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

In the opinion of Greenberg Traurig, LLP and Gonzalez Saggio & Harlan LLP, Co-Bond Counsel, under existing law, and assuming continuing compliance with certain covenants and the accuracy of certain representations, interest on the Bonds is excludable from gross income of the holders thereof for federal income tax purposes. Interest on the Bonds is not an item of tax preference for purposes of the federal alternative minimum tax imposed on individuals and corporations; however, such interest is taken into account in determining adjusted current earnings for the purpose of computing the alternative minimum tax imposed on certain corporations. Co-Bond Counsel is of the opinion that the Bonds are exempt from personal property taxes in Pennsylvania, and interest on the Bonds is exempt from Pennsylvania personal income tax and Pennsylvania corporate net income tax, under the laws of the Commonwealth of Pennsylvania as enacted and construed on the date of initial delivery of the Bonds.

$170,000,000
CITY OF PHILADELPHIA, PENNSYLVANIA
Water and Wastewater Revenue Bonds
Series 2013A

Dated: Date of Delivery **Due: As shown on the inside front cover**

The City of Philadelphia, Pennsylvania, a corporation, body politic and city of the first class existing under the laws of the Commonwealth of Pennsylvania (the "City") is issuing its Water and Wastewater Revenue Bonds, Series 2013A (the "Bonds") pursuant to (i) the First Class City Revenue Bond Act, P.L. 955, Act No. 234 of the General Assembly of the Commonwealth of Pennsylvania, approved October 18, 1972 (the "Act"), and (ii) the City's Restated General Water and Wastewater Revenue Bond Ordinance of 1989, approved June 24, 1993 (the "Restated General Ordinance" and, as supplemented and amended from time to time, the "General Ordinance"). The Bonds are being issued for the purpose of providing funds which, together with other available funds of the City's Water Department (defined herein), will be used to finance (i) capital improvements to the City's Water and Wastewater Systems (defined herein), (ii) a deposit to the Debt Reserve Account of the Sinking Fund (as defined herein), and (iii) the costs of issuance relating to the Bonds. See "PLAN OF FINANCE" herein.

The Bonds are special obligations of the City secured, equally and ratably with the City's Water and Wastewater Revenue Bonds outstanding (as of July 31, 2013) in the aggregate principal amount of $1,753,761,544 issued under the General Ordinance and all Water and Wastewater Revenue Bonds hereafter issued, by a pledge of and security interest in all Project Revenues (defined herein) derived from the City's Water and Wastewater Systems and by moneys deposited in the funds and accounts (other than the Rebate Fund) established by the City under the General Ordinance (the "Water and Wastewater Funds").

THE BONDS ARE PAYABLE SOLELY FROM PROJECT REVENUES AND MONEYS DEPOSITED IN THE WATER AND WASTEWATER FUNDS. THE BONDS ARE SPECIAL OBLIGATIONS OF THE CITY AND DO NOT PLEDGE THE FULL FAITH, CREDIT OR TAXING POWER OF THE CITY, OR CREATE ANY DEBT OR CHARGE AGAINST THE TAX OR GENERAL REVENUES OF THE CITY, OR CREATE ANY LIEN OR CHARGE AGAINST ANY PROPERTY OF THE CITY, OTHER THAN AGAINST THE PROJECT REVENUES AND AMOUNTS, IF ANY, AT ANY TIME ON DEPOSIT IN THE WATER AND WASTEWATER FUNDS.

The Bonds will be issued only as fully registered bonds and, when issued, will be registered in the name of Cede & Co., as nominee of The Depository Trust Company, New York, New York ("DTC"), which will act as securities depository for the Bonds. Purchasers will not receive certificates representing their ownership interest in the Bonds purchased. U.S. Bank National Association, Philadelphia, Pennsylvania, is the Fiscal Agent for the Bonds. The principal or redemption price of and interest on the Bonds are payable to DTC for redistribution to its participants and in turn to the beneficial owners of the Bonds. See "THE BONDS – Book-Entry Only System" herein. Disbursements of such payments to DTC participants and beneficial owners are the responsibility of DTC.

The Bonds will be issued in denominations of $5,000 or any integral multiple thereof. The Bonds will be dated and will bear interest from the date of delivery thereof. Interest on the Bonds will be payable semiannually on January 1 and July 1 of each year, beginning January 1, 2014.

The Bonds are subject to redemption as provided herein.

This cover page contains information for quick reference only. It is not a summary of this issue. Investors must read the entire Official Statement, including the Appendices, which are an integral part hereof, to obtain information essential to making an informed investment decision regarding the Bonds.

The Bonds are offered when, as and if issued and delivered to and received by the Underwriters, and subject to the legal opinions of Greenberg Traurig, LLP and Gonzalez Saggio & Harlan LLP, of Philadelphia, Pennsylvania and New York, New York, respectively, Co-Bond Counsel. Certain legal matters will be passed upon for the Underwriters by Saul Ewing LLP and The Smyler Firm, each of Philadelphia, Pennsylvania. Certain legal matters will be passed upon for the City by the City Solicitor. It is expected that the Bonds will be available for delivery to DTC in New York, New York on or about August 22, 2013.

