

[84] On August 21, 2018, DWM was notified that the first of these loans—totaling $25.0 million—was awarded by GEFA from the Drinking Water State Revolving Fund (DWSRF). As footnoted in Section 6.2, DWM has submitted WIFIA loan applications for two different projects. In the event of award, the WIFIA loan(s) will effectively supplant planned GEFA borrowing such that total subordinate debt levels will approximate levels forecasted herein.

[85] Table 7-4 presents the anticipated schedule of GEFA *reimbursements* which reflects the delay associated with project procurement and delivery, subsequent contractor invoicing, and—ultimately—the availability of loan proceeds for future capital encumbrances of the Department.

Proceeds from the Series 2018B Bonds totaling $50.0 million will be used to complete financing of DWM's new operational hub, the Peyton Center (see Section 6.7.3.1).[86]

In addition to the capital funding sources outlined above, the Department expects to rely on transfers from the R&E Fund and other operating revenues to contribute $600.0 million for cash financing of capital encumbrance requirements. These revenues consist of several components, briefly described below.

- The Department expects reimbursements from IJ partners to contribute $98.7 million to this total as part of its regional water delivery strategy.[87] Under the IJ agreements, the Department manages the construction of inter-jurisdictional projects and pays contractor invoices. IJ partners are then invoiced based on their pro-rata share of each project. The timing and availability of these reimbursements is based on the Department's current expectations of project completion timeframes, an assumed 12-month collection period, and the Department's procedural requirements to make these funds available for future capital projects.
- In addition to IJ capital contributions, $61.1 million of the operating revenues total is to be derived from tap fees that are established to recover costs necessary to provide service to new development. Based on a recent cost-recovery analysis, the Department expects to increase tap fees during FY 2019 in order to attain revenue levels that more closely match the costs to extend service to new customers.
- Approximately $26.7 million over the forecast period will be received from the City's General Fund as repayment for an existing inter-fund loan. The final payment of this loan will occur in FY 2021.
- After terminating the remaining swap associated with the Series 2013A Bonds (see Section 7.8.3), this financial plan assumes $25.0 million of reserves will be available from the Department's swap termination fund for future capital projects.[88]
- The remaining $388.5 million will be derived from other net operating revenues of the System due, in part, to the Department's efforts to implement operational efficiencies.[89]

The Department's projected annual capital encumbrances reflect maximum funding capacity under the City's anticipated rate schedule. The capital plan is subject to frequent review and modification based on evolving priorities of the water and wastewater systems and unforeseen expenditures. To the extent that actual encumbrance needs are more or less than projected encumbrances in a given forecast year, the Department will adjust cash financing amounts of the capital program and/or reschedule and re-program project spending.

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86 Another $2.5 million in operating revenues will be used to meet future Peyton Center funding requirements.

87 IJ partners include Fulton and DeKalb counties as well as the cities of College Park, East Point, and Hapeville.

88 Market conditions at the time of closing will determine the final cost of swap termination and the corresponding reserves (from the swap termination fund) available for capital projects.

89 After making the current revenue transfers from the Department's operating funds, $13.6 million will remain available to fund capital projects beyond the forecast period.

7.8 Forecasted Operating Results

Table 7-5 presents the cash flow forecasts for the Department's operating funds (Revenue Fund and R&E Fund) on a combined fund basis. Viable financial plans are developed to ensure compliance with the Department's policies to maintain minimum reserve balance requirements equal to three months of operating expenditures, to achieve minimum targeted debt service coverage (1.20x), and to provide opportunities to equity-finance a significant portion of capital projects during the forecast period.[90] Despite rising costs attributed to inflation, the forecast includes a limited increase in base operations and maintenance expense over the forecast period to reflect Department initiatives to optimize staffing levels. Further reductions in operating expense, along with corresponding increases in subordinate debt obligations, can be attributed to resource recovery and energy management contracts discussed in greater detail in Section 6.5.

[90] These financial planning protocols have been employed throughout the Clean Water Atlanta program-financing period to determine rate revenue requirements and support program debt financing. Meeting these financial performance targets was facilitated by the rate increase programs for the FY 2004-08 and FY 2009-12 periods.

TABLE 7-5
Forecasted Sources and Uses of Cash, Combined Funds (5051 and 5052), FY 2019 - FY 2024 (millions of dollars)

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Beginning Cash Balance [1]	*$ 233.7*	*$ 213.8*	*$ 156.1*	*$ 144.5*	*$ 129.5*	*$ 133.7*
Water & Wastewater Service Revenue [2]	$ 456.1	$ 460.8	$ 463.6	$ 463.4	$ 474.6	$ 484.3
Other Service Revenue	16.9	17.0	17.4	17.5	17.5	17.6
MOST Revenue	125.0	125.0	125.0	125.0	125.0	125.0
Other Revenue	4.0	4.0	4.0	4.0	4.0	4.0
IJ Capital Contributions	15.4	15.4	5.1	12.5	25.0	25.3
Repayment from General Fund	10.3	10.2	6.3	-	-	-
Total Sources	**$ 627.7**	**$ 632.3**	**$ 621.3**	**$ 622.4**	**$ 646.1**	**$ 656.2**
Operating Expenses (5051)	$ 178.8	$ 178.7	$ 180.5	$ 183.8	$ 185.7	$ 189.4
Renewal & Extension (5052)	40.7	40.7	41.2	42.0	42.4	43.3
Incremental Operating Expense [3]	(1.7)	(2.0)	(5.0)	(5.9)	(6.7)	(9.6)
PILOT, Direct, Indirect Charges	60.9	62.2	63.6	64.9	66.4	67.8
Other Expense [4]	17.6	18.4	19.4	19.6	20.5	21.5
Existing Senior Lien Debt Service [5]	206.8	215.0	214.4	214.4	214.7	211.3
New Senior Lien Debt Service [6]	-	-	-	4.9	7.6	7.6
Other Debt Service [7]	15.9	20.0	25.6	27.0	30.0	33.0
Lease Obligations [8]	3.7	6.8	13.3	11.4	11.4	11.4
Equity Financing of Capital	125.0	150.0	80.0	75.0	70.0	75.0
Total Uses	**$ 647.6**	**$ 689.9**	**$ 633.0**	**$ 637.3**	**$ 641.9**	**$ 650.7**
Ending Cash Balance	*$ 213.8*	*$ 156.1*	*$ 144.5*	*$ 129.5*	*$ 133.7*	*$ 139.2*

1 - Represents the unrestricted cash balance in the Department's combined operating funds (Funds 5051 and 5052), exclusive of available cash balances for construction of previously funded capital projects (see Section 6.4)

2 - Includes the impacts of bad debt expense and other economic adjustment factors

3 - Net cost savings associated with resource recovery and energy management initiatives, as well as existing capital projects

4 - Includes Other Post-Employment Benefits (OPEB), GEFA loan processing fees, and Commercial Paper costs

5 - Reflects the anticipated debt service of the Series 2018C Bonds; the executed termination of the swap associated with the Series 2013A Bonds; and the refunding of the Series 2013A Bonds

6 - Includes debt associated with the proposed issuance of $110.0 million in FY 2022 to repay obligations of the 2018 Commercial Paper Program when it expires

7 - Includes GEFA interest and principal payments; interest payments on the 2018 Commercial Paper Program; and debt service associated with the FY 2019 issuance of a $12.5 million Environmental Impact Bond (EIB)

8 - Includes annual lease payments and installment purchase obligations (see Section 7.8.3.4)

7.8.1 Revenues

7.8.1.1. Water Demand Patterns

The Department forecasts water and wastewater service revenues based upon billing determinant data reported by its customer information system. Billing system data includes number of bills, number of accounts and units billed, and total volume billed by volume increment (CCF) by customer class.[91] These billing data populate a detailed revenue-

[91] The Department's billing system provides data for a set of customer classifications including residential, non-residential and selected governmental account types – though all customers are currently billed under a common rate structure.

forecasting model designed to project revenues under historical operating conditions,[92] as well as estimate revenue impacts of changes to the rate structure or individual rate tiers.

Water and wastewater rate revenues—along with corresponding billed annual volumes and number of accounts—have increased steadily since FY 2015. Because system rates have remained the same since FY 2012, this revenue increase is attributed to higher-than-anticipated growth in customer accounts as a result of accelerated economic development activity. Higher rate revenues are also due, in part, to demand hardening among residential customers as consumption reaches levels associated with basic household needs and the efficacy of conservation measures gradually decrease. Table 7-6 summarizes both long- and short-term growth trends for water and wastewater accounts of the system. Growth among the residential class has accelerated in recent years for both inside and outside City customers. Residential water accounts have increased slightly faster than residential sewer accounts. Commercial water accounts, as well, have experienced growth especially for accounts located outside the City. In general, the Department has observed minimal declines in the number of government and institutional accounts across both the water and sewer systems.

TABLE 7-6
Historical Account Growth by Customer Class

	7-year CAGR[1]	3-year CAGR
WATER ACCOUNTS		
Residential, Inside City	1.20%	2.12%
Commercial, Inside City	0.95%	1.88%
Government, Inside City	-0.29%	-0.02%
Residential, Outside City	1.43%	2.26%
Commercial, Outside City	3.25%	4.61%
Government, Outside City	-0.45%	-0.46%
WASTEWATER ACCOUNTS		
Residential	1.00%	1.97%
Commercial	0.20%	0.53%
Government	-1.08%	-0.08%

1 - Compounded annual growth rate

Adjusted water use per customer unit, a metric the Department tracks to understand customer response to rate increases and weather patterns, has increased 2.6 percent for residential users over the most recent four-year period.[93] Commercial customers have exhibited a 14.1 percent decline in water use per account, while government and institutional customers have seen minor fluctuations in this billing statistic over the same time period.

The combined effects of account growth and fluctuations in water use per customer unit have resulted in a 9.0 percent increase in annual billed water volumes since FY 2014, a compounded annual growth rate of 2.2 percent over the four-year period.

[92] Adjustments to revenue forecasts may be developed in the event that Georgia EPD imposes drought-response water use restrictions.

[93] Reported water use statistics represent the average of inside-City and outside-City customers for residential, commercial, and government accounts.

7.8.1.2. Water and Wastewater Service Revenues

As in its previous municipal debt offerings, the Department has adopted a conservative approach to revenue forecasting that is consistent with multi-year historical trends in water and wastewater billed volumes and consumption per account metrics. While recent billing data analysis suggests favorable trends for some key billing statistics, the revenue forecast continues to hedge against potential fluctuations in these parameters based on weather, economic conditions, and other factors outside the Department's control.

The Department's revenue forecast dampens the impact of the observed improvements in FY 2018 billing statistics by averaging the last three historical years to develop key forecast metrics. Recent improvements in residential consumption per account statistics and customer growth trends are therefore reflected in the forecast, but are not relied upon entirely as the basis for rate revenue forecasts.

Average water use per unit for FY 2019 has been adjusted to reflect average observed usage statistics in the Department's billing data in FY 2017 and FY 2018. Rate revenue forecasts continue to assume some conservation effects will be exhibited given the City's sustainability and water conservation programs. Across all retail customer classes, water consumption per unit is reduced 0.25 percent per annum in FY 2019 to account for customers' response to the Department's water conservation initiatives and general public acceptance of conservation practices. Price-independent adjustments beyond FY 2019 are not included in the forecast. Notably, the Department's revenue forecasting model estimates the impact of decreasing consumption patterns across the City's higher-cost rate tiers, since decreases in consumption are often exhibited as a reduction of volume from the higher tiers of the rate structure.

Billing data suggests steady growth of residential water and sewer customer accounts over the last six to seven years, as indicated in Table 7-6. The Department has assumed a 0.75 percent growth rate for residential water customers (both inside and outside the City) through the forecast period. Commercial water accounts are expected to grow 0.50 percent per year over the forecast period. Consistent with long-term historical trends, residential sewer accounts are conservatively expected to increase at a rate of 0.50 percent per annum over the same time period. The number of commercial sewer accounts and institutional accounts (both water and sewer) are expected to remain constant.

The City last increased water and wastewater rates at the beginning of FY 2012, by 12.0 percent. The Department's current financial plan assumes that rates will remain constant through FY 2022, but rate increases of 3.0 percent in FY 2023 and 2.0 percent in FY 2024 will be required to enable projected levels of cash-financed CIP. A price elasticity of demand factor equal to -1.50 percent has been applied to water and wastewater sales revenue forecasts to account for reduced demand in response to projected rate increases.[94]

The forecast of service revenues conservatively assumes that general billing and collection challenges will continue to impact collection of the Department's main revenue categories—

[94] Application of the elasticity factor reduces the impact of each rate increase; for every 1.0 percent increase in rates, this analysis assumes that the City sees a 0.15 percent reduction in water use. Estimated elasticity of demand adjustments are applied to forecasted water consumption *in addition to* price-independent water consumption assumptions discussed earlier in this section.

water and wastewater service revenues, notwithstanding recent improvements to metering, billing and collection operations. Adjustments are made to estimate uncollectible service revenues (in addition to the conservative assumptions of persistence of reduced water use patterns) such that the Department's financial plan assumes annual reductions in billed water and wastewater revenues of approximately $18.4 to $19.6 million per year over the forecast period (or 4.0 percent of billed revenues).[95] The forecasted water and wastewater service revenues in Table 7-5 account for these collection adjustments.

Though the Department has implemented a number of measures to enhance revenue collection that are expected to improve the accuracy of meter readings and reduce billing adjustments (replaced small meters, implemented Automated Meter Reading systems, audited and/or replaced large meters), the Department's revenue forecasts do not include positive adjustments for improvements that may be attributed to these initiatives.

Detailed rate design and revenue forecasting models allow the Department to evaluate the revenue effects of rate design adjustments that would alter the distribution of base charge and volumetric revenue components across inside-City, outside-City and wholesale customer classes. These rate design options are under consideration in light of more highly variable weather patterns, variable economic conditions, potential legal challenges, and industry trends to enhance revenue resiliency. As a conservative revenue forecasting assumption, phased downward adjustments (equal to 1.0 percent of the 6-year baseline service revenue forecast) have been incorporated into the Department's financial plan.

Based on the assumptions of forecasted billing parameters outlined above, annual water sales revenues are forecast to increase from $193.8 million in FY 2019 to $208.3 million in FY 2024 as a result of moderate account growth and planned rate increases in the final two years of the forecast period. Wastewater service sales revenues are also projected to increase, from $248.5 million to $262.3 million over the same time period. Total water and wastewater sales revenues are projected to increase 6.4 percent, from $442.3 million in FY 2019 to $470.6 million in FY 2024.

The water and wastewater service revenues category also includes tap fee revenues, industrial waste revenues, license and permit fees, water repairs, and other charges associated with the Department's operation of the System. Forecasted water and wastewater tap fee revenues are distributed across meter sizes and customer classes in a manner similar to recent historical experience. The Department received $6.2 million per year, on average, during the last three fiscal years for tap sales. However, the Department expects to increase tap fee levels over the next several years to ensure full recovery of the costs associated with service extension to new customers. Annual tap fee revenues are expected to reach $12.0 million by FY 2021 and total $61.1 million over the 6-year forecast period (approximately 1.6 percent of total System revenues).[96] Together, other water and wastewater service revenues are expected to average $19.9 million per annum throughout the forecast period.

[95] The Department's 2017 CAFR indicates that collections were 102.1 percent in FY 2017, 101.8 percent in FY 2016, and 99.3 percent in FY 2015 (page 7).

[96] Forecasted tap fee revenues reflect both increased tap fee levels and customer growth assumptions.

Accounting for System-wide rate increases in FY 2023 and FY 2024, total water and wastewater service revenues are projected to increase from $456.1 million in FY 2019 to $484.3 million in FY 2024 (6.2 percent).

7.8.1.3. Other Service Revenues

Other service revenues of the Department include operating plant charges, grease permits, land and building rentals, and other miscellaneous revenues. Operating plant charges are revenues recovered through the Department's inter-jurisdictional service agreements and recover operations and maintenance costs incurred to provide wastewater treatment and conveyance services to the City's wholesale wastewater customers. During the last three fiscal years, operating plant charges have averaged $20.7 million per annum. The Department conservatively expects revenues from this source to be $16.0 million in FY 2019 and increase to $16.3 million by FY 2024. Beginning in FY 2021, this revenue category also includes $0.4 million in annual fertilizer sales associated with the Department's resource recovery contract with Ostara (see Section 6.5). In aggregate, including other minor fees and charges, Other Service Revenues are expected to increase 4.2 percent, from $16.9 million in FY 2019 to $17.6 million in FY 2024.

7.8.1.4. Municipal Option Sales Tax Revenues

Under the authorizing legislation, the MOST was initially placed into effect for a four-year term beginning on October 1, 2004, and could be renewed for three additional four-year terms. For all three renewal periods (2008, 2012, and 2016), Atlanta voters extended the MOST for an additional four-year period by an overwhelming majority of the vote. In May 2018, the governor signed legislation reauthorizing voter referenda on MOST that could potentially extend this critical funding source through October 2032.

Pursuant to the Master Bond Ordinance, Pledged Revenues do not include the proceeds from the MOST but such proceeds may be taken into account for purposes of determining compliance with the City's rate covenant and additional bonds test under the Master Bond Ordinance. MOST proceeds were $132.7 million in FY 2016, $131.7 million in FY 2017[97], and $145.2 million in FY 2018. The Department's financial plan anticipates annual MOST proceeds of $125.0 million through the forecast period. MOST proceeds, which are conservatively projected lower than recent trends for this revenue source, are expected to provide approximately $750.0 million for the Department between FY 2019 and FY 2024.

7.8.1.5. Other Revenues

Other Department revenues include interest revenues from various reserve accounts and operating funds. Interest earnings accrue in the R&E Fund (Fund 5052), the Series 2009A Bond Fund (Fund 5055), the Series 2018B Bond Fund (Fund 5076), MOST revenues (Fund 5059), and various debt service reserve accounts. This revenue source increased from $14.8 million in FY 2014 to $26.1 million in FY 2018 largely as a result of non-recurring revenue items booked in FY 2018 including tax reimbursements, insurance recoveries, and realized gain on investment activities. Under conservative assumptions, this financial plan assumes interest revenues will remain constant at $4.0 million per year, and provide a total of $24.0 million over the forecast period (less than 1.0 percent of System revenues).