MORGAN STANLEY **SIEBERT BRANDFORD SHANK & CO., L.L.C.**

BofA Merrill Lynch **Drexel Hamilton LLC** **Janney Montgomery Scott** **TD Securities**

The date of this Official Statement is August 14, 2013.

$170,000,000
CITY OF PHILADELPHIA, PENNSYLVANIA
Water and Wastewater Revenue Bonds
Series 2013A

Maturity Date January 1	Principal	Interest Rate	Yield	Price	CUSIP† (717893)
2017	$ 3,425,000	4.000%	1.260%	108.980	XV8
2018	3,425,000	5.000	1.630	114.120	XW6
2019	3,425,000	5.000	2.050	114.895	XX4
2020	210,000	3.000	2.490	102.980	XY2
2020	30,635,000	5.000	2.490	114.672	YF2
2021	5,025,000	4.000	2.910	107.170	XZ9
2021	26,855,000	5.000	2.910	113.750	YC9
2022	22,925,000	5.000	3.270	112.559	YD7
2023	210,000	4.000	3.510	103.876	YA3
2023	23,865,000	5.000	3.510	111.793	YE5

$50,000,000 5.125% Term Bonds due January 1, 2043, priced 98.574 to yield 5.220% CUSIP† 717893 YB1

† The above CUSIP (Committee on Uniform Securities Identification Procedures) numbers have been assigned by an organization not affiliated with the City or the Underwriters, and such parties are not responsible for the selection or use of the CUSIP numbers. The CUSIP numbers are included solely for the convenience of bondholders and no representation is made as to the correctness of such CUSIP numbers. CUSIP numbers assigned to securities may be changed during the term of such securities based on a number of factors including, but not limited to, the refunding or defeasance of such issue or the use of secondary market financial products. Neither the City nor the Underwriters have agreed to, and there is no duty or obligation to, update this Official Statement to reflect any change or correction in the CUSIP numbers set forth above.

CITY OF PHILADELPHIA, PENNSYLVANIA

MAYOR
HONORABLE MICHAEL A. NUTTER

MAYOR'S CHIEF OF STAFF
EVERETT A. GILLISON

MAYOR'S CABINET

Richard Negrin ..... Managing Director
Rob Dubow ..... Director of Finance
Shelley R. Smith ..... City Solicitor
Rina Cutler ..... Deputy Mayor of Transportation and Utilities
Alan Greenberger ..... Deputy Mayor for Planning and Economic Development and Commerce Director
Donald F. Schwartz, M.D. ..... Deputy Mayor for Health and Opportunity and Health Commissioner
Michael DiBerardinis ..... Deputy Mayor for Environmental and Community Resources
Desiree Peterkin Bell ..... Director of Communications/City Representative
Suzanne Biemiller ..... First Deputy Chief of Staff
Lori A. Shorr, Ph.D ..... Chief Education Officer
Adel Ebeid ..... Chief Information Officer
Katherine Gajewski ..... Director of Sustainability
Teresa A. Gillen ..... Director, Federal Legislative Affairs
Eva Gladstein ..... Executive Director, Mayor's Office of Community Engagement & Opportunity
Amy L. Kurland ..... Inspector General
Joan L. Markman ..... Chief Integrity Officer
Michael Resnick ..... Director of Public Safety
Robert Murken ..... Director, Legislative and Government Affairs
Gary P. Steuer ..... Chief Cultural Officer
David G. Wilson ..... First Deputy Managing Director

CITY TREASURER
Nancy E. Winkler

City Controller
Alan L. Butkovitz

PHILADELPHIA WATER DEPARTMENT
Aramark Tower at One Reading Center
Philadelphia, Pennsylvania 19107

Howard M. Neukrug, Water Commissioner
Mami Hara, Deputy Water Commissioner and Chief of Staff
Joseph S. Clare, III, Deputy Water Commissioner
Debra A. McCarty, Deputy Water Commissioner
David A. Katz, Deputy Water Commissioner
Christopher Crockett, Deputy Water Commissioner
Scott J. Schwarz, General Counsel to the Water Department
Gerald D. Leatherman, Deputy Water Commissioner, Human Resources & Administration
Joanne Dahme, General Manager, Public Affairs
Stephen J. Furtek, General Manager, Engineering and Construction
Michelle L. Bethel, Deputy Revenue Commissioner

Consulting Engineer
Black & Veatch Corporation, Kansas City, Missouri

Financial Advisors
Phoenix Capital Partners, LLP
and
Public Financial Management, Inc.

No dealer, broker, salesperson or other person has been authorized by the City of Philadelphia, Pennsylvania (the "City") to give any information or to make any representations with respect to the Bonds other than those contained in this Official Statement, and, if given or made, such other information or representations must not be relied upon. This Official Statement does not constitute an offer to sell or the solicitation of an offer to buy, nor shall there be any sale of the Bonds by any person in any jurisdiction in which it is unlawful for such person to make such offer, solicitation or sale.

This Official Statement is not to be construed as a contract with the purchasers of the Bonds. The information set forth herein has been obtained from the City and other sources believed to be reliable but is not guaranteed as to accuracy or completeness by the Underwriters. This information and expressions of opinions herein are subject to change without notice, and neither delivery of this Official Statement nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in the affairs of the City or the Water Department since the date hereof. This Official Statement, including any supplement or amendment hereto, is intended to be deposited with the Municipal Securities Rulemaking Board.

Statements contained in this Official Statement which involve estimates, forecasts or other matters of opinion, whether or not expressly so described herein, are intended solely as such and are not to be construed as representations of fact. If and when included in this Official Statement, the words "expects," "forecasts," "projects," "intends," "anticipates," "estimates," "assumes" and analogous expressions are intended to identify forward-looking statements and any such statements inherently are subject to a variety of risks and uncertainties that could cause actual results to differ materially from those that have been projected. Such risks and uncertainties which could affect the amount of revenue collected by the City or the Water Department include, among others, changes in economic conditions and various other events, conditions and circumstances, many of which are beyond the control of the City and the Water Department. Such forward-looking statements speak only as of the date of this Official Statement. The City disclaims any obligation or undertaking to release publicly any updates or revisions to any forward-looking statement contained herein to reflect any changes in the City's expectations with regard thereto or any change in events, conditions or circumstances on which any such statement is based.

Upon issuance, the Bonds will not be registered under the Securities Act of 1933, as amended, will not be listed on any stock or other securities exchange and neither the Securities and Exchange Commission nor any other federal, state, municipal or other governmental entity, other than the City (subject to the limitations set forth herein), will have passed upon the accuracy or adequacy of this Official Statement.

This Official Statement is submitted in connection with the sale of the securities referred to herein and may not be reproduced or used, in whole or in part, for any other purpose.

The order and placement of materials in this Official Statement, including the Appendices hereto, are not to be deemed to be a determination of relevance, materiality or importance, and this Official Statement, including the Appendices, must be considered in its entirety.

IN MAKING AN INVESTMENT DECISION, INVESTORS MUST RELY ON THEIR OWN EXAMINATION OF THE CITY, THE WATER DEPARTMENT AND THE TERMS OF THE OFFERING, INCLUDING THE MERITS AND RISKS INVOLVED. THESE SECURITIES HAVE NOT BEEN RECOMMENDED BY ANY FEDERAL OR STATE SECURITIES COMMISSION OR REGULATORY AUTHORITY. FURTHERMORE, THE FOREGOING AUTHORITIES HAVE NOT CONFIRMED THE ACCURACY OR DETERMINED THE ADEQUACY OF THIS DOCUMENT. ANY REPRESENTATION TO THE CONTRARY IS A CRIMINAL OFFENSE.

IN CONNECTION WITH THE OFFERING OF THE BONDS, THE UNDERWRITERS MAY OVER-ALLOT OR EFFECT TRANSACTIONS WHICH STABILIZE OR MAINTAIN THE MARKET PRICE OF THE BONDS AT A LEVEL ABOVE THAT WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME WITHOUT PRIOR NOTICE.

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 to investors 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.

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OFFICIAL STATEMENT
relating to

$170,000,000
City of Philadelphia, Pennsylvania
Water and Wastewater Revenue Bonds
Series 2013A

INTRODUCTORY STATEMENT

General

This Official Statement, including the cover page and appendices attached hereto, sets forth certain information in connection with the issuance by the City of Philadelphia, Pennsylvania, a corporation, body politic and city of the first class existing under the laws of the Commonwealth of Pennsylvania (the "City") of its Water and Wastewater Revenue Bonds, Series 2013A (the "Bonds"). Unless otherwise indicated, capitalized terms used in this Official Statement are defined in APPENDIX III – "SUMMARIES OF CERTAIN AUTHORIZATIONS FOR THE BONDS."

The Bonds are being issued for the purpose of providing funds which, together with other available funds of the City's Water Department (defined herein), will be used to finance (i) capital improvements to the City's Water and Wastewater Systems (defined herein), (ii) a deposit to the Debt Reserve Account of the Sinking Fund (as defined herein), and (iii) the costs of issuance relating to the Bonds. See "PLAN OF FINANCE" herein.

The Bonds are payable solely from Project Revenues (as hereinafter defined) and moneys deposited in the Water and Wastewater Funds, other than the Rebate Fund (the "Water and Wastewater Funds"), as described herein. See "SECURITY FOR THE BONDS – Water and Wastewater Funds." The Bonds are special obligations of the City and do not pledge the full faith, credit or taxing power of the City, nor create any debt or charge against the tax or general revenues of the City, nor create any lien or charge against any property of the City, other than against the Project Revenues and amounts, if any, at any time on deposit in the Water and Wastewater Funds.

The Water Department

Pursuant to the Philadelphia Home Rule Charter (the "Charter") adopted pursuant to authorization of The First Class City Home Rule Act, approved April 21, 1949, P.L. 665 §1 et seq. (53 P.S. §13101 et seq.), the City's Water Department (the "Water Department") has the power and duty to operate, maintain, repair and improve the City's water system (the "Water System") and the City's wastewater system (the "Wastewater System" and together with the Water System, the "Water and Wastewater Systems"). Under the General Ordinance (defined herein), the Water and Wastewater Systems are treated as one combined utility for the purpose of revenue bond financing. This has the effect, among other things, of making all revenues of the two systems available for debt service for all Water and Wastewater Revenue Bonds (defined herein). See "THE WATER DEPARTMENT" herein.