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[97] City of Atlanta, Department of Watershed Management FY 2017 Comprehensive Annual Financial Report, page 33.

7.8.1.6. IJ Capital Contributions

Inter-jurisdictional capital contributions reflect reimbursements to the Department for costs incurred to provide wastewater system capacity to its regional service delivery partners. Contributions are estimated by project for each IJ partner and include payments for previously constructed, ongoing, and future capital projects. The timing and availability of these reimbursements is based on the Department's current expectations of project duration and completion timeframes, a 12-month collection period, and the Department's procedural requirements to make these funds available for future capital projects. As discussed in Section 6.8 and Section 7.7, the Department expects the availability of $98.7 million in reimbursements from IJ partners between FY 2019 and FY 2024. The majority of this total is attributed to two projects: approximately $26.0 million related to the R.M. Clayton Headworks project and $60.3 million in reimbursements associated with the North Fork Peachtree Creek Storage and Pump Station project that will begin construction in FY 2021.

7.8.1.7. Loan Repayment from General Fund

In December 2008, the City's Department of Finance and DWM executed a Memorandum of Understanding formalizing arrangements for repayment to the Department of an aggregate $116.2 million obligation of the City's General Fund (the "General Fund MOU"). This obligation is attributable to prior use of the City's cash pool to address historical operating deficits of the City's Solid Waste, Emergency 911, and capital financing funds. The City has addressed operational issues with the City's Solid Waste and E911 Funds and restructured financing of Public Safety and rolling stock acquisitions. Accordingly, the General Fund has been paying and can reasonably be expected to continue to repay the aggregate principal and simple interest on outstanding balances. The terms of the General Fund MOU call for principal reduction of $10.0 million for an 11-year period and final payment in FY 2021 of $6.3 million. Payments equaling these principal amounts plus accrued interest commenced on July 1, 2009. Under a restructured agreement, City Council approved a reduction in the interest rate of the obligation from 3 percent to 1 percent for the remainder of the repayment period in May 2013. The Department expects to receive a total of $26.7 million from FY 2019 through FY 2021, at which point the terms of the agreement will be fulfilled and the loan terminated.

7.8.1.8. Total System Revenues

In FY 2019, total System revenues of $627.7 million are projected to include water and wastewater service revenues (72.7 percent), other service revenues (2.7 percent), MOST revenues (19.9 percent), other revenues (0.6 percent), IJ capital contributions (2.5 percent), and repayment from the General Fund (1.6 percent). Total System revenues are projected to increase 4.5 percent, from $627.7 million in FY 2019 to $656.2 million in FY 2024.

7.8.2 Operating Expenses

Total System operation and maintenance expenses were $213.5 million in FY 2017 and $212.8 million in FY 2018.[98] O&M costs have increased 3.4 percent per year (compounded annual growth rate) from FY 2012 to FY 2018. Actual O&M expenses are expected to be

[98] FY 2018 O&M expense is an unaudited estimate provided by the Department in early FY 2019 and therefore subject to change.

$217.8 million in FY 2019, an increase of 2.3% over FY 2018. This can be attributed to increased spending to address maintenance-related issues at the treatment plants, additional electricity and chemicals attributed to wet-weather events, and augmented staffing levels to address service backlogs.

System operating expenses are accounted for in two primary funds, the Revenue Fund and the R&E Fund, as previously discussed. Expenditures are grouped into various categories for each of these funds such as Personnel Expense, Other Operating Expense, Contracted Services, Capital Outlay, and Reserve for Appropriation. Personnel expenses are composed of salaries and wages expense, overtime pay, life and health insurance expense, and pension expenses. Other Operating Expense is composed of expenses required to properly operate and maintain the facilities. Expense sub-categories include operational and administrative supplies, utilities and rentals, outside services, special purchases, and service and repairs, among others. Contracted Services expense is made up of professional services expense, duplication and word processing costs, as well as fuel and repairs for motorized equipment. Leases of equipment, land, and buildings constitute the majority of expense for the Capital Outlay category. Reserves for Appropriation is a category used to set aside funds for other minor capital expenses.

For forecasting purposes, most of the expense sub-categories are escalated at 3.0 percent annually to reflect inflation. However, some sub-categories have been increased at higher rates to account for current market conditions. Labor expenses have been escalated at 4.0 percent per annum to account for merit salary increases and the increasing cost of employee benefits. Natural gas and chemical supplies have been increased annually at 5.5 percent. The aggressive escalation of some cost categories represents a conservative approach to the forecasted fund performance of the Department. Despite the significant inflationary pressure on these O&M cost categories, this financial plan assumes that the Department will implement budget austerity measures to offset price escalation over the forecast period. Base O&M expenses are expected to increase 1.0 percent per year from FY 2020 through FY 2023. Beginning in FY 2024, the Department is forecasting base operations and maintenance expense to increase at 2.0 percent per year. To meet these spending targets, the Department plans to review and optimize staffing levels within the organization including de-funding unfilled positions.

Projected operations and maintenance expenses differ from the Department's approved budgets to reflect an assumption that expenditures will not be more than 92 percent of budgeted amounts. This assumption is based on certain structural aspects of the City's budgeting process including, for example, the practice of full-year funding of budgeted positions that will be filled over the course of a given fiscal year. This assumption is carried forward throughout the forecast period.

In addition to forecasted changes to the base operating budget, the Department also anticipates incremental operating savings associated with the resource recovery and energy management initiatives described in Section 6.5, as well as limited savings associated with some projects identified in its CIP. Net cost savings attributed to the Ostara phosphorus recovery project are expected to range between $1.2 and $1.3 million over the forecast period. Cost savings for this project can be attributed to reduced chemical and biosolids handling costs as well as overall lower maintenance requirements at the water reclamation facility. The NORESCO and Schneider energy management projects will also reduce operations and maintenance expense by $1.8 to $6.3 million per annum over the forecast period.[99] The financial plan assumes that savings associated with these initiatives begin in FY 2021, when projects are substantially complete.

Other capital projects, such as plant improvements and process optimization initiatives, hold the potential for additional operational cost savings. Based upon a detailed operational review to determine potential cost increases or expense savings by individual project, the Department conservatively projects net incremental annual savings will range between $1.7 million in FY 2019 and $2.0 million in FY 2024.

Combined operating and maintenance expenditures paid from the Revenue Fund and the R&E Fund are estimated at $212.8 million in FY 2018 and are projected to increase 2.3 percent to $217.8 million in FY 2019 (including operational cost savings). Total O&M is expected to increase 2.4 percent by FY 2024, to $223.0 million. This increase reflects the combined effect of a minimal increase in base operation and maintenance expenses, net cost savings associated with planned capital projects, and significant expense reductions associated with the Department initiatives noted above.[100]

7.8.2.1. Direct and Indirect Charges, PILOT and Franchise Fees

The Department is also charged for both direct and indirect costs for services provided by various General Fund departments. Direct charges are for costs of services to directly support the Department's operations and capital programs including executive offices, information technology, finance, procurement, human resource, internal audit, and legal. Direct charges are based on the provision of the associated services, and are forecasted between $27.6 million in FY 2019 and $32.0 million in FY 2024. Indirect charges are allocated to the Department based on a City-wide indirect cost study and provide for payment of general government functions including, but not limited to, communications, facilities, and City Management. These charges are forecasted to range from $13.5 million in FY 2019 to $15.6 million in FY 2024. Payments in Lieu of Taxes (PILOT) and franchise fees are expected to total $19.9 million in FY 2019 and are assumed to remain relatively constant over the forecast period, increasing slightly to $20.2 million in FY 2024. Direct and indirect costs, PILOT and franchise fees are expected to be $60.9 million in FY 2019 and increase to $67.8 million by the end of the forecast period.[101]

7.8.2.2. Other Expense

This expense category includes expenses such as Other Post-Employment Benefits (OPEB), miscellaneous expense items such as GEFA processing fees, and issuance costs associated with the 2018 Commercial Paper Program. In FY 2011, the City negotiated a landmark restructuring of its pension obligations that will constrain and reduce uncertainties

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[99] O&M savings associated with the energy management initiatives are contractually guaranteed, placing performance risk with the contractors. Based on a detailed analysis of the planned energy conservation measures (ECMs), DWM expects actual cost savings for these projects to be higher than those included in this financial plan forecast.

[100] Projected cost savings associated with resource recovery and energy management initiatives are offset by equipment lease obligations. See Section 7.8.3.4 for more information.

[101] The PILOT and Franchise Fee charges are being challenged by a lawsuit filed on April 19, 2018. The case is styled *A. Thomas Jones, et al. v. City of Atlanta*, Superior Court of Fulton County, Georgia, Civil Action File No. 2018CV304044.

associated with future pension obligations. These expenses are projected to increase from $16.4 million in FY 2019 to $20.9 million in FY 2024. GEFA processing fees are assumed to be approximately $0.6 million per year to account for new loan issuance as well as other fees associated with these loan programs. Commercial Paper issuance costs such as facility and dealer fees are expected to total $0.6 million per annum until the 2018 Commercial Paper Program expires in early FY 2022.

Other expense, in total, is projected to increase from $17.6 million in FY 2019 to $21.5 million in FY 2024.

7.8.3 Debt Service

Projected debt service requirements include debt service for both existing and proposed debt issues.[102]

7.8.3.1. Existing Senior Lien Debt Service

The Department is currently repaying eleven revenue bond issues: Series 1999 Bonds, Series 2001A Bonds, Series 2004 Bonds, Series 2009A Bonds, Series 2009B Bonds, Series 2013A Bonds, Series 2013B Bonds, Series 2015 Bonds, Series 2017A Bonds, Series 2018A Bonds, and Series 2018B Bonds. Debt service on all fixed rate System bonds has been calculated using the actual fixed coupons. The Department currently has only one series of outstanding variable rate bonds, the Series 2013A Bonds. Additionally, the Department had swaps associated with the City's Water and Wastewater Refunding Bonds, Series 2001B and the City's Water and Wastewater Refunding Bonds, Series 2001C. However, various refundings necessitated assigning the swaps to the City's Series 2008 Bonds, the Series 2013A Bonds, and the Series 2015 Bonds. The Department terminated the swaps associated with the Series 2008 and Series 2015 Bonds on May 20, 2018 and debt service on those issues has been calculated using the actual fixed coupons. Debt service on the Series 2013A Bonds has been calculated using the 12-month historical average plus associated credit spread costs and is net of swap payments calculated at 4.09 percent less the 12-month historical net swap receipt rate. In conjunction with the Series 2018C refunding, the Department intends to use existing reserves to terminate the remaining swap associated with the Series 2013A Bonds. Par amounts and retirement years for the outstanding bond issues, prior to the proposed Series 2018C Bonds, are shown in Table 7-7.

Existing senior lien debt service is expected to total $206.8 million in FY 2019 and increase to $214.9 million in FY 2020. Debt service remains relatively level between $211.3 million and $214.7 million through FY 2030 after which time it continues to decline through final maturity in FY 2048. This forecast reflects the anticipated debt service associated with the Series 2018C Bonds, the refunding of the Series 2013A Bonds, and the executed termination of the swap associated with the Series 2013A Bonds. Annual debt service on the Series 2018C Bonds assumes an interest rate of 3.83 percent, a 20-year term, and 0.67 percent costs of issuance.[103]

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[102] Forecasted debt service numbers are based on available information as of September 14, 2018.

[103] The interest assumption is equal to the current market rate at the time of this publication plus 25 basis points.

TABLE 7-7
Outstanding Revenue Bonds[1]

Series	Original Par Amount	Outstanding Principal[2]	Calendar Year Retired
Series 1999 Bonds	$ 1,096.1	$ 174.7	2022
Series 2001A Bonds	$ 415.3	$ 85.1	2027
Series 2004 Bonds	$ 849.3	$ 134.1	2030
Series 2009A Bonds	$ 750.0	$ 38.3	2019
Series 2009B Bonds	$ 449.0	$ 185.8	2039
Series 2013A Bonds	$ 328.7[3]	$ 326.0	2038
Series 2013B Bonds	$ 200.1	$ 164.6	2030
Series 2015 Bonds	$ 1,237.4	$ 1,235.2	2043
Series 2017A Bonds	$ 226.2	$ 226.2	2039
Series 2018A Bonds	$ 51.2	$ 51.2	2041
Series 2018B Bonds	$ 289.7	$ 289.7	2047
Total	**$ 5,893.1**	**$ 2,910.8**	

1 - Numbers are expressed in millions of dollars, slight calculation discrepancies may occur due to rounding
2 - As of September 1, 2018
3 - Includes $150.0 million in direct purchase bonds

7.8.3.2. Forecasted Senior Lien Debt

In addition to using the proceeds of the Series 2018C Bonds to refund the Series 2013A Bonds, the Department's capital financing plan also anticipates the issuance of a $110.0 million Water and Wastewater Revenue Bond in 2021 (early FY 2022) to repay obligations associated with the 2018 Commercial Paper Program. For purposes of the financial planning reported herein, this is assumed to be a 30-year bond issued at a 4.95 percent interest rate, 1.0 percent costs of issuance, and a debt service reserve requirement equal to 7.0 percent of proceeds. Repayment obligations for the Series 2021 revenue bond are expected to total $7.6 million per annum.

Total senior lien debt service costs are expected to be $206.8 million in FY 2019 and increase to $218.9 million in FY 2024. The debt service forecast reflects the impact of the Series 2018C Bonds, the termination of the swap associated with the Series 2013A Bonds, and the anticipated issuance of the Series 2021 Bonds.

7.8.3.3. Other Debt

The Department is also repaying loans issued by the Georgia Environmental Finance Authority. Repayment of GEFA loans is considered other debt, and excluded from the parity coverage requirements and senior lien debt service coverage calculations. In FY 2018, the Department made payments totaling $12.2 million for existing GEFA obligations.

This analysis assumes that GEFA loan proceeds will be available for the Department's capital program according to the schedule outlined in Table 7-4. Future GEFA loans are assumed to have level 20-year terms at interest rates that vary between 2.25 and 2.60 percent, with loan application fees of 1.0 percent. The Department pays interest costs associated with GEFA draws (prior to project completion and amortization of each loan) on a monthly basis. Annual interest costs are estimated using a level spend-down assumption for capital projects and an assumed 2-year construction period. The Department has extensive experience in applying for and administering GEFA loans and is working with GEFA on an ongoing basis to ensure that prospective projects will qualify for available funding.

Based on the assumption that DWM will be able to secure $228.0 million in GEFA loan proceeds over the forecast period, annual GEFA loan payments are expected to increase from $14.4 million in FY 2019 to $30.1 million in FY 2024. Interest payments to GEFA for unamortized project reimbursements are expected to total $1.2 million annually from FY 2019 through FY 2024.

In addition to GEFA interest and principal repayment, the Department forecasts other subordinate debt obligations such as the anticipated issuance of an Environmental Impact Bond[104] later in FY 2019 and interest expense on the 2018 Commercial Paper Program. For purposes of the financial planning reported herein, the EIB is assumed to be a 10-year bond issued at an average interest rate of 3.98 percent with costs of issuance equal to 2.5 percent of par, and a funded debt service reserve equal to 11.4 percent of par. Annual loan repayment is expected to be $1.7 million annually.

Forecasted interest expense on the Commercial Paper credit facility is based on encumbrance requirements and the anticipated construction schedule of the North Fork Peachtree Creek Storage and Pump Station project and the Intrenchment Creek Decommissioning project, both of which will be partially funded by the 2018 Commercial Paper Program.[105] Commercial Paper interest expense is expected to total $2.8 million over the forecast period based on the anticipated start dates of the projects and terms of the 2018 credit facility.

Other debt service of the System is expected to total $15.9 million in FY 2019 and more than double to $33.0 million by FY 2024. The increase is primarily attributable to the Department's plan to increase reliance on annual GEFA loans—as well as issuance of the Environmental Impact Bond—to fund priority projects during the forecast period.

Combined annual debt service costs (both senior lien and other debt) are projected to be $222.7 million in FY 2019 and are forecasted to increase to $251.9 million in FY 2024.

7.8.3.4. Capital Leases / Installment Purchase Obligations

Each of the resource recovery and energy management initiatives described in Section 6.5 include annual lease obligations associated with new equipment, financed over 12- and 15-

[104] The Series 2018A and Series 2018B Feasibility Study assumed that the EIB would be issued on parity with DWM's revenue bonds; however, it is now anticipated that this debt issuance will be subordinate to other senior lien obligations of the System.

[105] Because the North Fork Peachtree Creek Storage and Pump Station project is subject to IJ capital contributions, DWM expects to encumber roughly half of the project cost with operating revenues of the System. For the Intrenchment Creek Decommissioning project, the Department has already encumbered $21.0 million (the total estimated project cost in nominal dollars is $81.0 million).

year terms.[106] These lease obligations are subordinate to the City's senior lien revenue bonds. The annual lease on the Ostara nutrient recovery project will be $1.1 million per year starting in FY 2019. The NORESCO project initiative will require interim payments of $0.7 million until FY 2021 when project construction is completed. Thereafter, annual lease payments of $7.2 million are required. The lease payment on the Schneider project will begin in FY 2020 and is $3.1 million annually.

In addition, the Department executed an installment purchase agreement for the purchase of certain heavy equipment in the amount of $7.1 million in 2016. Annual lease obligations of $1.8 million began in FY 2018 and will end in FY 2021.

Total lease obligations and installment purchase obligations are expected to total $3.7 million in FY 2019 and increase to $11.4 million by FY 2024.

7.8.4 Equity Financing of Capital

The Department's financing plan assumes that $575.0 million will be drawn from the Department's combined operating fund balances (including IJ capital contributions) over the 6-year forecast period to fund the capital program.[107] Equity financing amounts vary based on the projected performance of the combined operating funds, but are expected to range between $70.0 million and $150.0 million over the forecast period. This financial plan also assumes an additional $25.0 million in operating reserves will be available in FY 2019 from the Department's swap termination fund for future capital projects. The Department's capital financing plan provides for achievement of debt service coverage and fund balances in excess of established performance targets, and relies primarily on equity financing of prospective capital to minimize borrowing costs and limit outstanding senior lien indebtedness.