The Water Department, which began water service in 1801, supplies water to the City and a portion of each of Montgomery, Delaware and Bucks Counties, Pennsylvania, and provides wastewater services to the City and to ten municipalities and authorities located in Montgomery, Delaware and Bucks Counties, Pennsylvania. Based on the 2012 U.S. Census Bureau estimate, the population served by the Water System is

estimated to be 1,710,607, of which 1,547,607 individuals live in the City, 106,000 live in Bucks County and 57,000 live in Montgomery and Delaware Counties. The population served by the Wastewater System is estimated to be 2,309,607, based on the 2012 U.S. Census Bureau estimate, of which 1,547,607 live in the City and 762,000 live in the suburban counties described above.

In connection with the authorization and offering of the Bonds, Black & Veatch Corporation performed engineering evaluations of the current condition and financial operations of the Water and Wastewater Systems. Such engineering evaluations, which are mandated by the General Ordinance as a condition to the issuance of the Bonds, have resulted in findings that Project Revenues will be sufficient to meet payment or deposit requirements of the operation, maintenance, repair and replacement of the Water and Wastewater Systems, reserve funds, principal or redemption price and interest on Water and Wastewater Revenue Bonds (as defined herein); that Net Revenues are currently sufficient to comply with the rate covenant contained in Section 5.01 of the General Ordinance (the "Rate Covenant") and are projected to be sufficient to comply with the Rate Covenant for each of the two Fiscal Years following the Fiscal Year the Bonds are issued; and that the Water and Wastewater Systems operated by the Water Department are in good operating condition or that adequate steps are being taken to return them to good operating condition. Such engineering evaluations performed by Black & Veatch Corporation provide the basis of such findings in an engineering report dated June 28, 2013 (the "Engineering Report"). See APPENDIX II – "ENGINEERING REPORT."

Rates and Rate Covenant

Under the Charter, the Water Department is empowered and required to establish rates for water and wastewater service, in accordance with standards ordained by City Council of the City ("City Council"), but without further authorization required by City Council, at levels which provide sufficient revenue to meet operating expenses of the Water and Wastewater Systems, including interdepartmental charges for services provided to the Water Department and debt service requirements on all obligations issued for the Water Department, as well as other specific covenants of the General Ordinance. For a more detailed discussion, including certain proposed legislation, see "RATES" herein.

Authorization for the Bonds

The Bonds are being issued under The First Class City Revenue Bond Act, P.L. 955, Act No. 234 of the General Assembly of the Commonwealth of Pennsylvania, approved October 18, 1972 (the "Act") and the City's Restated General Water and Wastewater Revenue Bond Ordinance of 1989, approved June 24, 1993 (the "Restated General Ordinance"), as supplemented and amended, including by the Fourteenth Supplemental Ordinance approved by the Mayor on July 5, 2011 (the "Fourteenth Supplemental Ordinance") authorizing the issuance of Water and Wastewater Revenue Bonds, including the Bonds, as further described below.

Pursuant to the Act, the City, as a city of the first class, is authorized to issue revenue bonds to finance revenue producing projects and to refund certain outstanding bonds, including revenue bonds issued under the Act, but the bonds must be payable solely from Project Revenues as defined in the General Ordinance (the "Project Revenues").

Pursuant to the Act, prior to the delivery of the Bonds, the City must file with the Court of Common Pleas of the County of Philadelphia a transcript of the proceedings authorizing their issuance, including bond ordinances, a report of the chief fiscal officer describing the project and establishing that Project Revenues will be sufficient to support debt service on all Water and Wastewater Revenue Bonds, and an opinion of the City Solicitor to the effect that, under the General Ordinance, holders or registered owners of the Bonds will have no claim upon the taxing power or general revenues of the City nor any lien upon any property of the City other than Project Revenues. Beginning on the twenty-first day after such filing is made, the validity of the proceedings, the right of the City to issue the Bonds authorized thereby, the lawful nature of the purpose for which the Bonds are issued, and the validity and enforceability of the Bonds in accordance with their terms

may not be challenged judicially, in equity, at law or by civil or criminal proceedings, or otherwise, either directly or collaterally, except where a constitutional question is involved; provided, that any person knowingly participating in the sale or issuance of the Bonds in violation of the Act shall not be entitled to enforce the obligations of the Bonds nor be relieved of civil or criminal liability for such participation or for willfully false or fraudulent statements made in the documents constituting the transcript of proceedings or in the Bonds. The City filed the transcript of proceedings related to the Fourteenth Supplemental Ordinance on July 15, 2011, and no challenge to the validity of the proceedings was filed.

The General Ordinance

The Restated General Ordinance has previously been supplemented and amended by:

- First Supplemental Ordinance approved June 24, 1993 (the "First Supplemental Ordinance"), authorizing the issuance of the Water and Wastewater Revenue Bonds, Series 1993;

- Second Supplemental Ordinance approved May 9, 1994 (the "Second Supplemental Ordinance"), authorizing the issuance of the Water and Wastewater Revenue Bonds, Series 1995;

- Third Supplemental Ordinance approved October 27, 1997 (the "Third Supplemental Ordinance"), authorizing the issuance of the Water and Wastewater Revenue Bonds, Series 1997A and Water and Wastewater Revenue Bonds, Variable Rate Series 1997B (the "Series 1997B Bonds");

- Fourth Supplemental Ordinance approved December 11, 1998 (the "Fourth Supplemental Ordinance"), authorizing the issuance of the Water and Wastewater Revenue Bonds, Series 1998 (the "Series 1998 Bonds");

- Fifth Supplemental Ordinance approved December 11, 1998 (the "Fifth Supplemental Ordinance"), authorizing the issuance of the Water and Wastewater Revenue Bonds, Series 1999;

- Sixth Supplemental Ordinance approved December 11, 1998 (the "Sixth Supplemental Ordinance"), authorizing the issuance of the Water and Wastewater Revenue Bond, Series 1999A (the "1999 Pennvest Bond");

- Seventh Supplemental Ordinance approved May 23, 2001 (the "Seventh Supplemental Ordinance"), authorizing the issuance of the Water and Wastewater Revenue Bonds, Series 2001A and Water and Wastewater Revenue Refunding Bonds, Series 2001B;

- Eighth Supplemental Ordinance approved November 22, 2002 (the "Eighth Supplemental Ordinance"), authorizing the issuance of the Water and Wastewater Revenue Bonds, Series 2005A (the "Series 2005A Bonds");

- Ninth Supplemental Ordinance approved November 22, 2002 (the "Ninth Supplemental Ordinance"), authorizing the issuance of the Water and Wastewater Revenue Refunding Bonds, Variable Rate Series 2003 and Water and Wastewater Revenue Refunding Bonds, Variable Rate Series 2005B (the "Series 2005B Bonds");

- Tenth Supplemental Ordinance approved November 16, 2006 (the "Tenth Supplemental Ordinance"), authorizing the issuance of the Water and Wastewater Revenue Refunding Bonds, Series 2007A (the "Series 2007A Bonds") and Water and Wastewater Revenue Refunding Bonds, Series 2007B (the "Series 2007B Bonds");

- Eleventh Supplemental Ordinance approved November 16, 2006 (the "Eleventh Supplemental Ordinance"), authorizing the issuance of the Water and Wastewater Revenue Bonds, Series 2009A (the "Series 2009A Bonds") and Series 2010C (the "Series 2010C Bonds");

- Ordinance approved January 23, 2007, relating to the Debt Reserve Account (the "Debt Reserve Account Amendment"), as further described under "SECURITY FOR THE BONDS – Debt Reserve Account" herein;

- Twelfth Supplemental Ordinance approved June 3, 2009, authorizing the issuance of the Water and Wastewater Revenue Bonds, Series 2009B (Pennvest Loan), Series 2009C (Pennvest Loan) and Series 2009D (Pennvest Loan) (the "2009 Pennvest Bonds"), Water and Wastewater Revenue Bond, Series 2010B (Pennvest Loan) (the "2010 Pennvest Bond") and Water and Wastewater Revenue Bonds, Series 2011A (the "Series 2011A Bonds");

- Thirteenth Supplemental Ordinance approved March 5, 2010 (the "Thirteenth Supplemental Ordinance"), authorizing the issuance of the Water and Wastewater Revenue Refunding Bonds, Series 2010A (the "Series 2010A Bonds");

- Fourteenth Supplemental Ordinance approved July 5, 2011 (the "Fourteenth Supplemental Ordinance"), authorizing the issuance of an additional $450,000,000 aggregate principal amount (exclusive of original issue discount) of Water and Wastewater Revenue Bonds, including the Bonds, to finance certain capital projects for the Water Department;

- Fifteenth Supplemental Ordinance approved July 5, 2011 (the "Fifteenth Supplemental Ordinance"), authorizing the issuance of the Water and Wastewater Revenue Refunding Bonds, Series 2011B (the "Series 2011B Bonds"), the Water and Wastewater Revenue Refunding Bonds, Series 2012 (the "Series 2012 Bonds") and additional Water and Wastewater Revenue Refunding Bonds for refunding purposes; and

- Sixteenth Supplemental Ordinance approved April 24, 2013 (the "Sixteenth Supplemental Ordinance"), authorizing the issuance of up to $375,000,000 aggregate principal amount (exclusive of original issue discount) of Water and Wastewater Revenue Refunding Bonds for refunding purposes.

The Restated General Ordinance, as so supplemented and amended, is hereinafter referred to as the "General Ordinance."

Outstanding and Additional Indebtedness

As of July 31, 2013, there is outstanding $1,753,761,544 aggregate principal amount of Water and Wastewater Revenue Bonds (consisting of the Series 1997B Bonds, the Series 1998 Bonds, the 1999 Pennvest Bond, the Series 2005A Bonds, the Series 2005B Bonds, the Series 2007A Bonds, the Series 2007B Bonds, the Series 2009A Bonds, the 2009 Pennvest Bonds, the 2010 Pennvest Bond, the Series 2010A Bonds, the Series 2010C Bonds, the Series 2011A Bonds, the Series 2011B Bonds and the Series 2012 Bonds, which collectively are herein referred to as the "Outstanding Bonds") pursuant to the General Ordinance.

The 1999 Pennvest Bond, 2009 Pennvest Bonds and 2010 Pennvest Bond secure loans from the Pennsylvania Infrastructure Investment Authority ("Pennvest").