7.8.5 Fund Balances

The Department's policy is to maintain cash reserves equal to three months of budgeted operating expenditures (approximately $54.0 to $55.3 million) to provide adequate working capital for the Department's operations. Despite a plan to finance $600.0 million of CIP over the forecast period with operating revenues and reserves from the System, the projected ending cash balance for the Department's combined fund far exceeds the minimum requirement. The unrestricted ending cash balance of the Department's combined operating funds (Funds 5051 and 5052), projected to range from $213.8 million in FY 2019 to $139.2 million in FY 2024, reflects the effect of budget austerity measures, IJ capital contributions, and the forecasted senior and subordinate debt obligations described earlier. Drawing down of these balances enables financing of the Department's revised capital program with less reliance on future senior lien debt or near-term service rate increases.

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[106] The Ostara resource recovery project includes a 12-year lease, while both energy management initiatives are financed over a 15-year term.

[107] Approximately $13.6 million will remain available in the Department's project reserve balance for capital encumbrance requirements beyond FY 2024.

7.9 Projected Debt Service Coverage

Table 7-8 presents the forecasted performance of the Department relative to its targeted debt service coverage metrics including forecasted net operating revenues, expenses, debt service, and debt service coverage through FY 2024. As indicated, revenues were forecasted on a conservative basis and expenses were estimated based on historical spending patterns, adjusted for anticipated inflation. O&M expense projections also reflect implementation of cost control measures and incremental O&M cost savings associated with new infrastructure, resource recovery projects, and energy management initiatives.

TABLE 7-8
Projected Senior and Subordinate Debt Coverage, FY 2019–2024[1]

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Water & Wastewater Service Revenue	$ 456.1	$ 460.8	$ 463.6	$ 463.4	$ 474.6	$ 484.3
Other Service Revenue	16.9	17.0	17.4	17.5	17.5	17.6
MOST Revenue	125.0	125.0	125.0	125.0	125.0	125.0
Other Revenue	4.0	4.0	4.0	4.0	4.0	4.0
Non-Service Revenue	25.7	25.6	11.4	12.5	25.0	25.3
- IJ Capital Contributions[2]	(15.4)	(15.4)	(5.1)	(12.5)	(25.0)	(25.3)
- Repayment from General Fund[2]	(10.3)	(10.2)	(6.3)	-	-	-
- Fertilizer Sales Revenues[2]	-	-	(0.4)	(0.4)	(0.4)	(0.4)
Total Operating Revenues	$ 602.0	$ 606.7	$ 609.6	$ 609.5	$ 620.7	$ 630.5
Operating Expenses	218.9	218.6	217.8	221.0	222.5	224.1
+ Direct and Indirect Charges	41.0	42.3	43.5	44.8	46.2	47.6
+ OPEB	16.4	17.2	18.1	19.0	19.9	20.9
- Capitalized Expense	(20.0)	(20.0)	(20.0)	(20.0)	(20.0)	(20.0)
Total Operating Expense	$ 256.3	$ 258.1	$ 259.4	$ 264.8	$ 268.6	$ 272.6
Net Revenue Available for Debt Service	**$ 345.7**	**$ 348.7**	**$ 350.1**	**$ 344.6**	**$ 352.1**	**$ 357.9**
Existing Senior Debt Service[3]	206.8	215.0	214.4	214.4	214.7	211.3
Series 2021 Debt Service[4]	-	-	-	4.9	7.6	7.6
Total Senior Debt Service	**$ 206.8**	**$ 215.0**	**$ 214.4**	**$ 219.3**	**$ 222.3**	**$ 218.9**
Projected Senior Lien Coverage Ratio[5]	**1.67**	**1.62**	**1.63**	**1.57**	**1.58**	**1.63**
Revenue Available for Subordinate Debt	138.9	133.7	135.7	125.3	129.9	139.0
Total Subordinate Debt[6]	18.5	25.7	37.8	37.4	40.3	43.3
Projected Subordinate Coverage Ratio[5]	7.52	5.19	3.59	3.35	3.21	3.20

1 - Slight calculation discrepancies may exist due to rounding, numbers in millions

2 - Non-Service Revenues are excluded from Operating Revenues in order to establish the projected debt service coverage ratio

3 - Reflects the anticipated debt service of the Series 2018C Bonds; the executed termination of the swap associated with the Series 2013A Bonds; and the refunding of the Series 2013A Bonds

4 - Anticipated debt service associated with $110.0 million repayment of 2018 Commercial Paper Program obligations in FY 2022

5 - Debt service coverage metrics rounded down to the second significant digit

6 - Includes GEFA interest and principal payments; interest payments on the 2018 Commercial Paper Program; and debt service associated with the FY 2019 issuance of a $12.5 million Environmental Impact Bond (EIB)

Adjustments are made to both operating revenues and operating expenses to exclude items not included in the calculation of debt service coverage. IJ capital contributions and loan repayments from the General Fund are excluded from annual operating revenues. Projected fertilizer sales from the Ostara resource recovery project are also excluded. Direct and indirect costs for services provided by various General Fund Departments of the City are added to annual operating expense, as well as costs for the OPEB program. Finally, annual operating expenses are reduced to account for capitalized personnel expense in the R&E Fund. The $20.0 million per year estimate is based on representative adjustments during the last four fiscal years and is consistent with audit procedures of the Department.

After making these adjustments, annual net operating revenues available to pay debt service are forecast to increase 3.5 percent, from $345.7 million in FY 2019 to $357.9 million in FY 2024.

Senior lien debt service coverage is evaluated in terms of the System as a whole (combined water and wastewater). For new debt issues, the City has a minimum parity coverage requirement of 1.10x (times) average annual debt service for senior lien debt, but also targets minimum annual senior lien debt service coverage of 1.20x. Forecasted senior lien debt service coverage is estimated to range from 1.57x to 1.67x over the 6-year period as shown in Table 7-8.[108] Subordinate coverage—which accounts for GEFA loan payments, the Environmental Impact Bond, Commercial Paper interest, and capital lease obligations—is expected to decrease from 7.52x in FY 2019 to 3.20x in FY 2024. Subordinate coverage decreases primarily because of increased GEFA borrowing and the lease obligations associated with DWM's resource recovery and energy management initiatives.

As indicated in Table 7-1, average senior lien debt service coverage over the last five fiscal years was 1.94x. Projected coverage in FY 2019 of 1.67x is based upon forecasted net revenues available for debt service of $345.7 million, a decrease of $47.9 million (12.2 percent) over net revenues available for debt service in FY 2018. This forecasted value reflects the conservative nature of the operating and non-operating revenue projections (primarily service rate revenues and MOST revenues).

7.10 Additional Bonds Test

Table 7-9 presents the additional bonds test for the Series 2018C Bonds, which analyzes the Department's capacity to issue additional parity lien debt instruments to fund the capital program. The Master Bond Ordinance requires that a 1.10x coverage level be achieved based on a comparison of recent historical Net Operating Revenue, at the time of issuance, with average annual debt service requirements on all outstanding senior lien revenue bonds immediately after the issuance of the proposed parity bonds. As the additional bonds test demonstrates, the Department's coverage of 2.34x meets the debt service coverage requirements of the Master Bond Ordinance for issuing additional parity lien revenue bonds.

[108] The financial plan summarized herein assumes the MOST will be renewed for an additional four-year period in 2020.

TABLE 7-9
Additional Bonds Test for the Historical Period

	Historical Net Operating Revenues[1]	Average Annual Debt Service After Issuance	Coverage Test[2]
Series 2018C Bonds	$393.6	$167.9	2.34

[1] *Highest net operating revenues from a consecutive 12-month period during the most recent 18-month operating period*

[2] *Coverage ratio must exceed 1.1x average annual debt service*

7.11 Key Assumptions

Projected financial performance of the System relies on a number of key assumptions, summarized in Table 7-10. While these assumptions are discussed in greater detail in relevant sections of the report, a brief synopsis of each is included below the table.

TABLE 7-10
Key Financial Planning Assumptions

Elasticity of demand factor	-1.5
Bad debt expense (% of billed revenue)	4.0%
General cost inflation factor	3.0%
Capital cost inflation factor	3.0%
Actual expense to O&M budget factor	92.0%
Average annual growth in customers	varies
Consumption per unit trends	varies

- Elasticity of demand factor: interpreted as the assumed percentage decrease in System-wide consumption for every 10 percent increase in rates.
- Bad debt expense: the assumed percentage of billed annual revenues that are not collected.
- General cost inflation factor: the default cost factor used to estimate future costs, although various cost categories are subject to higher inflation factors as previously outlined.
- Capital cost escalation factor: the escalation factor used by the Department to estimate future encumbrance requirements based on the timing of construction and current cost estimates.
- Actual expense to O&M budget factor: the ratio that is applied to budgeted O&M totals to reflect institutional limits on the extent to which budgeted expenditures may be realized (due to, for example, procurement and human resource processing requirements).

- Average annual growth in customer accounts: for residential water accounts (both inside- and outside-City customers), 0.75 percent per year; for residential sewer accounts, 0.5 percent per year; for commercial water accounts (both inside- and outside-City customers), 0.5 percent per year; and commercial sewer accounts and institutional water and sewer accounts are assumed to remain constant. Although these assumed growth trends vary by customer class, the compounded average System-wide growth in customer accounts from FY 2019 to FY 2024 is approximately 0.40 percent.
- Average annual consumption trends reflect projected changes in per unit consumption from FY 2019 to FY 2024 for all customers (residential, commercial and institutional). Price-independent decreases of 0.25 percent are applied to all retail customers in FY 2019. Further price-independent decreases during the forecast period are not expected. Elasticity of demand assumptions and planned rate increases result in a 0.45 percent decrease in per unit consumption in FY 2023 and a 0.30 decrease in FY 2024. When factoring together both elasticity of demand adjustments and price-independent changes in consumption, the compounded annual decline in consumption per account is -0.17 percent per year over the forecast period.[109]

7.12 Planning Scenario for MOST Expiration

In May 2018, the governor signed legislation enabling voter referenda for the renewal of the MOST every four years for an additional 12-year period (through October 2032). The financial plan summarized in this report anticipates extension of MOST at the next approval date in March 2020. The MOST has consistently received strong local voter support in renewal referendums—in part because extensive public communication has highlighted the significant water and wastewater rate adjustments that would be required in the event of withdrawal of MOST funding support.[110]

Given the possibility that the MOST extension could fail to gain local voter approval, the Department has developed an alternative financial plan that reflects the expiration of this critical funding source. As expected, this alternative financial plan requires significant rate increases earlier in the forecast period to replace the $125.0 million annual proceeds from MOST. Water and wastewater rate increases of 25.0 percent in FY 2021 and 10.0 percent in FY 2022 – the years immediately following MOST expiration – would be required to maintain minimal project funding levels.[111]

Table 7-11 presents a summary of rate increases and projected senior lien debt service coverage under each financial plan scenario: one in which MOST is extended in October 2020 (FY 2021), and the other in which the MOST expires as provided for under the original enabling legislation.

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[109] If MOST is not extended, and higher rate increases are required to maintain debt service coverage and fund DWM's capital program, the elasticity of demand adjustments to consumption will be much more severe.

[110] The 2008 reauthorization was approved by 71 percent of voters, the 2012 reauthorization by 85 percent, and the 2016 reauthorization by 74 percent.

[111] With limited time to react to a failed MOST reauthorization in March 2020, the earliest the City could respond with rate adjustments would be July 1, 2020 (the beginning of FY 2021).

TABLE 7-11
Comparison of Rate Increases and Debt Service Coverage under Alternative Planning Scenarios

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Rate Increases						
MOST extended in 2020	0.0%	0.0%	0.0%	0.0%	3.0%	2.0%
MOST not extended	0.0%	0.0%	**25.0%**	**7.0%**	3.0%	0.0%
Projected Senior Debt Coverage						
MOST extended in 2020	1.67	1.62	1.63	1.57	1.58	1.63
MOST not extended	1.67	1.62	1.61	1.55	1.58	1.60

7.13 Conclusions

This financial analysis has presented forecasts of revenues, expenses, debt service, and debt service coverage to indicate financial feasibility of the Department's 6-year capital improvement plan, including consent decree projects, annual system renewal and rehabilitation requirements, and continued investment in System operational efficiency and reliability.

The forecast of the financial performance of the System for FY 2019 through FY 2024 is summarized as follows:

- Total System revenues, including proceeds from MOST, General Fund MOU repayment, and IJ capital contributions, are forecasted to increase 4.5 percent, from $627.7 to $656.2 million. System-wide rate increases of 3.0 percent and 2.0 percent are planned for FY 2023 and FY 2024, respectively.
- Factoring in substantial operational cost savings related to resource recovery and energy management initiatives, the Department's total operations and maintenance expenses (Revenue fund and R&E fund) increase 2.4 percent over the forecast period, from $217.8 million to $223.0 million.
- Total annual operating expenses, excluding equity financing of capital project encumbrances, are forecasted to increase by 10.2 percent, from $522.6 million in FY 2019 to $575.7 million in FY 2024.
- The Department's CIP reflects priority needs of the System identified in recent integrated utility planning efforts and, after adjusting for inflation, is expected to require encumbrances of $1,010.5 million between FY 2019 and FY 2024. These capital projects will be funded by future revenue bond proceeds ($110.0 million, 10.7 percent), Environmental Impact Bond proceeds ($12.5 million, 1.2 percent), re-programmed CIP encumbrances ($23.6 million, 2.3 percent), Georgia Environmental Finance Authority loan proceeds ($228.0 million, 22.3 percent), previous bond proceeds ($50.0 million, 4.9 percent), and System operating revenues—including IJ capital contributions and other reserves ($600.0 million, 58.6 percent).[112]

[112] After making these transfers, $13.6 million will remain available in the Department's project reserve balance for capital encumbrance requirements beyond the forecast period.

- Under the assumption that the MOST is extended by voter referendum in 2020, the combined use of the 2018 Commercial Paper Program, timely collections of IJ capital contributions, operating revenues, GEFA borrowing, and the drawing down of existing fund balances will enable the City to finance the Department's capital program without reliance on service rate increases until FY 2023.
- Net revenues of the Department are projected to be sufficient to meet future debt service obligations, including a 1.1x (times) parity coverage requirement on senior lien debt and a 1.0x coverage requirement for subordinate debt. The Department targets senior lien debt service coverage in excess of 1.20x annual debt service. The Department's revised operating expense and capital expenditure plan for the FY 2019 to FY 2024 time period reflects a continuing commitment to cost control measures, resource recovery and energy management initiatives. Projected senior lien debt service coverage is estimated to range between 1.57x and 1.67x between FY 2019 and FY 2024.
- The Department is forecasted to meet the debt service coverage requirements of the Additional Bonds Test in the Master Bond Ordinance for issuing additional senior lien revenue bonds in the amount and at the times assumed during the forecast period. Accordingly, the City has the capacity and the ability to issue parity lien revenue bonds under the Master Bond Ordinance to provide future funding for the capital improvement program.

8.0 Rate Schedule

Table 8-1 provides the Department's current and projected water and wastewater rates, by component, based on the proposed schedule of rate increases outlined in Section 7. Annual rate increases of 3.0 percent and 2.0 percent are planned in FY 2023 and FY 2024, respectively. Rate increases are subject to City Council approval.

TABLE 8-1
Proposed Water and Wastewater Rate Schedule

	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023	FY 2024
Proposed Rate Increases[1]	0.00%	0.00%	0.00%	0.00%	3.00%	2.00%
Water System Service Rates[2]						
Base Charge[3]	$6.56	$6.56	$6.56	$6.56	$6.76	$6.90
Inside-City Retail						
1 – 3 CCF Usage (per CCF)	$2.58	$2.58	$2.58	$2.58	$2.66	$2.72
4 – 6 CCF Usage (per CCF)	$5.34	$5.34	$5.34	$5.34	$5.51	$5.63
7 CCF and Above Usage (per CCF)	$6.16	$6.16	$6.16	$6.16	$6.35	$6.48
Outside-City Retail						
1 – 3 CCF Usage (per CCF)	$3.51	$3.51	$3.51	$3.51	$3.62	$3.70
4 – 6 CCF Usage (per CCF)	$6.48	$6.48	$6.48	$6.48	$6.68	$6.82
7 CCF and Above Usage (per CCF)	$7.47	$7.47	$7.47	$7.47	$7.70	$7.86
Wholesale						
All Usage (per CCF)	$3.70	$3.70	$3.70	$3.70	$3.82	$3.90
Wastewater System Service Rates[2]						
Base Charge[3]	$6.56	$6.56	$6.56	$6.56	$6.76	$6.90
1 – 3 CCF Usage (per CCF)	$9.74	$9.74	$9.74	$9.74	$10.04	$10.25
4 – 6 CCF Usage (per CCF)	$13.64	$13.64	$13.64	$13.64	$14.05	$14.34
7 CCF and Above Usage (per CCF)	$15.69	$15.69	$15.69	$15.69	$16.17	$16.50