In connection with the purchase of the Series 2005B Bonds by Banc of America Preferred Funding Corporation ("Banc of America") on May 15, 2013, the City and Banc of America entered into a Continuing Covenants Agreement dated as of May 1, 2013 (the "Continuing Covenants Agreement"). To review the events of default contained in the Continuing Covenants Agreement and certain remedies available to Banc of

America upon the occurrence of such an event of default, please refer to the Municipal Securities Rulemaking Board's Electronic Municipal Market Access System (http://www.emma.msrb.org/), where a redacted version of the Continuing Covenants Agreement has been made available to the public.

The Outstanding Bonds, together with the Bonds when issued, are equally and ratably secured under the General Ordinance. The Outstanding Bonds and bonds of all series hereafter issued under the General Ordinance, as amended or supplemented, including the Bonds, are hereinafter referred to as the "Water and Wastewater Revenue Bonds." U.S. Bank National Association, Philadelphia, Pennsylvania, is acting as Fiscal Agent for the Water and Wastewater Revenue Bonds (the "Fiscal Agent").

Security for the Bonds

The Bonds are payable from and secured by a pledge of all Project Revenues and amounts on deposit in the Water and Wastewater Funds. See "SECURITY FOR THE BONDS" herein and APPENDIX III – "SUMMARIES OF CERTAIN AUTHORIZATIONS FOR THE BONDS."

Under the General Ordinance, a Debt Reserve Account of the Sinking Fund has been established to secure the Water and Wastewater Revenue Bonds, other than Subordinated Bonds (as defined herein). The Debt Reserve Account, as of June 30, 2013, consisted of $203,485,201.79 in cash and investments and a surety policy issued by Assured Guaranty Municipal Corp. (formerly known as Financial Security Assurance Inc.) ("AGM") in the principal amount of $67,000,000 (the "Surety Policy"). For a further discussion of the Debt Reserve Account and the Surety Policy, see "SECURITY FOR THE BONDS – Debt Reserve Account" herein.

On the date of issuance of the Bonds, the amount on deposit in the Debt Reserve Account, which will include the deposit related to the Bonds, will be sufficient to meet the Debt Reserve Requirement (as defined herein) for all Water and Wastewater Revenue Bonds outstanding after the issuance of the Bonds. As further discussed herein, the value of the Surety Policy is excluded in calculating the amount on deposit in the Debt Reserve Account. See "SECURITY FOR THE BONDS – Water and Wastewater Funds" and "– Debt Reserve Account" herein.

Miscellaneous

Brief descriptions of the Water Department, the Bonds and the security therefor, and certain information about the City are included herein. Such descriptions and information do not purport to be comprehensive or definitive. All references herein to the Act, the Charter, the General Ordinance and the Engineering Report are qualified in their entirety by reference to each such document. Copies of the foregoing documents and the financial statements of the City for the Fiscal Year ended June 30, 2012, are available from the Office of the Director of Finance, Suite 1330, Municipal Services Building, 1401 John F. Kennedy Boulevard, Philadelphia, Pennsylvania 19102. A copy of the financial statements of the City for the Fiscal Year ended June 30, 2012, which include information relating to the Water Fund, may be downloaded at http://www.phila.gov/investor.

Financial statements of the Water Fund for the Fiscal Year ended June 30, 2012, are attached hereto as APPENDIX I. The Engineering Report is attached hereto as APPENDIX II. Summaries of certain provisions of the Act, the General Ordinance and the Fourteenth Supplemental Ordinance (including definitions of certain terms) are attached hereto as APPENDIX III. The Government and Financial Information of the City is attached hereto as APPENDIX IV. The City of Philadelphia Socioeconomic Information is attached hereto as APPENDIX V. The form of opinion of Co-Bond Counsel to be delivered in connection with the issuance and delivery of the Bonds is attached hereto as APPENDIX VI. The form of Continuing Disclosure Agreement related to the Bonds is attached hereto as APPENDIX VII.

The foregoing information is furnished solely to provide limited introductory information with respect to the Bonds and does not purport to be comprehensive. All such information is qualified in its entirety by reference to the more detailed descriptions appearing elsewhere in this Official Statement, inclusive of the Appendices, which should be read in its entirety, and to the complete documents referenced herein. The sale of the Bonds is made only by means of this entire Official Statement.

PLAN OF FINANCE

The proceeds of the Bonds, together with other available funds of the Water Department, will be used to finance (i) capital improvements to the City's Water and Wastewater Systems, (ii) a deposit to the Debt Reserve Account and (iii) the costs of issuance relating to the Bonds.

ESTIMATED SOURCES AND USES OF FUNDS

The following table sets forth estimated sources and uses of the proceeds of the Bonds.

Sources of Funds	
Principal Amount of the Bonds	$170,000,000.00
Net Original Issue Premium	14,843,898.75
Total Sources of Funds	$184,843,898.75
Uses of Funds	
Deposit to Construction Fund	$175,320,158.86
Debt Reserve Account	8,471,700.00
Costs of Issuance*	1,052,039.89
Total Uses of Funds	$184,843,898.75

* Includes Underwriters' discount; legal, printing, rating agency, consultant, Fiscal Agent and financial advisor fees; and other expenses of the issuance and offering of the Bonds.

THE BONDS

General

The Bonds will be issued in the aggregate principal amount, will be dated, will bear interest at the rates and will mature on the dates and in the amounts as shown on the inside front cover page of this Official Statement. The Bonds will be issued in fully-registered form, registered in the name of Cede & Co., as nominee of The Depository Trust Company ("DTC") pursuant to DTC's Book-Entry Only System. See "THE BONDS - Book-Entry Only System" herein.

The Bonds will be dated and will bear interest from their date of delivery and will be issued in denominations of $5,000 or any integral multiple thereof. Interest on the Bonds, calculated on the basis of a 360-day year comprised of twelve 30 day months, will be payable semiannually on January 1 and July 1 of each year, beginning January 1, 2014 (each, an "Interest Payment Date"). Interest will be payable by check or draft mailed on each Interest Payment Date (or the next business day if the Interest Payment Date is not a Business Day) by the Fiscal Agent to the registered owners of such Bonds as of the applicable Record Date. The Record Date for the Bonds will be each June 15 and December 15.

Redemption of the Bonds

Optional Redemption of the Bonds. The Bonds maturing on or prior to January 1, 2023, are not subject to optional redemption prior to maturity. The Bonds maturing on January 1, 2043 are subject to optional redemption prior to maturity on or after January 1, 2022, at the option of the City, as a whole or in part on any date in the maturities selected by the City and within a maturity by lot as determined by the Fiscal

Agent at the redemption price of 100% of the principal amount of the Bonds to be redeemed, plus accrued interest to the redemption date.

Mandatory Redemption of the Bonds. The Bonds maturing on January 1, 2043, are subject to mandatory sinking fund redemption prior to maturity, as drawn by lot by the Fiscal Agent, on January 1 of the following years at a redemption price equal to 100% of the principal amounts set forth below.

$50,000,000 Term Bonds
Maturing January 1, 2043

Year (January 1)	Principal Amount
2041	$15,840,000
2042	16,655,000
2043*	17,505,000

*Final Maturity

The principal amount of the Bonds required to be redeemed on each mandatory sinking fund redemption date may be reduced by the principal amount of the Bonds theretofore redeemed (otherwise than by mandatory sinking fund redemption) or delivered to the Fiscal Agent for cancellation, and not theretofore applied as a credit against any mandatory sinking fund redemption obligation. Any such reduction shall be applied as a credit against the mandatory sinking fund obligation for the year or years selected by the City.

Notice of Redemption. Notice of redemption of the Bonds shall be mailed by first class mail by the Fiscal Agent, not less than 30 days nor more than 60 days prior to the date fixed for redemption, to DTC. From and after the date fixed for redemption, interest shall cease to accrue. Failure by the Fiscal Agent to give notice to DTC or any one or more Information Services or failure of DTC to receive notice or any defect in any notice shall not affect the validity of the proceedings for redemption. If at the time of mailing notice of redemption the City shall not have deposited with the Fiscal Agent moneys sufficient to redeem the Bonds called for redemption, such notice may state that it is conditional in that it is subject to the deposit of the redemption moneys with the Fiscal Agent not later than the redemption date, and such notice shall be of no effect unless such moneys are so deposited.

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Debt Service Requirements

The following table sets forth the existing aggregate debt service requirements for all Outstanding Bonds, after the issuance of the Bonds.

Fiscal Year Ending June 30	Series 2013A Bonds Principal	Series 2013A Bonds Interest	Aggregate Debt Service on Outstanding Bonds [(1)(2)(3)(4)]	Aggregate Debt Service
2014	-	$ 3,035,692	$ 203,397,172	$ 206,432,864
2015	-	8,471,700	195,847,391	204,319,091
2016	-	8,471,700	202,630,022	211,101,722
2017	$ 3,425,000	8,471,700	180,408,272	192,304,972
2018	3,425,000	8,334,700	182,425,726	194,185,426
2019	3,425,000	8,163,450	133,380,691	144,969,141
2020	30,845,000	7,992,200	94,133,829	132,971,029
2021	31,880,000	6,454,150	94,949,039	133,283,189
2022	22,925,000	4,910,400	94,480,732	122,316,132
2023	24,075,000	3,764,150	95,331,093	123,170,243
2024	-	2,562,500	94,269,014	96,831,514
2025	-	2,562,500	93,186,068	95,748,568
2026	-	2,562,500	91,005,168	93,567,668
2027	-	2,562,500	90,137,933	92,700,433
2028	-	2,562,500	74,562,476	77,124,976
2029	-	2,562,500	83,600,600	86,163,100
2030	-	2,562,500	83,675,213	86,237,713
2031	-	2,562,500	83,666,006	86,228,506
2032	-	2,562,500	83,662,419	86,224,919
2033	-	2,562,500	55,153,375	57,715,875
2034	-	2,562,500	55,134,938	57,697,438
2035	-	2,562,500	55,121,081	57,683,581
2036	-	2,562,500	55,101,469	57,663,969
2037	-	2,562,500	27,673,875	30,236,375
2038	-	2,562,500	27,674,125	30,236,625
2039	-	2,562,500	27,674,125	30,236,625
2040	-	2,562,500	27,675,750	30,238,250
2041	15,840,000	2,562,500	27,676,125	46,078,625
2042	16,655,000	1,750,700	-	18,405,700
2043	17,505,000	897,131	-	18,402,131
Total	$170,000,000	$116,842,673	$2,613,633,725	$2,900,476,400