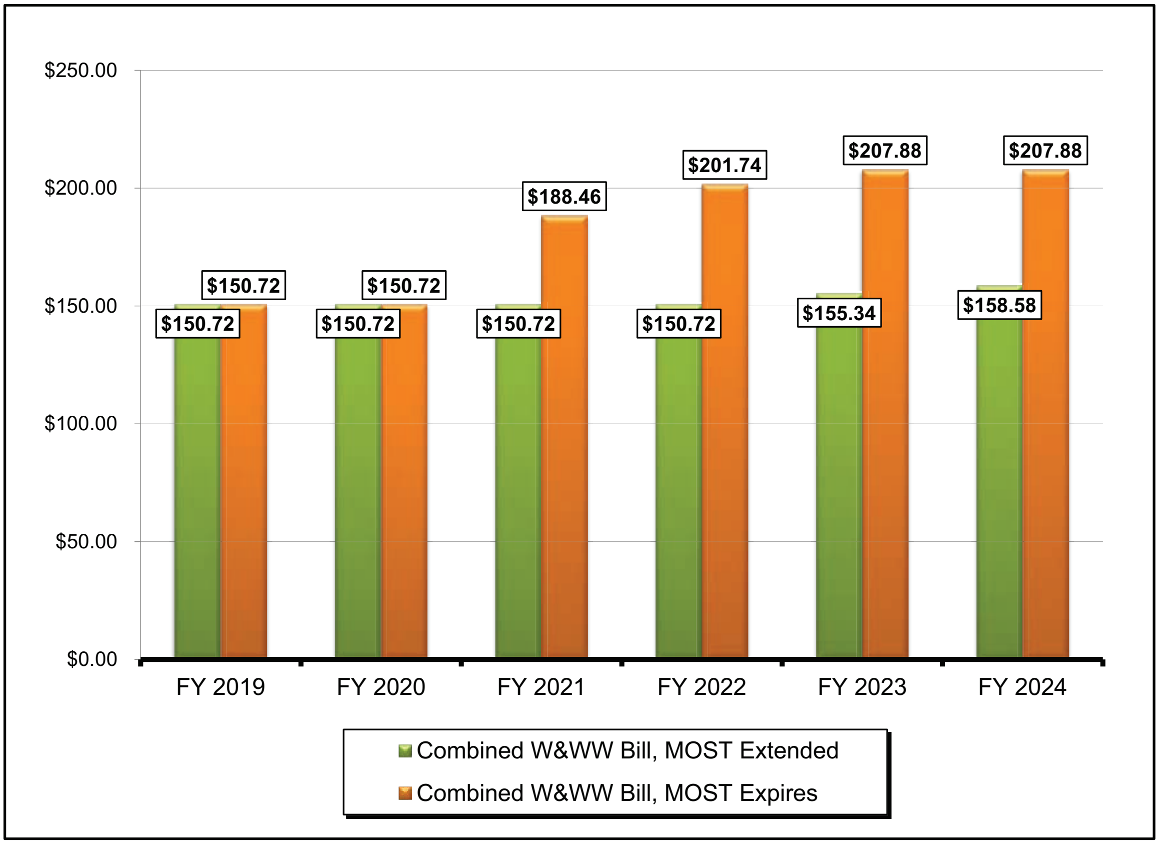
1 - Based on an assumption that the MOST will be extended by referendum in 2020

2 - Rates are for water usage metered approximately monthly

3 - Base charges are applied to each customer unit on a monthly basis

Figure 8-1 presents the combined water and wastewater bill, by component, from FY 2019 through FY 2024 under the assumption that the MOST is extended by referendum in October 2020 (FY 2021). The figure also provides a comparison of the rate increase schedule under the scenario in which MOST expires in FY 2021. Bill calculations are based on usage of 8 hundred cubic feet (CCF) per month for residential customers living inside the City. The combined water and wastewater bill is expected to increase 5.2 percent over this six-year period, from $150.72 in FY 2019 to $158.58 in FY 2024. In contrast, the combined bill would increase 37.9 percent, to $207.88 in FY 2024, if the MOST expires in FY 2021 and the City implements a more aggressive rate schedule to replace this critical funding source.

FIGURE 8-1
Comparison of Water and Wastewater Bill for Financial Planning Alternatives (Inside City Customer, 8 CCF)



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APPENDIX C

SUMMARY OF CERTAIN PROVISIONS OF THE BOND ORDINANCE

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APPENDIX C

SUMMARY OF CERTAIN PROVISIONS OF THE BOND ORDINANCE

This Appendix C is only a brief summary of certain provisions of the Bond Ordinance. This summary is not comprehensive nor is it definitive, nor is it intended to be a full statement of the terms of such documents and, accordingly, is qualified by reference to the Bond Ordinance in its entirety, for a complete statement of the detailed provisions thereof.

DEFINITIONS

Certain words and terms used in this Official Statement and in this Appendix C are defined herein.

"**Additional Interest**" means, for any period during which any Pledged Bonds are owned by a Credit Issuer pursuant to a Credit Facility or Credit Facility Agreement, the amount of interest accrued on such Pledged Bonds at the Pledged Bond Rate less the amount of interest which would have accrued during such period on an equal principal amount of Bonds at the Bond Rate.

"Authorized Denominations" means, with respect to the Series 2018C Bonds, $5,000 and any integral multiple of $5,000 in excess thereof.

"Balloon Bonds" means any series of Senior Bonds or Subordinate Bonds 25% or more of the original principal amount of which (i) is due (whether at maturity or by mandatory redemption) in any 12-month period, or (ii) may, at the option of the registered owners, be required to be redeemed, prepaid, purchased directly or indirectly by the City, or otherwise paid in any 12-month period.

"Balloon Date" means any date on which more than 25% of the original principal amount of related Balloon Bonds mature or are subject to mandatory redemption or could, at the option of the registered owners, be required to be redeemed, prepaid, purchased directly or indirectly by the City, or otherwise paid.

"Bonds" means any revenue bonds authorized by and authenticated and delivered pursuant to the Bond Ordinance including the Senior Bonds, any Parity Bonds and any Subordinate Bonds.

"Bond Ordinance" means the Master Bond Ordinance as it may from time to time be modified, supplemented, or amended by Supplemental Ordinances.

"**Bond Rate**" means the rate of interest per annum payable on specified Bonds other than Pledged Bonds.

"**Book Value**" means the value of the real property and the personal property comprising the System, net of accumulated depreciation and amortization, as reflected in the most recent audited financial statements of the System which have been prepared in accordance with generally accepted accounting principles.

"City" means the City of Atlanta, a municipal corporation created and existing under the laws of the State.

"Code" means the Internal Revenue Code of 1986, as amended, and any regulations promulgated or applicable thereunder.

"Credit Facility" means any letter of credit, insurance policy, guaranty, surety bond, standby bond purchase agreement, line of credit, revolving credit agreement, or similar obligation, arrangement, or instrument issued by a bank, insurance company, or other financial institution which is used by the City to perform one or more of the following tasks: (i) enhancing the City's credit by assuring owners of any of the Bonds that principal of and interest on such Bonds will be paid promptly when due; (ii) providing liquidity for the owners of Bonds through undertaking to cause Bonds to be bought from the owners thereof when submitted pursuant to an arrangement prescribed by a Series Ordinance; or (iii) remarketing any Bonds so submitted to the Credit Issuer (whether or not the same Credit Issuer is remarketing the Bonds). The term Credit Facility shall not include a Reserve Account Credit Facility.

"Credit Facility Agreement" means an agreement between the City and a Credit Issuer pursuant to which the Credit Issuer issues a Credit Facility and may include the promissory note or other instrument evidencing the City's obligations to a Credit Issuer pursuant to a Credit Facility Agreement. The term Credit Facility Agreement shall not include a Reserve Account Credit Facility.

"Credit Issuer" means any issuer of a Credit Facility then in effect for all or part of the Bonds. The term Credit Issuer shall not include any Reserve Account Credit Facility provider. Whenever in the Bond Ordinance the consent of the Credit Issuer is required, such consent shall only be required from the Credit Issuer whose Credit Facility is issued with respect to the Bonds for which the consent is required.

"Debt Service Requirement" means the total principal and interest coming due, whether at maturity or upon mandatory redemption, in any specified period. If any Bonds Outstanding or proposed to be issued under the Bond Ordinance bear interest at a variable rate, the interest coming due in any specified future period will be determined as if the variable rate in effect at all times during such future period equaled, at the option of the City, either (a) the average of the actual variable rates which were in effect (weighted according to the length of the period during which each such variable rate was in effect) for the most recent twelve 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 twelve month period), or (b) the current average annual long term fixed rate of interest on securities of similar quality having a similar maturity date as certified by a financial advisor to the City. If any compound interest Bonds are Outstanding or proposed to be issued under the Bond Ordinance, the total principal and interest coming due in any specified period will be determined, with respect to such compound interest bonds, by the supplemental ordinance of the City authorizing such compound interest bonds.

With respect to any Senior Bonds or Subordinate Bonds secured by a credit facility, Debt Service Requirement will include: (a) any commission or commitment fee obligations with respect to such credit facility, (b) unreimbursed draws or advances on such credit facility and interest thereon, (c) any additional interest owed on Senior Bonds or Subordinate Bonds owned by a Credit Issuer while they are so owned, and (d) any remarketing agent fees. With respect to any Senior Bonds or Subordinate Bonds hedged by a hedge agreement, the interest on such hedged bonds, for so long as the provider of the related hedge agreement has not defaulted on its payment obligations thereunder, will be calculated by adding (x) the amount of interest payable by the City on such hedged bonds pursuant to their terms and (y) the amounts (other than termination, indemnity, and expense payments) payable by the City under the related hedge agreement and subtracting (z) the amounts (other than termination, indemnity, and expense payments) 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 on the related hedged bonds will be the interest calculated as if such hedge agreement had not been executed. In determining the amounts (other than termination, indemnity, and expense payments) payable or receivable under a hedge agreement which are not fixed (i.e., which are variable), payable or receivable for any future period, such payments or receipts for any period of calculation (the "Determination Period") will 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 twelve 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 twelve month period). For the purpose of calculating the Debt Service Requirement on Balloon Bonds (a) which are subject to a commitment to refinance, or (b) which do not have a Balloon Date within 12 months from the date of calculation, such bonds will 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 at an assumed interest rate (which shall be the interest rate certified by a financial advisor to the City to be the interest rate at which the City could reasonably expect to borrow the same amount by issuing bonds with the same priority of lien as such Balloon Bonds and with a 20-year term); provided, however, that if the maturity of such bonds (taking into account the term of any commitment to refinance) is in excess of 20 years from the date of issuance, then such bonds will 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 bonds to maturity (including the commitment to refinance) and at the interest rate applicable to such bonds. For the purpose of calculating the Debt Service Requirement on Balloon Bonds (a) which are not subject to a commitment to refinance, and (b) which have a Balloon Date within 12 months from the date of calculation, the principal payable on such bonds on the Balloon Date will be calculated as if paid on the Balloon Date. The principal of and interest on Senior Bonds and Subordinate Bonds and payments under hedge agreements relating thereto will be excluded from the determination of Debt Service Requirement to the extent that the same were or are expected to be paid with amounts on deposit on the date of calculation (or bond proceeds to be deposited on the date of issuance of proposed bonds) in the Project Fund, the Sinking Fund, or a similar fund for Subordinate Bonds.

"Debt Service Reserve Account" means the Debt Service Reserve Account within the Sinking Fund.

"Expenses of Operation and Maintenance" means all expenses reasonably incurred in connection with the operation and maintenance of the System, including salaries, wages, the cost of materials and supplies, rentals of leased property, if any, management fees, payments to others for the purchase of water, if any, and for the treatment and disposal of sewage, the costs of audits, Paying Agent's and Bond Registrar's fees, payment of premiums for insurance required by the Bond Ordinance and other insurance which the City deems prudent to carry on the System and its operations and personnel, and generally, all expenses, exclusive of interest on the Bonds and depreciation or amortization, which under accounting principles generally accepted for municipal utility purposes are properly allocable to operation and maintenance; however, only such expenses as are reasonably and properly necessary or desirable for the proper operation and maintenance of the System shall be included. "Expenses of Operation and Maintenance" also includes the City's obligations under any contract with any other political subdivision or public agency or authority of one or more political subdivisions pursuant to which the City undertakes to make payments measured by the expenses of operating and maintaining any facility which constitutes part of the System and which is owned or operated in part of the City and in part by others. "Expenses of Operations and Maintenance" excludes Franchise and Pilot Payments. "Expenses of Operation and Maintenance" also excludes any expenses described above to the extent that the same were or are reasonably expected to be paid with taxes levied or imposed and in effect on or before the date of calculation.

"Fiscal Year" means the 12-month period used by the City for its general accounting purposes, as it may be changed from time to time.

"Fitch" means Fitch Investors Service, L.P., or, if such limited partnership is dissolved or liquidated or otherwise ceases to perform securities rating services, such other nationally recognized securities rating agency as may be designated in writing by the City.

"Governing Body" means the City Council of the City and any predecessor or successor in office to such present body, and any Person to whom or which may hereafter be delegated by law the duties, powers, authority, obligations, or liabilities of the present body, either in whole or in relation to the System.

"Hedge Agreement" means, 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 City determines is to be used, or is intended to be used, to manage or reduce the cost of any Bonds, to convert any element of any Bonds 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.

"Hedge Receipts" means amounts payable by any provider of a Hedge Agreement pursuant to such Hedge Agreement, other than termination payments, fees, expenses, and indemnity payments.

"Interest Payment Date" means each date on which interest is to be paid as established in the Series Ordinance for such Bonds.

"**Interest Subaccount**" means the Interest Subaccount within the Payments Account.

"Investment Earnings" means all interest received on and profits derived from investments made with Pledged Revenues or any moneys in the funds and accounts established under the Bond Ordinance.

"Master Bond Ordinance" means the Master Bond Ordinance adopted by the Governing Body on March 31, 1999 (99-O-0399), as modified, supplemented and amended by various supplemental ordinances.

"Moody's" means Moody's Investors Service, Inc. or, if such corporation is dissolved or liquidated or otherwise ceases to perform securities rating services, such other nationally recognized securities rating agency as may be designated in writing by the City.

"Net Operating Revenues" means Operating Revenues, after provision for payment of all Expenses of Operation and Maintenance.

"Operating Revenues" means all income and revenue of any nature derived from the operation of the System, including monthly water and sewage billings, service charges, other charges for water and sewage service and the availability thereof (other than any special assessment proceeds), connection or tap fees (whether accounted for as revenues or as contributed capital), hydrant rentals, and local, state, or federal grants, capital improvement contract payments, or other moneys (other than taxes) that may be used for the payment of Expenses of Operation and Maintenance, but excluding local, state, or federal grants, loans, capital improvement contract payments, or other moneys that are required to be used for capital improvements to the System and excluding Investment Earnings.

"**Other System Obligations**" means obligations of any kind, including but not limited to Government Loans, general obligation bonds, revenue bonds, capital leases, installment purchase agreements, or notes (but excluding Bonds and related obligations to Credit Issuers, Reserve Account Credit Facility Providers, and Qualified Hedge Providers), incurred or issued by the City to finance or refinance the cost of acquiring, constructing, reconstructing, improving, bettering, or extending any part of the System.

"Outstanding" means, when used in reference to the Bonds, all Bonds which have been duly authenticated and delivered under the Bond Ordinance, with the exception of (a) Bonds in lieu of which other Bonds have been issued under agreement to replace lost, mutilated, stolen, or destroyed obligations, (b) Bonds surrendered by the owners in exchange for other Bonds under the Bond Ordinance, (c) Bonds for the payment of which provision has been made in accordance with the Bond Ordinance and (d) Variable Rate Bonds that have been duly called for mandatory tender or as to which the Modal Holder thereof gave notice of optional tender and, in either case, for the purchase of which the Purchase Price is held by the Tender Agent for the payment thereof.

"Parity Bonds" means Bonds issued with a right to payment and secured by a lien on a parity with Outstanding Senior Bonds.

"**Payments Account**" means the Payments Account within the Sinking Fund.

"Person" or "person" means any individual, corporation, partnership, limited liability company, joint venture, association, joint stock company, trust, unincorporated organization, body, authority, government, or agency or political subdivision thereof.

"Pledged Bond" means any Bond purchased and held by a Credit Issuer pursuant to a Credit Facility Agreement. A Bond shall be deemed a Pledged Bond only for the actual period during which such Bond is owned by a Credit Issuer pursuant to a Credit Facility Agreement.

"**Pledged Bond Rate**" means the rate of interest payable on Pledged Bonds, as may be provided in a Credit Facility or Credit Facility Agreement.

"Pledged Revenues" means Operating Revenues, Investment Earnings, Hedge Receipts, and all moneys paid or required to be paid into, and all moneys and securities on deposit from time to time in, the funds and accounts specified in the Bond Ordinance, but excluding any amounts required in the Bond Ordinance to be set aside pending, or used for, rebate to the United States government pursuant to Section 148(f) of the Code, including, but not limited to, amounts in the Rebate Fund.

"**Principal Subaccount**" means the Principal Subaccount within the Payments Account.

"Prior Ordinance" means the Master Ordinance, as supplemented and amended by the First Supplemental Ordinance, the Series 2001 Ordinance, the Series 2004 Ordinance, the 2006 Commercial Paper Ordinance, the Fifth Supplemental Ordinance, the Series 2008 Ordinance, the Seventh Supplemental Ordinance, the Series 2009A Ordinance, the Series 2009B Ordinance, the First Twelfth Supplemental Ordinance, the Second Twelfth Supplemental Ordinance, the Series 2013A Ordinance, the Series 2013B Ordinance, the Series 2015 Ordinance, the 2015 Commercial Paper Ordinance, the Series 2017 Ordinance, the Thirteenth Supplemental Ordinance, the Series 2018A Ordinance, the Series 2018B Ordinance and the 2018 Commercial Paper Ordinance.

"Project Fund" means the City of Atlanta Water and Sewer Project Fund established under the Bond Ordinance.

“Qualified Hedge Provider” means 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 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 the third highest Rating of each Rating Agency, but in no event lower than any Rating on the related Hedged Bonds at the time of execution of the Hedge Agreement, or (ii) in any such lower Rating which each Rating Agency indicates in writing to the City will not, by itself, result in a reduction or withdrawal of its Rating on the related Hedged Bonds that is in effect prior to entering into the Hedge Agreement. An entity's status as a “Qualified Hedge Provider” is determined only at the time the City enters into a Hedge Agreement with such entity and cannot be redetermined with respect to that Hedge Agreement.

“Rating” means a rating in one of the categories by a Rating Agency, disregarding pluses, minuses, and numerical gradations.

“Rating Agencies” or **“Rating Agency”** means Fitch, Moody's, and Standard & Poor's or any successors thereto and any other nationally recognized credit rating agency then maintaining a rating on any Bonds at the request of the City. If at any time a particular Rating Agency does not have a rating outstanding with respect to the relevant Bonds, then a reference to Rating Agency or Rating Agencies shall not include such Rating Agency.

“Record Date” means, with respect to any semiannual Interest Payment Date, the 15th day of the calendar month immediately preceding such Interest Payment Date, and, for any Bonds paying interest other than semiannually, any record dates designated by the City in a Series Ordinance.

“Refunded Bonds” for purposes of the Series 2018C Ordinance, means the portion of the City’s outstanding Water and Wastewater Revenue Refunding Bonds, Series 2013A, to be refunded as identified in the Series 2018C Supplemental Pricing Resolution.

“**Renewal and Extension Fund**” means the City of Atlanta Water and Sewer Renewal and Extension Fund established under the Bond Ordinance.

“Reserve Account Credit Facility” means the letter of credit, insurance policy, line of credit, or surety bond, together with any substitute or replacement therefor, if any, complying with the provisions of the Bond Ordinance, thereby fulfilling all or a portion of the Debt Service Reserve Requirement.

“Reserve Account Credit Facility Provider” means any provider of a Reserve Account Credit Facility.

“Revenue Bond Law” means an Act of the General Assembly of the State of Georgia known as the “Revenue Bond Law”, codified as Article 3 of Chapter 82 of Title 36 of the Official Code of Georgia Annotated.

"**Revenue Fund**" means the City of Atlanta Water and Sewer Revenue Fund established under the Bond Ordinance.

"Sales Tax Revenues" means the tax revenues to be received by the City from the special one-percent sales and use tax to fund water and sewer projects and costs effective on October 1, 2004.

"Senior Bonds" means the Outstanding Parity Bonds and any additional revenue bonds of the City issued on a parity basis with the Outstanding Parity Bonds.

"Series 2018C Bonds" means the City's Water and Wastewater Revenue Refunding Bonds, Series 2018C, in the original aggregate principal amount specified in the Series 2018C Supplemental Pricing Resolution.

"Series 2018C Ordinance" means the Series 2018C Bond Ordinance authorizing the issuance of the Series 2018C Bonds.

"Series 2018C Registrar and Paying Agent" means U.S. Bank National Association.

"Series 2018C Supplemental Pricing Resolution" means the City's resolution supplementing the Series 2018C Ordinance to set forth certain pricing terms, including the portion of the Series 2013A Bonds to be refunded.

"Series Ordinance" means a bond ordinance or bond ordinances of the City (which may be supplemented by one or more bond ordinance(s)) to be adopted prior to and authorizing the issuance and delivery of any series of Bonds.

"**Sinking Fund**" means the City of Atlanta Water and Sewer Sinking Fund established under the Bond Ordinance.

"Standard and Poor's" or **"S&P"** means Standard & Poor's Ratings Services, a division of The McGraw-Hill Companies, Inc., or, if such corporation is dissolved or liquidated or otherwise ceases to perform securities rating services, such other nationally recognized securities rating agency as may be designated in writing by the City.

"State" means the State of Georgia.

"Subordinate Bonds" means Bonds issued with a right to payment from the Pledged Revenues and secured by a lien on the Pledged Revenues expressly junior and subordinate to the Senior Bonds.

"Supplemental Ordinance" means (a) any Series Ordinance, and (b) any modification amendment or supplement to the Master Bond Ordinance other than a Series Ordinance.

"System" means the combined drinking water, sanitary sewer, and wastewater system of the City, as it now exists and as it may be hereafter added to, extended, improved, and equipped, either from the proceeds of the Bonds or from any other sources at any time hereafter, including, without limitation, (a) all wells, pumping stations, purification plants, and other sources of supply of water and all pipes, mains, and other parts of the facilities for the distribution of water and all equipment and property used in connection therewith, (b) all sanitary sewers, all wastewater disposal and treatment plants, all pumping stations, and all equipment used in connection therewith, all facilities for the collection, treatment, and disposal of sewage and wastewater, including industrial wastes, and (c) all other facilities or property of any nature or description, real or personal, tangible or intangible, now or hereafter owned or used by the City in the supply, treatment, and distribution of water and in the collection, treatment, and disposal of sewage. The City may own a partial interest in any drinking water facility or sanitary sewer facility, the remaining interest in which may be owned by or on behalf of a political subdivision of the State or any agency or authority thereof. In case of such ownership, the rights and interests possessed by the City in such facility shall be included as part of the System.

"Term Bonds" means Bonds which mature on one maturity date, yet a portion of which are required to be redeemed, prior to maturity, under a schedule of mandatory redemptions established by the Bond Ordinance.

SUMMARY OF THE BOND ORDINANCE

Introduction

The Master Bond Ordinance, adopted March 31, 1999, as supplemented and amended by that certain First Supplemental Bond Ordinance adopted on March 5, 2001, that certain Series 2001 Bond Ordinance adopted on December 5, 2001, that certain Series 2004 Bond Ordinance adopted on August 16, 2004, as supplemented by that certain Supplemental Series 2004 Bond Ordinance adopted on September 15, 2004, that certain Fifth Supplemental Bond Ordinance adopted on November 19, 2007, that certain Series 2008 Bond Ordinance adopted on March 17, 2008, that certain Seventh Supplemental Bond Ordinance adopted on October 6, 2008, that certain Series 2009A Bond Ordinance adopted on May 4, 2009, as supplemented by that certain Supplemental Series 2009A Bond Ordinance adopted on June 17, 2009, that certain Series 2009B Bond Ordinance adopted on October 5, 2009, as supplemented by that certain Supplemental Series 2009B Bond Ordinance adopted on October 14, 2009, that certain First Twelfth Supplemental Ordinance adopted on February 5, 2010, that certain Second Twelfth Supplemental Ordinance adopted on July 18, 2011, that certain Series 2013A Bond Ordinance adopted on July 15, 2013, as supplemented by that certain Series 2013A Supplemental Pricing Resolution adopted on August 28, 2013, that certain Series 2013B Bond Ordinance adopted on July 15, 2013, as supplemented by that certain Series 2013B Supplemental Pricing Resolution adopted on August 28, 2013, that certain Series 2015 Bond Ordinance adopted on January 5, 2015, as supplemented by that certain Series 2015 Supplemental Pricing Resolution adopted on February 26, 2015, that certain 2015 Commercial Paper Ordinance adopted on March 16, 2015, that certain Series 2016 Bond Ordinance adopted on October 26, 2016, as supplemented by that certain Series 2017A Supplemental Pricing Resolution adopted on April 27, 2017, that certain Thirteenth Supplemental Bond Ordinance adopted on August 21, 2017, that certain Series 2018A Bond Ordinance adopted on May 7, 2018, as supplemented by that certain Series 2018A

Supplemental Pricing Resolution adopted on June 13, 2018, that certain Series 2018B Bond Ordinance adopted on May 21, 2018, as supplemented by that certain Series 2018B Supplemental Pricing Resolution adopted on July 11, 2018, that certain 2018 Supplemental Commercial Paper Ordinance adopted on May 21, 2018, and that certain Series 2018C Bond Ordinance adopted on September 4, 2018 (collectively the "Bond Ordinance"), is a contract between the City and the Bondholders that specifies the terms and details of revenue bonds, and other obligations and which defines the security for such revenue bonds and other obligations. The following is a summary, which does not purport to be comprehensive or definitive, of certain provisions of the Bond Ordinance. Reference is made to the Bond Ordinance in its entirety for a complete recital of the detailed provisions thereof.

System

The Bond Ordinance defines the "System" as the combined drinking water, sanitary sewer, and wastewater system of the City, as it now exists and as it may be hereafter added to, extended, improved, and equipped, either from the proceeds of the Bonds or from any other sources at any time after the date of adoption of the Bond Ordinance, including, without limitation, (a) all wells, pumping stations, purification plants, and other sources of supply of water and all pipes, mains, and other parts of the facilities for the distribution of water and all equipment and property used in connection therewith, (b) all sanitary sewers, all wastewater disposal and treatment plants, all pumping stations, and all equipment used in connection therewith, all facilities for the collection, treatment, and disposal of sewage and wastewater, including industrial wastes, and (c) all other facilities or property of any nature or description, real or personal, tangible or intangible, owned or used on or after the date of adoption of the Bond Ordinance by the City in the supply, treatment, and distribution of water and in the collection, treatment, and disposal of sewage. The City may own a partial interest in any drinking water facility or sanitary sewer facility, the remaining interest in which may be owned by or on behalf of a political subdivision of the State or any agency or authority thereof. In case of such ownership, the rights and interests possessed by the City in such facility shall be included as part of the System.

Pledged Revenues

Bonds issued under the Bond Ordinance are secured by a pledge of, and lien on, Pledged Revenues. The Bond Ordinance provides that this pledge (which may be expanded for additional Parity Bonds) ranks superior to all other pledges which may be made after the date of adoption of the Bond Ordinance of any of the Pledged Revenues, except for pledges of the Pledged Revenues made by the City in Hedge Agreements (relating to Bonds issued under the Bond Ordinance) to secure payments thereunder (other than termination, indemnity, and expense payments), which may rank on a parity with the pledge as to the related hedged bonds. Pledged Revenues do not include the Sales Tax Revenues. Such Sales Tax Revenues may, however, be taken into account for purposes of determining compliance with the City's rate covenant and additional bonds test under the Bond Ordinance. See **"Rate Covenant"** herein.

Additional Parity Obligations

Under the Bond Ordinance, the City may from time to time issue Senior Bonds, which are additional parity obligations which will be equally and ratably secured on a parity basis with the Outstanding Parity Bonds.

Funds Created by the Bond Ordinance and Flow of Funds

The Bond Ordinance creates and requires the City to maintain the following funds:

(a) the Revenue Fund;

(b) the Sinking Fund and therein the following two accounts:

   (i) Payments Account, and

   (ii) Debt Service Reserve Account;

(c) the Renewal and Extension Fund;

(d) the Rebate Fund; and

(e) the Project Fund.

Revenue Fund. The Bond Ordinance requires the City to deposit and continue to deposit all operating revenues of the System in the Revenue Fund from time to time as and when received. Under the terms of the Bond Ordinance, moneys in the Revenue Fund are to be applied by the City from time to time to the following purposes and, prior to the occurrence and continuation of an event of default under the Bond Ordinance, in the order of priority determined by the City in its sole discretion (a) to pay Expenses of Operation and Maintenance of the System, (b) to deposit into the Sinking Fund the amounts described below, (c) to deposit into the Rebate Fund the amounts required to make provision for arbitrage rebate payments to the United States government, (d) to pay any amounts due to any issuer (a "Credit Issuer") of a credit facility (such as an insurance policy, letter of credit, guaranty, surety bond, standby bond purchase agreement, or line of credit) providing credit or liquidity support for any Senior Bonds or subordinate bonds issued under the Bond Ordinance, (e) to pay any amounts due any Reserve Account Credit Facility Provider (as hereinafter defined), (f) to make provision for the payment of debt service on bonds issued under the Bond Ordinance that are junior and subordinate in lien and right of payment to the Senior Bonds ("Subordinate Bonds") and the payment of amounts (other than termination, indemnity, and expense payments) due to providers of hedge agreements (such as interest rate swap agreements) relating to Subordinate Bonds, and (g) to pay any amounts required to be paid with respect to any other obligations issued by the City to finance or refinance the System.

In addition, the Bond Ordinance allows the City from time to time to deposit into the Renewal and Extension Fund any moneys and securities held in the Revenue Fund in excess of 30 days' estimated Expenses of Operation and Maintenance of the System.

Payments Account. The Bond Ordinance requires the City to deposit sufficient moneys in periodic installments from the Revenue Fund into the Payments Account for the purpose of paying debt service on the Senior Bonds when due and for the purpose of paying amounts (other than termination, indemnity, and expense payments) due to providers of hedge agreements (such as interest rate swap agreements) relating to Senior Bonds.

Debt Service Reserve Account. The Bond Ordinance requires the City to maintain the Debt Service Reserve Account at an amount determined from time to time by the City as a reasonable reserve for the payment of debt service on the Senior Bonds. The City initially determined this amount to be the maximum annual Debt Service Requirement with respect to Senior Bonds in the then current or any succeeding fiscal year. Under the terms of the Bond Ordinance, the City may in its sole discretion change, reduce, or increase this amount without the consent of the owners of the Senior Bonds, but in no event may the City reduce this amount (a) below the greater of (i) 50% of the average annual Debt Service Requirement with respect to Senior Bonds in the then current or any succeeding fiscal year, or (ii) the maximum annual Debt Service Requirement with respect to the Series 1999 Bonds in the then current or any succeeding fiscal year, and (b) unless each rating agency rating the Senior Bonds indicates in writing to the City that such reduction will not, by itself, result in a reduction or withdrawal of its current rating on the Senior Bonds. In connection with the issuance of Parity Bonds, the Bond Ordinance permits the City to fund any increase in the required balance of the Debt Service Reserve Account by making deposits thereto over a period not exceeding 60 months from the date of issuance of such Parity Bonds in equal monthly amounts. The Bond Ordinance allows the City to satisfy in whole or in part the required balance of the Debt Service Reserve Account by means of a letter of credit, insurance policy, line of credit, or surety bond issued by a provider (a "Reserve Account Credit Facility Provider") with a credit rating not less than the then current rating on the related series of Senior Bonds. In the event a Reserve Account Credit Facility Provider becomes insolvent or has its credit rating withdrawn or reduced below the rating on the Senior Bonds, the City is required to obtain a substitute credit facility within 60 days or to fund the Debt Service Reserve Account to its required balance in not more than 24 equal monthly deposits.

Renewal and Extension Fund. In addition to the deposits to be made to the Renewal and Extension Fund described above, the Bond Ordinance requires the City to deposit in the Renewal and Extension Fund all termination payments received under any hedge agreements relating to Senior Bonds or Subordinate Bonds. Under the terms of the Bond Ordinance, amounts held in the Renewal and Extension Fund must be used first to prevent default in the payment of debt service on the Senior Bonds when due and then will be applied by the City from time to time, as and when the City shall determine, to the following purposes and, prior to the occurrence and continuation of an event of default under the Bond Ordinance, in the order of priority determined by the City in its sole discretion (a) for the purposes for which moneys held in the Revenue Fund may be applied as described above, (b) to pay any amounts which may then be due and owing under any hedge agreement relating to Senior Bonds or Subordinate Bonds (including termination payments, fees, expenses, and indemnity payments), (c) to pay any governmental charges and assessments against the System or any part thereof which may then be due and owing, (d) to make acquisitions, betterments, extensions, repairs, or replacements or other capital improvements (including the purchase of equipment) to the System deemed necessary by the City (including payments under contracts with vendors, suppliers, and contractors for the foregoing purposes), (e) to acquire Senior Bonds by redemption or by purchase in the open market at a price not exceeding the callable price, and (f) to make annual transfers to the General Fund of the City, on or after December 15 of each year, of an amount not to exceed the sum of (i) 5% of the gross operating revenues of the System for the preceding fiscal year of the City, and (ii) the ad valorem property taxes that would be due to the City (and not to any other governmental body) in the current calendar year, if title to the System were vested in an entity subject to ad valorem taxation, assuming that the fair market value of the System equaled its book value for purposes of determining the assessed value of the System.

The gross revenues derived by the City from the ownership and operation of the System may be used only in accordance with the provisions of the Bond Ordinance described above and, except as described above, may not be transferred to either the General Fund or any other fund of the City.

Rebate Fund. The City established the Rebate Fund under the terms of the Bond Ordinance to hold amounts to be paid to the United States government as arbitrage rebate payments.

Project Fund. The City established the Project Fund under the terms of the Bond Ordinance to hold proceeds of the sale of Senior Bonds and Subordinate Bonds. The Bond Ordinance requires amounts held in the Project Fund to be applied to the payment of costs related to the acquisition, construction, reconstruction, improvement, betterment, extension, or equipping of the System.

Investments. Under the terms of the Bond Ordinance, moneys in the funds and accounts established thereunder must be invested in permissible investments under Georgia law which have (or are collateralized by obligations which have) a rating by any rating agency then rating any bonds issued under the Bond Ordinance which is equal to or greater than the third highest long term rating category or the second highest short term rating category of such rating agency. Such investments may contain such maturities as are deemed suitable by the City and must be valued at fair market value on each interest payment date.

Rate Covenant

The City has covenanted in the Bond Ordinance to prescribe, fix, maintain, and collect rates, fees, and other charges for the services, facilities, and commodities furnished by the System fully sufficient at all times to (a) provide for 100% of the Expenses of Operation and Maintenance of the System and for the accumulation in the Revenue Fund of a reasonable reserve therefor, and (b) produce Net Operating Revenues of the System in each fiscal year of the City which (together with investment earnings on the funds held under the Bond Ordinance):

(i) will equal at least 110% of the Debt Service Requirement on all Senior Bonds then outstanding for the year of computation and 100% of the Debt Service Requirement on all Subordinate Bonds then outstanding for the year of computation;

(ii) will enable the City to make all required payments, if any, into the Debt Service Reserve Account and the Rebate Fund and to any Credit Issuer, any Reserve Account Credit Facility Provider, and any Qualified Hedge Provider;

(iii) will enable the City to accumulate an amount to be held in the Renewal and Extension Fund, which in the judgment of the City is adequate to meet the costs of major renewals, replacements, repairs, additions, betterments, and improvements to the System, necessary to keep the same in good operating condition or as is required by any governmental agency having jurisdiction over the System; and

(iv) will remedy all deficiencies in required payments into any of the funds and accounts mentioned in the Bond Ordinance from prior fiscal years of the City.

If the City fails to prescribe, fix, maintain, and collect rates, fees, and other charges, or to revise such rates, fees, and other charges, as described above, the Bond Ordinance allows the owners of not less than 25% in aggregate principal amount of the Senior Bonds then outstanding, without regard to whether any event of default thereunder shall have occurred, to institute and prosecute in any court of competent jurisdiction an appropriate action to compel the City to prescribe, fix, maintain, or collect such rates, fees, and other charges, or to revise such rates, fees, and other charges, in accordance with the requirements of the Bond Ordinance described above.

Parity and Subordinate Bonds

Upon satisfaction of certain conditions, the Bond Ordinance permits the City to issue additional Senior Bonds without express limit as to principal amount to finance capital improvements to or expansions of the System (or to refinance obligations issued for such purposes), which will be equally and ratably secured on a parity basis with the Senior Bonds under the Bond Ordinance. The Bond Ordinance allows revenue bonds issued to refund Senior Bonds to constitute Parity Bonds if the City obtains a report from an independent certified public accountant or a financial advisor, demonstrating that the refunding will reduce the total debt service payments on Outstanding Senior Bonds on a present value basis. The Bond Ordinance also allows revenue bonds to constitute Parity Bonds if the City obtains either:

(a) a report by an independent certified public accountant to the effect that the historical net operating revenues of the System and investment earnings on the funds held under the Bond Ordinance for a period of 12 consecutive months of the most recent 18 consecutive months prior to the issuance of the proposed Parity Bonds were equal to at least 110% of the average annual Debt Service Requirement on all Senior Bonds which will be outstanding immediately after the issuance of the proposed Parity Bonds, in the then current or any succeeding fiscal year of the City; or

(b) a report by a nationally recognized firm of engineers or utility consultants (a "Consultant") to the effect that (i) the forecasted Net Operating Revenues of the System and investment earnings on the funds held under the Bond Ordinance from the date of issuance of the Parity Bonds until the date of completion of the financed improvements are expected to equal at least 100% of the Debt Service Requirement during such period on all Senior Bonds which will be outstanding immediately after the issuance of the proposed Parity Bonds, and (ii) the forecasted Net Operating Revenues of the System and investment earnings on the funds held under the Bond Ordinance for each of the five consecutive fiscal years of the City following the date of completion of the financed improvements are expected to equal at least 110% of the average annual Debt Service Requirement on all Senior Bonds which will be outstanding immediately after the issuance of the proposed Parity Bonds, in the then current or any succeeding fiscal year of the City.

The report by the independent certified public accountant described in paragraph (a) above may contain pro forma adjustments to historical Net Operating Revenues of the System equal to 100% of the increased annual amount attributable to any revision in the schedule of rates, fees, and charges for the services, facilities, and commodities furnished by the System, imposed prior to the date of delivery of the proposed Parity Bonds and not fully reflected in the historical Net Operating Revenues of the System actually received during such 12-month period.

The report by the Consultant described in paragraph (b) above may not take into consideration any rate schedule to be imposed in the future, unless such rate schedule has been adopted by ordinance of the Governing Body. Such rate schedule adopted by ordinance may contain, however, future effective dates.

The Bond Ordinance also allows the City to issue obligations (including, without limitation, Subordinate Bonds) secured by the Pledged Revenues, which are junior and subordinate to the Senior Bonds as to lien and right of payment. The Bond Ordinance permits the accession of Subordinate Bonds and related hedge agreements to the status of complete parity with the Senior Bonds and related hedge agreements if, among other things, as of the date of accession, the report described in paragraph (a) above is obtained on a basis that includes all Outstanding Senior Bonds and such Subordinate Bonds.

Hedge Agreements

In connection with the issuance of any Senior Bonds or Subordinate Bonds or at any time thereafter so long as such bonds remain outstanding, the Bond Ordinance permits the City to enter into hedge agreements (such as interest rate swap agreements) with providers rated (directly or through guarantees of their obligations under such hedge agreements) either (a) at least as high as the third highest rating category of each rating agency rating any revenue bonds of the System, but in no event lower than any rating on the related hedged bonds at the time of execution of the hedge agreement, or (b) in any such lower rating category which each rating agency rating any revenue bonds of the System indicates will not, by itself, result in a reduction or withdrawal of its rating on the related hedged bonds that is in effect prior to entering into the hedge agreement. An entity's status as a provider qualified to execute a hedge agreement is determined only at the time the City enters into the hedge agreement with such entity and cannot be redetermined with respect to that hedge agreement. The City's obligation to pay amounts (other than termination, indemnity, and expense payments) due under hedge agreements may be secured by a pledge of, and lien on, the Pledged Revenues on a parity with the lien created by the Bond Ordinance to secure the related hedged bonds, or may be subordinated in lien and right of payment to the payment of Senior Bonds or Subordinate Bonds, as determined by the City.

In addition, the City by resolution has adopted procedures, which are applicable to all hedge agreements (such as interest rate swap agreements) in order to hedge specific revenue bonds. The City may enter into a hedge agreement provided that, among other requirements, no more than 20% of the aggregate principal amount of outstanding revenue bonds for a particular enterprise fund may bear interest at a floating or variable rate, whether by its original terms or as a result of hedge agreements; each rating agency rating the revenue bonds being hedged confirms that the hedge agreement will not adversely affect the rating of such revenue bonds being hedged; and the hedge agreement is approved by resolution or ordinance of the Governing Body.

Maintenance, Insurance, and Sale of the System; Annual Budget; Tax Covenants

The City covenants in the Bond Ordinance to (a) maintain the System in good repair and in sound operating condition, (b) carry adequate public liability, fidelity, and property insurance or self-insurance, such as is maintained by similar utilities as the System, and (c) adopt an annual budget for the System for each fiscal year of the City in compliance with the rate covenant described above.

The City also covenants in the Bond Ordinance not to sell, lease, encumber, or in any manner dispose of the System as a whole or in part, except for property not necessary, useful, or profitable in the operation of the System or property the disposition of which will be advantageous to the System and will not adversely affect the security for the Senior Bonds or Subordinate Bonds.

The City reserves the right in the Bond Ordinance to sell any portion of the System or to transfer the System as a whole to any political subdivision or authority or agency of one or more political subdivisions of the State, provided that the City obtains an opinion of a Consultant expressing the view that such sale will not result in any diminution of Net Operating Revenues of the System to the extent that in any future fiscal year of the City the Net Operating Revenues of the System and investment earnings on the funds held under the Bond Ordinance will be less than 100% of the average annual Debt Service Requirement on all Senior Bonds to be outstanding after such sale, in the then current or any succeeding fiscal year of the City.

The City also covenants in the Bond Ordinance to take all actions to assure the tax exempt status of interest on tax exempt Senior Bonds and Subordinate Bonds and to refrain from taking any action, which would adversely affect such status.

Events of Default and Remedies

The Bond Ordinance defines an "Event of Default" to mean, among other things, (a) failure to pay debt service on Senior Bonds when due, (b) failure to perform any obligation with respect to the Debt Service Reserve Account, which remains unremedied for more than 30 days, (c) certain events of insolvency affecting the City, (d) the appointment of a receiver of the System or the funds held under the Bond Ordinance, (e) failure to perform any other covenant (other than the continuing disclosure covenant) contained in the Bond Ordinance for 90 days (or 180 days if such default cannot be cured in 90 days and if corrective action is instituted and diligently pursued) after notice from the owners of (or a Credit Issuer securing) at least 25% in aggregate principal amount of Senior Bonds, (f) failure by any Credit Issuer to pay the purchase price of Senior Bonds, (g) delivery of notice that an "Event of Default" has occurred under any agreement relating to a credit facility supporting Senior Bonds, and (h) delivery of notice that an "Event of Default" has occurred under a hedge agreement relating to Senior Bonds.

Upon the happening and continuance of any Event of Default (except for events described in clauses (f), (g), and (h) above), the Bond Ordinance allows the owners of more than 50% in aggregate principal amount of Outstanding Senior Bonds or a Credit Issuer securing more than 50% in aggregate principal amount of Outstanding Senior Bonds to accelerate the Outstanding Senior Bonds. If the City cures the Event of Default, the Bond Ordinance allows the owners of more than 50% in aggregate principal amount of Outstanding Senior Bonds to waive the acceleration, subject to the consent of each Credit Issuer securing Senior Bonds.

The Bond Ordinance provides that, upon the occurrence and continuation of an Event of Default, the City or a receiver appointed for the purpose must apply all Pledged Revenues as follows and in the following order of priority (a) first, to the payment of the reasonable and proper charges, expenses, and liabilities of the receiver and any paying agent and bond registrar under the Bond Ordinance, (b) second, to the payment of all reasonable and necessary Expenses of Operation and Maintenance of the System and major renewals and replacements to the System, and (c) third, to the payment of debt service on Senior Bonds and amounts (other than termination, indemnity, and expense payments) due under hedge agreements relating to Senior Bonds.

The Revenue Bond Law provides that the provisions of the Revenue Bond Law and the Bond Ordinance constitute a contract between the City and the owners of the revenue bonds of the System issued thereunder. In addition to the remedies set forth in the Bond Ordinance, the Revenue Bond Law provides that the duties of the City, the Governing Body, and the officers of the City under the Revenue Bond Law and the Bond Ordinance are enforceable by any owner of the revenue bonds of the System issued thereunder by mandamus or other appropriate action or proceeding at law or in equity.

The Revenue Bond Law also provides that in the event the City defaults in the payment of the principal or interest on any of the Senior Bonds after the same becomes due, whether at maturity or upon call for redemption, and such default continues for a period of 30 days, or in the event the City or the Governing Body or the officers, agents, or employees of the City fail or refuse to comply with the essential provisions of the Revenue Bond Law or default in any material respect in the Bond Ordinance, any holders of the Senior Bonds shall have the right to apply in an appropriate judicial proceeding to the Superior Court of Fulton County or to any court of competent jurisdiction for the appointment of a receiver of the System, whether or not all Senior Bonds or Subordinate Bonds have been declared due and payable and whether or not such holder is seeking or has sought to enforce any other right or to exercise any remedy in connection with the Senior Bonds. Upon such application, the Superior Court, if it deems such action necessary for the protection of the bondholders, may appoint and, if the application is made by the holders of 25% in principal amount of the Senior Bonds and Subordinate Bonds then outstanding, shall appoint a receiver of the System.

The receiver so appointed under the Revenue Bond Law, directly or by his agents and attorneys, is required under the Revenue Bond Law to forthwith enter into and upon and take possession of the System. If the court so directs, the receiver may exclude the City, the Governing Body, and the City's officers, agents, and employees, and all persons claiming under them, wholly from the System. Under the Revenue Bond Law, the receiver will have, hold, use, operate, manage, and control the System, in the name of the City or otherwise, as the receiver may deem best. Under the Revenue Bond Law, the receiver will exercise all the rights and powers of the City with respect to the System as the City itself might do. The receiver will maintain, restore, insure, and keep insured the System and from time to time will make all such necessary or proper repairs as the receiver may deem expedient. Under the Revenue Bond Law, the receiver will establish, levy, maintain, and collect such fees, tolls, rentals, and other charges in connection with the System as he deems necessary or proper and reasonable. Under the Revenue Bond Law, the receiver will collect and receive all revenues and will deposit the same in a separate account and apply the revenues so collected and received in such manner as the court shall direct.

Notwithstanding the provisions of the Revenue Bond Law described above, the receiver has no power to sell, assign, mortgage, or otherwise dispose of any assets of whatever kind or character belonging to the City and useful for the System. The authority of any such receiver is limited to the operation and maintenance of the System. No court may have jurisdiction to enter any order or decree requiring or permitting the receiver to sell, assign, mortgage, or otherwise dispose of any such assets.

The receiver must, in the performance of the powers conferred upon him, act under the direction and supervision of the court making such appointment and will at all times be subject to the orders and decrees of such court and may be removed by such court.

Under the terms of the Revenue Bond Law, whenever all that is due upon the Senior Bonds and interest thereon and upon any other notes, bonds, or other obligations and interest thereon having a charge, lien, or encumbrance on the revenues of the System and under any of the terms of the Bond Ordinance has been paid or deposited as provided therein and whenever all defaults have been cured and made good and it appears to the court that no default is imminent, the court must direct the receiver to surrender possession of the System to the City. The same right of the holders of the Senior Bonds to secure the appointment of a receiver exists upon any subsequent default as is provided in the Revenue Bond Law.

If the City were to default on the Senior Bonds, the realization of value from the pledge of the Pledged Revenues to secure the payment of the Senior Bonds would depend upon the exercise of various remedies specified by the Bond Ordinance and Georgia law (including the Revenue Bond Law). These remedies may require judicial actions, which are often subject to discretion and delay and which may be difficult to pursue. The enforceability of rights or remedies with respect to the Senior Bonds may be limited by State and federal laws, rulings, and decisions affecting remedies and by bankruptcy, insolvency, or other laws affecting creditors' rights or remedies heretofore or hereafter enacted.

Section 36-80-5 of the Official Code of Georgia Annotated provides that no municipality created under the Constitution or laws of the State shall be authorized to file a petition for relief from payment of its debts as they mature or a petition for composition of its debts under any federal statute providing for such relief or composition or otherwise to take advantage of any federal statute providing for the adjustment of debts of political subdivisions and public agencies and instrumentalities. Section 36-80-5 of the Official Code of Georgia Annotated also provides that no chief executive, mayor, city council, or other governmental officer, governing body, or organization shall be empowered to cause or authorize the filing by or on behalf of any municipality created under the Constitution or laws of the State of any petition for relief from payment of its debts as they mature or a petition for composition of its debts under any federal statute providing for such relief or composition or otherwise to take advantage of any federal statute providing for the adjustment of debts of political subdivisions and public agencies and instrumentalities.

Defeasance

The Bond Ordinance provides that Senior Bonds or Subordinate Bonds for the payment or redemption of which sufficient moneys or sufficient direct obligations of, or obligations fully guaranteed by, the United States of America have been deposited with the paying agent or the depository of the Sinking Fund (whether upon or prior to the maturity or the redemption date of such bonds) will be deemed to be paid and no longer outstanding under the Bond Ordinance.

Supplemental Ordinances

The Bond Ordinance permits the City to adopt supplemental ordinances modifying, amending, or supplementing the Bond Ordinance, without the consent of or notice to the owners of any of the Senior Bonds or Subordinate Bonds, for the following purposes, among others (a) to add other utilities to the System or to change the required balance of the Debt Service Reserve Account (but not below the amount described under the caption "**Funds Created By the Bond Ordinance and Flow of Funds** - Debt Service Reserve Account" herein), and (b) to modify any of the provisions of the Bond Ordinance in any respect (other than a modification of the type described below requiring the unanimous written consent of the owners of Senior Bonds and Subordinate Bonds); provided that for (i) any Outstanding Senior Bonds and Subordinate Bonds which are assigned a rating and which are not secured by a credit facility providing for the payment of the full amount of principal and interest to be paid thereon, each rating agency rating such bonds shall have notified the City that such modification will not cause the then applicable rating on any such bonds to be reduced or withdrawn, and (ii) any Outstanding Senior Bonds and Subordinate Bonds which are secured by credit facilities providing for the payment of the full amount of the principal and interest to be paid thereon, each Credit Issuer shall have consented in writing to such modification.

The Bond Ordinance also provides that, with the consent of the owners of not less than a majority in aggregate principal amount of the outstanding bonds of each class (senior and subordinate), voting separately by class, the City may adopt a supplemental ordinance for the purpose of adding any provisions to or changing in any manner or eliminating any of the provisions of the Bond Ordinance; provided, however, that no such supplemental ordinance shall: (a) extend the maturity date or due date of any mandatory sinking fund redemption with respect to any bond outstanding under the Bond Ordinance; (b) reduce or extend the time for payment of debt service on any bond outstanding under the Bond Ordinance; (c) reduce any premium payable upon the redemption of any bond under the Bond Ordinance or advance the date upon which any bond may first be called for redemption prior to its stated maturity date; (d) give to any Senior Bonds (or related hedge agreements) a preference over any other Senior Bonds (or related hedge agreements); (e) permit the creation of any lien or any other encumbrance on the Pledged Revenues having a lien equal to or prior to the lien created under the Bond Ordinance for the Senior Bonds; (f) reduce the percentage of owners of either class of bonds required to approve any such supplemental ordinance; or (g) deprive the owners of Senior Bonds or Subordinate Bonds of the right to payment of such bonds or from the Pledged Revenues, without, in each case, the consent of the owners of all the Senior Bonds and Subordinate Bonds then outstanding.

APPENDIX D

FORM OF OPINION OF CO-BOND COUNSEL

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Set forth below is the proposed opinion of Bond Counsel. This opinion is preliminary and subject to change prior to the issuance and delivery of the Series 2018C Bonds.

HUNTON
ANDREWS KURTH

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TEL 404 • 888 • 4000
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October 30, 2018

City of Atlanta
Atlanta, Georgia

$288,900,000
City of Atlanta
Water and Wastewater
Revenue Refunding Bonds, Series 2018C

Ladies and Gentlemen:

As Co-Bond Counsel to the City of Atlanta (the "**City**"), we have examined the applicable law and certified copies of certain documents and proceedings, including without limitation a certified copy of the validation proceeding in the Superior Court of Fulton County, Georgia relating to the issuance and sale by the City of its $288,900,000 Water and Wastewater Revenue Refunding Bonds, Series 2018C (the "**Series 2018C Bonds**"). The Series 2018C Bonds are being issued by the City to (a) refund the City's outstanding Water and Wastewater Revenue Refunding Bonds, Series 2013A (the "**Refunded Bonds**"), and (b) pay the costs of issuance related to the Series 2018C Bonds. The Series 2018C Bonds are authorized by that certain Master Bond Ordinance adopted on March 31, 1999 (the "**Master Bond Ordinance**"), as thereafter supplemented and amended, including by the Series 2018C Bond Ordinance, adopted by the City Council on September 4, 2018, and approved by operation of law on September 13, 2018, and the Series 2018C Supplemental Pricing Resolution adopted by the City Council on October 24, 2018, and approved by the Mayor of the City on October 24, 2018 (the Master Bond Ordinance, as so supplemented and amended, is hereinafter referred to as the "**Bond Ordinance**"). Reference is made to the form of the Series 2018C Bonds for information concerning their details, including payment and redemption provisions, their purpose, and the proceedings pursuant to which they are issued. Capitalized terms used but not defined herein have the respective meanings ascribed thereto in the Bond Ordinance.

Upon their issuance, the Series 2018C Bonds shall be Senior Bonds payable from and secured by a pledge of and senior lien on Pledged Revenues on a parity with the Outstanding Parity Bonds (certain Series 1999A Bonds, Series 2001A Bonds, Series 2004 Bonds, Series 2009A Bonds, Series 2009B Bonds, Series 2013B Bonds, Series 2015 Bonds, Series 2017A Bonds, Series 2018A Bonds and the Series 2018B Bonds) and other parity obligations, including the obligation to make certain Hedge Payments.

Without undertaking to verify the same by independent investigation, we have relied on certifications by representatives of the City and other parties as to certain facts relevant to both our opinion and requirements of the Internal Revenue Code of 1986, as amended (the "**Code**"). The City has covenanted to comply with the provisions of the Code regarding, among other matters, the use, expenditure and investment of the proceeds of the Series 2018C Bonds and the timely payment to the United States of any arbitrage rebate amounts with respect to the Series 2018C Bonds, all as set forth in the proceedings and documents relating to the issuance of the Series 2018C Bonds (the "**Covenants**").

Based on the foregoing, in accordance with customary legal opinion practice, and assuming the due authorization, execution and delivery by the parties other than the City to the agreements, we are of the opinion that:

(1) The Bond Ordinance has been duly adopted, is in full force and effect, and is valid and enforceable against the City in accordance with its terms.

(2) The Series 2018C Bonds have been duly authorized and issued in accordance with the Constitution and laws of the State of Georgia and the Bond Ordinance, and constitute valid and binding limited obligations of the City payable as to both principal and interest solely from and secured by a lien on the portion of the revenues of the water and wastewater system of the City (the "**System**") constituting Pledged Revenues. The Series 2018C Bonds, the premium, if any, and the interest thereon do not constitute a pledge of the faith and credit of the State of Georgia or any municipality or political subdivision thereof, including without limitation, the City.

(3) The City has covenanted to at all times prescribe, fix, maintain, and collect rates, fees, and other charges for the services, facilities, and commodities furnished by the System fully sufficient at all times to (a) provide 100% of the Expenses of Operation and Maintenance and for accumulation in the Revenue Fund of a reasonable reserve therefor, (b) produce Net Operating Revenues in each Fiscal Year equal to at least 110% of the Debt Service Requirement on all Senior Bonds, to enable the City to make all required payments into the Debt Service Reserve Account and the Rebate Fund and to any Credit Issuer, Reserve Account Credit Facility Provider and any Qualified Hedge Provider, (c) fund the Renewal and Extension Fund in amounts reasonably determined to be adequate to fund costs of major renewals, replacements, repairs and additions, and (d) remedy all deficiencies in required payments under the Bond Ordinance from prior Fiscal Years.

(4) The rights of the holders of the Series 2018C Bonds and the enforceability of such rights, including enforcement of the obligations of the City under the Bond Ordinance, may be limited or otherwise affected by (a) bankruptcy, insolvency, reorganization, moratorium,

fraudulent conveyance and other laws affecting the rights of creditors generally; and (b) principles of equity, whether considered at law or in equity.

(5) Under current law, interest on the Series 2018C Bonds (a) will not be included in gross income for Federal income tax purposes and (b) will not be an item of tax preference for purposes of the Federal alternative minimum income tax . The opinion in this paragraph (5) is subject to the condition that there is compliance subsequent to the issuance of the Series 2018C Bonds with all requirements of the Code that must be satisfied in order that interest thereon not be included in gross income for Federal income tax purposes. Failure by the City to comply with the Covenants, among other things, could cause interest on the Series 2018C Bonds to be included in gross income for Federal income tax purposes retroactively to their date of issue. We express no opinion regarding other Federal tax consequences of the ownership of or receipt or accrual of interest on the Series 2018C Bonds.

(6) Under current law, interest on the Series 2018C Bonds will be exempt from income taxation by the State of Georgia.

Our services as Co-Bond Counsel have been limited to delivering the foregoing opinion based on our review of such proceedings and documents as we deem necessary to approve the validity of the Series 2018C Bonds and the tax-exempt status of the interest thereon. We express no opinion herein as to the financial resources of the City or the System, the City's ability to provide for the payments required on the Series 2018C Bonds with Pledged Revenues derived from the System, or the accuracy or completeness of any information, including the City's Preliminary Official Statement, dated October 10, 2018, and its Official Statement, dated October 24, 2018, that may have been relied upon by anyone in making the decision to purchase the Series 2018C Bonds.

Very truly yours,

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APPENDIX E

FORM OF CONTINUING DISCLOSURE AGREEMENT

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CONTINUING DISCLOSURE AGREEMENT

by and between

CITY OF ATLANTA

and

DIGITAL ASSURANCE CERTIFICATION, L.L.C.

relating to:

$288,900,000
CITY OF ATLANTA
WATER AND WASTEWATER
REVENUE REFUNDING BONDS,
SERIES 2018C

Dated October 30, 2018

This **CONTINUING DISCLOSURE AGREEMENT** (this "Disclosure Agreement") dated October 30, 2018, is executed and delivered by the **CITY OF ATLANTA**, a municipal corporation duly organized and existing under the laws of the State of Georgia (the "City") and **DIGITAL ASSURANCE CERTIFICATION, L.L.C.**, a limited liability company duly organized and existing under the laws of the State of Florida, and any successor dissemination agent serving hereunder pursuant to Section 11 hereof (the "Dissemination Agent" or "DAC").

RECITALS:

A. Contemporaneously with the execution and delivery of this Disclosure Agreement, the City issued and delivered those certain $288,900,000 in aggregate principal amount of its Water and Wastewater Revenue Refunding Bonds, Series 2018C (the "Series 2018C Bonds") pursuant to, among other things, that certain Master Bond Ordinance adopted on March 31, 1999, as previously supplemented and amended (the "Master Bond Ordinance"), and particularly as supplemented by that certain Series 2018C Bond Ordinance adopted on September 4, 2018 and approved by operation of law on September 13, 2018, as supplemented by that certain Series 2018C Supplemental Pricing Resolution adopted on October 24, 2018 (collectively, the "Series 2018C Bond Ordinance," and together with the Master Bond Ordinance are hereinafter collectively referred to as the "Bond Ordinance").

B. The Series 2018C Bonds are special limited obligations of the City payable solely from and secured by a first priority pledge of and lien on the Pledged Revenues.

C. The Series 2018C Bonds are being issued for the purpose of: (a) refunding all of the City's outstanding Water and Wastewater Revenue Bonds, Series 2013A, and (b) paying the costs of issuance related to the Series 2018C Bonds.

D. The City has authorized the preparation and distribution of the Preliminary Official Statement dated October 10, 2018 with respect to the Series 2018C Bonds (the "Preliminary Official Statement") and, on or before the date of the Preliminary Official Statement, the City deemed that the Preliminary Official Statement was final within the meaning of the Rule (as defined herein).

E. Upon the initial sale of the Series 2018C Bonds to the Participating Underwriter (as defined herein), the City authorized the preparation and distribution of the Official Statement dated October 24, 2018 with respect to the Series 2018C Bonds (the "Official Statement").

F. As a condition precedent to the initial purchase of the Series 2018C Bonds by the Participating Underwriter in accordance with the terms of the Bond Purchase Agreement dated October 24, 2018, by and between the Participating Underwriter and the City, and in compliance with the Participating Underwriter's obligations under the Rule, the City has agreed to undertake for the benefit of the holders of the Series 2018C Bonds, to provide certain annual financial information and notice of the occurrence of certain events as set forth herein and in the continuing disclosure undertakings of the City.

NOW THEREFORE, in consideration of the purchase of the Series 2018C Bonds by the Participating Underwriter and the mutual promises and agreements made herein, the receipt and sufficiency of which consideration is hereby mutually acknowledged, the City and the Dissemination Agent do hereby certify and agree as follows:

Section 1. Incorporation of Recitals. The above recitals are true and correct and are incorporated into and made a part hereof.

Section 2. Definitions.

(a) For the purposes of this Disclosure Agreement, all capitalized terms used, but not otherwise defined herein shall have the meanings ascribed thereto in the Bond Ordinance and the Official Statement, as applicable.

(b) In addition to the terms defined elsewhere herein, the following terms shall have the following meanings for the purposes of this Disclosure Agreement:

"Actual Knowledge" as used herein, and for the purposes hereof, a party shall be deemed to have "actual knowledge" of the occurrence of any event only if and to the extent the individual or individuals employed by such party and directly responsible for the administration of this Disclosure Agreement on behalf of such party have actual knowledge of or receive written notice of the occurrence of such event.

"Annual Filing" means any annual report provided by the City, pursuant to and as described in Sections 4 and 6 hereof.

"Annual Filing Date" means the date, set forth in Sections 4(a) and 4(e) hereof, by which the Annual Filing is to be filed with the MSRB.

"Annual Financial Information" means annual financial information as such term is used in paragraph (f)(9) of the Rule and specified in Section 6(a) hereof.

"Beneficial Owner" means any beneficial owner of the Series 2018C Bonds. Beneficial ownership is to be determined consistent with the definition thereof contained in Rule 13d-3 of the SEC, or, in the event such provisions do not adequately address the situation at hand (in the opinion of nationally recognized bond counsel), beneficial ownership is to be determined based upon ownership for federal income tax purposes.

"Business Day" means a day other than: (a) Saturday or a Sunday, (b) a day on which banks are authorized or required by law to close, or (c) a day on which the City is authorized or required to be closed.

"Department Audited Financial Statements" means the financial statements (if any) of the Department of Watershed Management for the prior Fiscal Year, certified by an independent auditor and prepared in accordance with generally accepted auditing standards and Government Auditing Principles issued by the Comptroller General of the United States.

"Department of Watershed Management" means the Department of Watershed Management of the City.

"Disclosure Representative" means the Chief Financial Officer of the City or his or her designee, or such other person as the City shall designate in writing to the Dissemination Agent from time to time as the person responsible for providing Information to the Dissemination Agent.

"EMMA" means the Electronic Municipal Market Access system, a service of the MSRB, or any successor thereto.

"Filing" means, as applicable, any Annual Filing, Notice Event Filing, Voluntary Filing or any other notice or report made public under this Disclosure Agreement.

"Fiscal Year" means the fiscal year of the City, which currently is the 12-month period beginning July 1 and ending on June 30 of the following year or any such other twelve month period designated by the City, from time to time, to be its fiscal year.

"Information" means the Annual Financial Information, Department Audited Financial Statements (if any), the Notice Event Filings, and the Voluntary Filings.

"MSRB" means the Municipal Securities Rulemaking Board established pursuant to Section 15B(b)(1) of the Securities Exchange Act of 1934, as amended.

"Notice Event" means an event listed in Sections 5(a) and 5(b) hereof.

"Notice Event Filing" shall have the meaning specified in Section 5(c) hereof.

"Obligated Person" means the City and any person who is either generally or through an enterprise, fund, or account of such person committed by contract or other arrangement to support payment of all, or part of the obligations on the Series 2018C Bonds (other than providers of municipal bond insurance, letters of credit, or other liquidity facilities). The City confirms that as of the date hereof it is an Obligated Person with respect to the Series 2018C Bonds.

"Participating Underwriter" means, collectively, the original purchasers of the Series 2018C Bonds required to comply with the Rule in connection with the offering of the Series 2018C Bonds.

"Repository" means each entity authorized and approved by the SEC from time to time to act as a repository for purposes of complying with the Rule. The repositories currently approved by the SEC as of the date hereof may be found by visiting the SEC's website at http://www.sec.gov/info/municipal/nrmsir.htm. As of the date hereof, the only Repository recognized by the SEC for such purpose is the MSRB, which currently accepts continuing disclosure filings through the EMMA website at http://emma.msrb.org.

"Rule" means Rule 15c2-12 of the SEC promulgated pursuant to the Securities Exchange Act of 1934 in effect as of the date hereof.

"SEC" means the United States Securities and Exchange Commission.

"Third-Party Beneficiary" shall have the meaning specified in Section 3(b) hereof.

"Unaudited Financial Statements" means the financial statements (if any) of the Department of Watershed Management for the prior Fiscal Year which have not been certified by an independent auditor.

"Voluntary Filing" means the information provided to the Dissemination Agent by the City pursuant to Section 8 hereof.

Section 3. Scope of this Disclosure Agreement.

(a) The City has agreed to enter into this Disclosure Agreement and undertake the disclosure obligations hereunder, at the request of the Participating Underwriter and as a condition precedent to the Participating Underwriter's original purchase of the Series 2018C Bonds, in order to assist the Participating Underwriter with compliance with the Rule. The disclosure obligations of the City under this Disclosure Agreement relate solely to the Series 2018C Bonds. Such disclosure obligations are not applicable to any other securities issued or to be issued by the City, nor to any other securities issued by or on behalf of the City.

(b) Neither this Disclosure Agreement, nor the performance by the City or the Dissemination Agent of their respective obligations hereunder, shall create any third-party beneficiary rights, shall be directly enforceable by any third-party, or shall constitute a basis for a claim by any person except as expressly provided herein and except as required by law, including, without limitation, the Rule; provided, however, the Participating Underwriter and each Beneficial Owner are hereby made third-party beneficiaries hereof (collectively, and each respectively, a "Third-Party Beneficiary") and shall have the right to enforce the obligations of the parties hereunder pursuant to Section 9 hereof.

(c) This Disclosure Agreement shall terminate upon: (i) the defeasance, redemption or payment in full of all Series 2018C Bonds, in accordance with the Bond Ordinance, as amended, or (ii) the delivery of an opinion of counsel expert in federal securities laws retained by the City to the effect that continuing disclosure is no longer required under the Rule as to the Series 2018C Bonds.

Section 4. Annual Filings.

(a) The City shall provide, annually, an electronic copy of the Annual Filing to the Dissemination Agent on or before the Annual Filing Date. Promptly upon receipt of an electronic copy of the Annual Filing, the Dissemination Agent shall provide the Annual Filing to the Repository, in an electronic format as prescribed by the MSRB. Not later than the January 31st immediately following the preceding Fiscal Year ended June 30, commencing with the Fiscal Year ending June 30, 2018, shall be the Annual Filing Date. If January 31st falls on a day that is not a Business Day, the Annual Filing will be due on the first Business Day thereafter. Such date and each anniversary thereof is the Annual Filing Date. The Annual Filing may be submitted as a single document or as separate documents composing a package, and may cross-reference other information as provided in Section 6 hereof.

(b) If on the second (2nd) Business Day prior to the Annual Filing Date, the Dissemination Agent has not received a copy of the Annual Filing, the Dissemination Agent shall contact the Disclosure Representative by telephone and in writing (which may be by email) to remind the City of its undertaking to provide the Annual Filing pursuant to Section 4(a) hereof. Upon such reminder, the Disclosure Representative shall either (i) provide the Dissemination Agent with an electronic copy of the Annual Filing no later than 6:00 p.m. on the Annual Filing Date (or if such Annual Filing Date is not a Business Day, then the first Business Day thereafter), or (ii) instruct the Dissemination Agent in writing as to the status of the Annual Filing within the time required under this Disclosure Agreement, and state the date by which the Annual Filing for such year is expected to be provided. If the Dissemination Agent has not received either (i) the Annual Filing by 6:00 p.m. on the Annual Filing Date, or (ii) notice from the City that it intends to deliver the Annual Filing to the Dissemination Agent by 11:59 p.m. on the Annual Filing Date, the City hereby irrevocably directs the Dissemination Agent, and the Dissemination Agent agrees, to immediately send an Notice Event Filing to the Repository the following Business Day in substantially the form attached hereto as "Exhibit A" without reference to the anticipated filing date for the Annual Filing.

(c) If the Department Audited Financial Statements are not available prior to the Annual Filing Date, the City shall provide the Unaudited Financial Statements and when the Department Audited Financial Statements are available, provide in a timely manner an electronic copy to the Dissemination Agent for filing with the Repository.

(d) The Dissemination Agent shall:

(i) upon receipt and no later than the Annual Filing Date, promptly file each Annual Filing received under Section 4(a) hereof with the Repository in an electronic format as prescribed by the MSRB;

(ii) upon receipt and no later than the Annual Filing Date, promptly file each Department Audited Financial Statement or Unaudited Financial Statement received under Sections 4(a) and 4(c) hereof with the Repository in an electronic format as prescribed by the MSRB;

(iii) provide the City evidence of the filings of each of the above when made, which shall be made by means of the DAC system, for so long as DAC is the Dissemination Agent under this Disclosure Agreement.

(e) The City may adjust the Annual Filing Date upon change of its Fiscal Year by providing written notice of such change and the new Annual Filing Date to the Dissemination Agent and the Repository, provided that the period between the existing Annual Filing Date and new Annual Filing Date shall not exceed one year.

(f) Each Annual Filing shall contain the information set forth in Section 6 hereof.

Section 5. Reporting of Notice Events.

(a) In accordance with the Rule, the City or the Dissemination Agent shall file a Notice Event Filing with the Repository, in the appropriate format required by the MSRB and in a timely manner not in excess of ten (10) Business Days after it has actual knowledge of the occurrence of any of the following Notice Events with respect to the Series 2018C Bonds:

(i) Principal and interest payment delinquencies;

(ii) Non-payment related defaults, if material;

(iii) Unscheduled draws on debt service reserves reflecting financial difficulties;

(iv) Unscheduled draws on credit enhancements reflecting financial difficulties;

(v) Substitution of credit or liquidity providers or their failure to perform;

(vi) 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 Series 2018C Bonds, or other material events affecting the tax status of the Series 2018C Bonds;

(vii) Modifications to rights of holders, if material;

(viii) Bond calls, if material, and tender offers;

(ix) Defeasances;

(x) Release, substitution or sale of property securing repayment of the Series 2018C Bonds, if material;

(xi) Rating changes;

(xii) Bankruptcy, insolvency, receivership or similar event of the Obligated Person. Such an event is considered to occur when there is an appointment of a receiver, fiscal agent or similar officer for an Obligated Person in a proceeding under the U.S. Bankruptcy Code or in any other proceeding under state or federal law in which a court or governmental authority has assumed jurisdiction over substantially all of the assets or business of the Obligated Person, or if such jurisdiction has been assumed by leaving the existing governing body and officials or officers in possession but subject to the supervision and orders of a court or governmental authority, or the entry of an order confirming a plan of reorganization, arrangement or liquidation by a court or governmental authority having supervision or jurisdiction over substantially all of the assets or business of the Obligated Person;

(xiii) The consummation of a merger, consolidation, or acquisition involving an Obligated Person or the sale of all or substantially all of the assets of an 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; or

(xiv) Appointment of a successor or additional trustee or the change of name of a trustee, if material.

(b) In accordance with the Rule, the City or the Dissemination Agent shall file a Notice Event Filing with the Repository, in the appropriate format required by the MSRB and in a timely manner, after the occurrence of a failure of the City to provide the Annual Filing on or before the Annual Filing Date.

(c) The City shall promptly notify the Dissemination Agent in writing upon having Actual Knowledge of the occurrence of a Notice Event; provided, however, to the extent any such Notice Event has been previously and properly disclosed by or on behalf of the City, the City shall not be required to provide additional notice of such Notice Event in accordance with this subsection. Such notice shall instruct the Dissemination Agent to report the occurrence pursuant to Section 5(e) hereof. Such notice shall be accompanied with the text of the disclosure that the City desires to make (each a "Notice Event Filing"), the written authorization of the City for the Dissemination Agent to disseminate such information, and the date on which the City desires the Dissemination Agent to disseminate the information.

The Dissemination Agent is under no obligation to notify the City or the Disclosure Representative of an event that may constitute a Notice Event. In the event the Dissemination Agent so notifies the Disclosure Representative, the Disclosure Representative will instruct the Dissemination Agent that (i) a Notice Event has not occurred and no filing is to be made, or (ii) a Notice Event has occurred and provide the Dissemination Agent with the Notice Event Filing and the date the Dissemination Agent should file the Notice Event Filing.

(d) The Dissemination Agent shall upon receipt, and no later than the required filing date, promptly file each Notice Event Filing received under Sections 5(a) and 5(b) hereof, with the Repository in an electronic format as prescribed by the MSRB.

Section 6. <u>Content of Annual Filings</u>.

(a) Each Annual Filing shall contain the following annual financial information, consisting of, to the extent not included in the Department Audited Financial Statements and to the extent all such information continues to be available and/or prepared by the City and/or its consultants, updates of the following information set forth in the Official Statement:

(i) The chart entitled "Maximum and Average Daily Water Production" under the heading "THE SYSTEM - Water System - Water Production, Connections, Demand and Revenues;"

(ii) The chart entitled "Water Connections, Demand and Revenues by Customer Class" under the heading "THE SYSTEM - Water System - Water Production, Connections, Demand and Revenues;"

(iii) The chart entitled "Five Largest Water Users" under the heading "THE SYSTEM - Water System – Customers;"

(iv) The chart entitled "Maximum Monthly Flow" under the heading "THE SYSTEM - Wastewater System - Maximum Monthly Flow;"

(v) The chart entitled "Wastewater Connections, Demand and Revenues by Customer Class" under the heading "THE SYSTEM - Wastewater System - Wastewater Connections and Demand;"

(vi) The chart entitled "Five Largest Wastewater Users" under the heading "THE SYSTEM - Wastewater System – Customers;"

(vii) The chart entitled "Water and Wastewater System Service Rates" under the heading "SYSTEM REVENUES - Rates and Charges;" and

(viii) The chart entitled "Historical Operating Results of the System" under the heading "SYSTEM FINANCE MATTERS - General."

To the extent any of the foregoing charts include information that is no longer available and/or prepared by the City and/or its consultants, the City will provide notice of such event in its first Annual Filing after it has made such a determination and, if necessary or required, alter the format of the foregoing charts from time to time.

(b) If available at the time of such filing, the Department Audited Financial Statements for the prior Fiscal Year. If the Department Audited Financial Statements are not available by the time the Annual Filing is required to be filed pursuant to Section 4(a) hereof, the Annual Filing shall contain Unaudited Financial Statements of the Department prepared in accordance with generally accepted accounting principles, as in effect from time to time, and the Department Audited Financial Statements shall be filed in the same manner as the Annual Filing when they become available. The Department Audited Financial Statements (if any) will be provided pursuant to Section 4(c) hereof.

Any or all of the items listed above may be included by specific reference to documents previously filed with the Repository or the SEC, including, but not limited to, official statements of debt issues with respect to which the City is an Obligated Person, the City's Comprehensive Annual Financial Report and the Department of Watershed Management's Comprehensive Annual Financial Report. If the document incorporated by reference is a final official statement, it must be available from the Repository. The City will clearly identify each such document so incorporated by reference.

Section 7. Responsibility for Content of Reports and Notices.

(a) The City shall be solely responsible for the content of each Filing (or any portion thereof) provided to the Dissemination Agent pursuant to this Disclosure Agreement.

(b) Each Filing distributed by the Dissemination Agent pursuant to Section 4 or 5 hereof shall be in a form suitable for distributing publicly and shall contain the CUSIP numbers of the Series 2018C Bonds and such other identifying information prescribed by the MSRB from time to time. Each Notice Event Filing shall be in substantially the form set forth in Exhibit "A" attached hereto. If an item of information contained in any Filing pursuant to this Disclosure Agreement would be misleading without additional information, the City shall include such additional information as a part of such Filing as may be necessary in order that the Filing will not be misleading in light of the circumstances under which it is made.

(c) Any report, notice or other filing to be made public pursuant to this Disclosure Agreement may consist of a single document or separate documents composing a package and may incorporate by reference other clearly identified documents or specified portions thereof previously filed with the Repository or the SEC; provided that any final official statement incorporated by reference must be available from the Repository.

(d) Notwithstanding any provision herein to the contrary, nothing in this Disclosure Agreement shall be construed to require the City or the Dissemination Agent to interpret or provide an opinion concerning information made public pursuant to this Disclosure Agreement.

(e) Notwithstanding any provision herein to the contrary, the City shall not make public, or direct the Dissemination Agent to make public, information which is not permitted to be publicly disclosed under any applicable data confidentiality or privacy law or other legal requirement.

Section 8. Voluntary Filings.

(a) The City may instruct the Dissemination Agent to file information with the Repository, from time to time (a "Voluntary Filing").

(b) Nothing in this Disclosure Agreement shall be deemed to prevent the City from disseminating any other information through the Dissemination Agent using the means of dissemination set forth in this Disclosure Agreement or including any other information in any Annual Filing, Annual Financial Statement, Voluntary Filing or Notice Event Filing, in addition to that required by this Disclosure Agreement. If the City chooses to include any information in any Annual Filing, Annual Financial Statement, Voluntary Filing or Notice Event Filing in addition to that which is specifically required by this Disclosure Agreement, the City shall have no obligation under this Disclosure Agreement to update such information or include it in any future Annual Filing, Annual Financial Statement, Voluntary Filing or Notice Event Filing.

(c) Notwithstanding the foregoing provisions of this Section 8, the City is under no obligation to provide any Voluntary Filing.

(d) The Dissemination Agent shall upon receipt promptly file each Voluntary Filing received with the Repository in an electronic format as prescribed by the MSRB.

Section 9. Defaults; Remedies.

(a) A party shall be in default of its obligations hereunder if it fails or refuses to carry out or perform its obligations hereunder for a period of five Business Days following notice of default given in writing to such party by any other party hereto or by any Third Party Beneficiary hereof, unless such default is cured within such five Business Day notice period. An extension of such five Business Day cure period may be granted for good cause (in the reasonable judgment of the party granting the extension) by written notice from the party who gave the default notice.

(b) If a default occurs and continues beyond the cure period specified above, any nondefaulting party or any Third-Party Beneficiary may seek specific performance of the defaulting party's obligations hereunder as the sole and exclusive remedy available upon any such default, excepting, however, that the party seeking such specific performance may recover from the defaulting party any reasonable attorneys' fees and expenses incurred in the course of enforcing this Disclosure Agreement as a consequence of such default. Each of the parties hereby acknowledges that monetary damages will not be an adequate remedy at law for any default hereunder, and therefore agrees that the exclusive remedy of specific performance shall be available in proceedings to enforce this Disclosure Agreement.

(c) Notwithstanding any provision of this Disclosure Agreement or the Bond Ordinance to the contrary, no default under this Disclosure Agreement shall constitute a default or event of default under the Bond Ordinance.

Section 10. Amendment or Modification.

(a) This Disclosure Agreement shall not be amended or modified except as provided in this Section. No modification, amendment, alteration or termination of all or any part of this Disclosure Agreement shall be construed to be, or operate as, altering or amending in any way the provisions of the Bond Ordinance.

(b) Notwithstanding any other provision of this Disclosure Agreement, the City may amend this Disclosure Agreement and any provision of this Disclosure Agreement may be waived, if: (i) such amendment or waiver is 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 the obligor on the Series 2018C Bonds, or type of business conducted by such obligor; (ii) such amendment or waiver does not materially impair the interests of the Beneficial Owners of the Series 2018C Bonds, as determined either by an unqualified opinion of counsel expert in federal securities laws retained by the City or by the approving vote a majority of the Beneficial Owners of the Series 2018C Bonds outstanding at the time of such amendment or waiver; and (iii) such amendment or waiver is supported by an opinion of counsel expert in federal securities laws retained by the City, to the effect that such amendment or waiver would not, in and of itself, cause the undertakings herein to violate the Rule if such amendment or waiver had been effective on the date hereof but taking into account any subsequent change in or official interpretation of the Rule, as well as any change in circumstances.

(c) If any provision of Section 6 hereof is amended or waived, the first Annual Filing containing any amended, or omitting any waived, operating data or financial information shall explain, in narrative form, the reasons for the amendment or waiver and the impact of the change in the type of operating data or financial information being provided.

(d) If the provisions of this Disclosure Agreement specifying the accounting principles to be followed in preparing the City's financial statements are amended or waived, the Annual Filing for the year in which the change is made shall present a comparison between the financial statements or information prepared on the basis of the new accounting principles and those prepared on the basis of the former accounting principles. The comparison shall include a qualitative discussion of the differences in the accounting principles and the impact of the change in the accounting principles on the presentation of the financial information, in order to provide information to the Beneficial Owners of the Series 2018C Bonds to enable them to evaluate the ability of the City to meet its obligations. To the extent reasonably feasible, the comparison shall also be quantitative. The City will file a notice of the change in the accounting principles with the Repository on or before the effective date of any such amendment or waiver.

(e) Notwithstanding the foregoing, the Dissemination Agent shall not be obligated to agree to any amendment expanding its duties or obligations hereunder without its consent thereto.

(f) The City shall prepare or cause to be prepared a notice of any such amendment or modification and shall direct the Dissemination Agent to make such notice public in accordance with Section 8 hereof.

Section 11. <u>Agency Relationship</u>.

(a) The Dissemination Agent agrees to perform such duties, but only such duties, as are specifically set forth in this Disclosure Agreement, and no implied duties or obligations of any kind shall be read into this Disclosure Agreement with respect to the Dissemination Agent. The Dissemination Agent may conclusively rely, as to the truth, accuracy and completeness of the statements set forth therein, upon all notices, reports, certificates or other materials furnished to the Dissemination Agent pursuant to this Disclosure Agreement, and in the case of notices and reports required to be furnished to the Dissemination Agent pursuant to this Disclosure Agreement, the Dissemination Agent shall have no duty whatsoever to examine the same to determine whether they conform to the requirements of this Disclosure Agreement.

(b) The Dissemination Agent shall not be liable for any error of judgment made in good faith by a responsible officer or officers of the Dissemination Agent unless it shall be proven that the Dissemination Agent engaged in negligent conduct or willful misconduct in ascertaining the pertinent facts related thereto.

(c) The Dissemination Agent shall perform its rights and duties under this Disclosure Agreement using the same standard of care as a prudent person would exercise under the circumstances, and the Dissemination Agent shall not be liable for any action taken or failure to act in good faith under this Disclosure Agreement unless it shall be proven that the Dissemination Agent was negligent or engaged in willful misconduct.

(d) The Dissemination Agent may perform any of its duties hereunder by or through attorneys or agents selected by it with reasonable care, and shall be entitled to the advice of counsel concerning all matters arising hereunder, and may in all cases pay such reasonable compensation as it may deem proper to all such attorneys and agents. The Dissemination Agent shall be responsible for the acts or negligence of any such attorneys, agents or counsel.

(e) The Dissemination Agent shall not be deemed to be acting in any fiduciary capacity for the City, the holders of the Series 2018C Bonds or any other party.

(f) None of the provisions of this Disclosure Agreement or any notice or other document delivered in connection herewith shall require the Dissemination Agent to advance, expend or risk its own funds or otherwise incur financial liability in the performance of any of the Dissemination Agent's duties or rights under this Disclosure Agreement.

(g) Except as expressly provided herein, the Dissemination Agent shall not be required to monitor the compliance of the City with the provisions of this Disclosure Agreement or to exercise any remedy, institute a suit or take any action of any kind without indemnification satisfactory to the Dissemination Agent.

(h) The Dissemination Agent may resign at any time by giving at least ninety (90) days prior written notice thereof to the City. The Dissemination Agent may be removed for good cause at any time by written notice to the Dissemination Agent from the City, provided that such removal shall not become effective until a successor dissemination agent has been appointed by the City under this Disclosure Agreement.

(i) In the event the Dissemination Agent shall resign, be removed or become incapable of acting, or if a vacancy shall occur in the office of the Dissemination Agent for any reason, the City shall promptly appoint a successor. Notwithstanding any provision to the contrary in this Disclosure Agreement or elsewhere, the City may appoint itself to serve as Dissemination Agent hereunder.

(j) Any company or other legal entity into which the Dissemination Agent may be merged or converted or with which it may be consolidated or any company resulting from any merger, conversion or consolidation to which the Dissemination Agent may be a party or any company to whom the Dissemination Agent may sell or transfer all or substantially all of its agency business shall be the successor dissemination agent hereunder without the execution or filing of any paper or the performance of any further act and shall be authorized to perform all rights and duties imposed upon the Dissemination Agent by this Disclosure Agreement, anything herein to the contrary notwithstanding.

Section 12. Miscellaneous.

(a) Each of the parties hereto represents and warrants to each other party that it has (i) duly authorized the execution and delivery of this Disclosure Agreement by the officers of such party whose signatures appear on the execution pages hereto, (ii) that it has all requisite power and authority to execute, deliver and perform this Disclosure Agreement under applicable law and any resolutions, ordinances, or other actions of such party now in effect, (iii) that the execution and delivery of this Disclosure Agreement, and performance of the terms hereof, does not and will not violate any law, regulation, ruling, decision, order, indenture, decree, agreement or instrument by which such party or its property or assets is bound, and (iv) such party is not aware of any litigation or proceeding pending, or, to the best of such party's knowledge, threatened, contesting or questioning its existence, or its power and authority to enter into this Disclosure Agreement, or its due authorization, execution and delivery of this Disclosure Agreement, or otherwise contesting or questioning the issuance of the Series 2018C Bonds.

(b) This Disclosure Agreement shall be governed by and interpreted in accordance with the laws of the State of Georgia and applicable federal law.

(c) This Disclosure Agreement may be executed in one or more counterparts, each and all of which shall constitute one and the same instrument.

Section 13. Identifying Information. All documents provided to the Repository pursuant to this Disclosure Agreement shall be accompanied by identifying information as prescribed by the MSRB.

Section 14. Severability. In case any part of this Disclosure Agreement is held to be illegal or invalid, such illegality or invalidity shall not affect the remainder or any other section of this Disclosure Agreement. This Disclosure Agreement shall be construed or enforced as if such illegal or invalid portion were not contained therein, nor shall such illegality or invalidity of any application of this Disclosure Agreement affect any legal and valid application.

[SIGNATURES PAGES TO FOLLOW]

SIGNATURE PAGE TO
CONTINUING DISCLOSURE AGREEMENT
CITY OF ATLANTA WATER AND WASTEWATER REVENUE REFUNDING BONDS,
SERIES 2018C

IN WITNESS WHEREOF, the City and the Dissemination Agent have each caused this Disclosure Agreement to be executed, on the date first written above, by their respective duly authorized officers.

CITY OF ATLANTA, a municipal corporation duly organized and existing under the laws of the State of Georgia

By:____
Keisha Lance Bottoms, Mayor

[SIGNATURES CONTINUED ON FOLLOWING PAGE]

SIGNATURE PAGE TO
CONTINUING DISCLOSURE AGREEMENT
CITY OF ATLANTA WATER AND WASTEWATER REVENUE REFUNDING BONDS,
SERIES 2018C

IN WITNESS WHEREOF, the City and the Dissemination Agent have each caused this Disclosure Agreement to be executed, on the date first written above, by their respective duly authorized officers.

DIGITAL ASSURANCE CERTIFICATION, L.L.C.,
as Dissemination Agent

By:____
Name:______________________________________
Title:_______________________________________

EXHIBIT A

NOTICE TO REPOSITORY OF THE OCCURRENCE OF
[INSERT THE NOTICE EVENT]

Relating to

$288,900,000
CITY OF ATLANTA
WATER AND WASTEWATER REVENUE
REFUNDING BONDS, SERIES 2018C

Originally Issued on October ___, 2018
[CUSIP NUMBERS**)]**

Notice is hereby given by the City of Atlanta (the "City"), as obligated person with respect to the above-referenced bonds issued by the City, under the Securities and Exchange Commission's Rule 15c2-12, that **[**INSERT THE NOTICE EVENT**]** has occurred. **[**DESCRIBE NOTICE EVENT AND MATERIAL CIRCUMSTANCES RELATED THERETO**]**.

This Notice is based on the best information available to the City at the time of dissemination hereof and is not guaranteed by the City as to the accuracy or completeness of such information. The City will disseminate additional information concerning **[**NOTICE EVENT**]**, as and when such information becomes available to the City, to the extent that the dissemination of such information would be consistent with the requirements of Rule 15c2-12 and the City's obligation under that certain Continuing Disclosure Agreement dated October 30, 2018. **[**Any questions regarding this notice should be directed in writing only to the City. However, the City will not provide additional information or answer questions concerning [**NOTICE EVENT**] except in future written notices, if any, disseminated by the City in the same manner and to the same recipients as this Notice**]**.

DISCLAIMER: All information contained in this Notice has been obtained by the City from sources believed to be reliable as of the date hereof. Due to the possibility of human or mechanical error as well as other factors, however, such information is not guaranteed as to the accuracy, timeliness or completeness. Under no circumstances shall the City have any liability to any person or entity for (a) any loss, damage, cost, liability or expense in whole or in part caused by, resulting from or relating to this Notice, including, without limitation, any error (negligent or otherwise) or other circumstances involved in procuring, collecting, compiling, interpreting, analyzing, editing, transcribing, transmitting, communicating or delivering any information contained in this Notice, or (b) any direct, indirect, special, consequential or incidental damages whatsoever related thereto.

Dated: ______________________

CITY OF ATLANTA

By:_______________________________________
Name:_____________________________________
Title: _____________________________________

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CITY OF ATLANTA, GEORGIA • WATER AND WASTEWATER REVENUE REFUNDING BONDS, SERIES 2018C

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