(1) Interest on the Series 1997B Bonds is assumed at a rate of 0.123702%, the average interest rate on the Series 1997B Bonds for the 24 consecutive months immediately preceding the date of calculation.
(2) Interest for the Series 2005B Bonds is calculated at a fixed swap rate of 4.53% per annum; actual rate may vary.
(3) Includes debt service for the 1999 Pennvest Bond, 2009 Pennvest Bonds, and 2010 Pennvest Bond.
(4) Includes capitalized interest of $5,614,166.67 in Fiscal Year 2014 relating to the Series 2011A Bonds.

Book-Entry Only System

DTC will act as securities depository for the Bonds. The Bonds will be initially 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 Bond certificate will be issued for each maturity of the Bonds, each in the aggregate principal amount thereof, and will be deposited with DTC.

DTC, the world's largest securities depository, 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 over 3.6 million issues of U.S. and non-U.S. equity issues, corporate and municipal debt issues, and money market instruments (from over 100 countries) 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"). DTC has a Standard & Poor's rating of AA+. The DTC Rules applicable to its Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at www.dtcc.com and www.dtc.org.

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

To facilitate subsequent transfers, all Bonds deposited by Direct Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co., or such other name as may be requested by an authorized representative of DTC. The deposit of 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 of the Bonds; DTC's records reflect only the identity of the Direct Participants to whose accounts such Bonds are credited, which may or may not be the Beneficial Owners. The Direct and Indirect Participants will remain responsible for keeping account of their holdings on behalf of their customers.

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.

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

Neither DTC nor Cede & Co. (nor any other DTC nominee) will consent or vote with respect to the Bonds unless authorized by a Direct Participant in accordance with DTC's MMI Procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the issuer 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 the Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Principal and interest payments on the Bonds will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit Direct Participants' accounts upon DTC's receipt of funds and corresponding detail information from the City or the Fiscal Agent, on payable 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 Fiscal Agent, or the City, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of principal and interest to Cede & Co. (or such other nominee as may be requested by an authorized representative of DTC) is the responsibility of the City or the Fiscal 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 Direct and Indirect Participants.

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

THE CITY AND THE FISCAL AGENT WILL NOT HAVE ANY RESPONSIBILITY OR OBLIGATION TO DTC PARTICIPANTS OR THE PERSONS FOR WHOM THEY ACT AS NOMINEES WITH RESPECT TO THE ACCURACY OF THE RECORDS OF DTC, ITS NOMINEE OR ANY DTC PARTICIPANT WITH RESPECT TO ANY OWNERSHIP INTEREST IN THE BONDS, OR PAYMENTS TO, OR THE PROVIDING OF NOTICE FOR, DTC PARTICIPANTS OR THE INDIRECT PARTICIPANTS OR BENEFICIAL OWNERS.

The information in this section concerning DTC and DTC's book-entry system has been obtained from sources that the City believes to be reliable, but the City takes no responsibility for the completeness or accuracy thereof, or the absence of materially adverse changes in such information subsequent to the date hereof. For further information, Beneficial Owners should contact DTC in New York, New York.

SECURITY FOR THE BONDS

Pledge of Project Revenues

Pursuant to the General Ordinance, the City pledges and assigns to the Fiscal Agent, in trust, for the security and payment of all Water and Wastewater Revenue Bonds (other than Subordinated Bonds as defined therein) issued under or subject to the General Ordinance, and grants to the Fiscal Agent, in trust, a lien on and security interest in all Project Revenues and amounts on deposit in or standing to the credit of the Water and Wastewater Funds (defined below). The Fiscal Agent shall hold and apply the security interest and lien on Project Revenues and funds and accounts, in trust, for the equal and ratable benefit and security of all present and future holders of Water and Wastewater Revenue Bonds (other than Subordinated Bonds) issued under or subject to the General Ordinance. The General Ordinance provides that such pledge may also be for the benefit of the provider of a Credit Facility or a Qualified Swap (as defined therein), or any other person who undertakes to provide moneys for the account of the City for the payment of principal or redemption price of and interest on any series of Water and Wastewater Revenue Bonds (other than Subordinated Bonds) issued under or subject to the General Ordinance, on an equal and ratable basis with the holders of Water and Wastewater Revenue Bonds.

There are no Subordinated Bonds outstanding under the General Ordinance.

The Bonds are payable solely from Project Revenues and moneys deposited in the Water and Wastewater Funds. The Bonds are special obligations of the City and do not pledge the full faith, credit or taxing power of the City, nor create any debt or charge against the tax or general revenues of the City, nor create any lien or charge against any property of the City, other than against the Project Revenues and amounts, if any, at any time on deposit in the Water and Wastewater Funds.

Water and Wastewater Funds

The Act and the General Ordinance establish the following funds and accounts to be held by the Fiscal Agent:

(a) Revenue Fund;

(b) Sinking Fund and within such fund a Debt Service Account, a Charges Account and a Debt Reserve Account;

(c) Subordinated Bond Fund;

(d) Rate Stabilization Fund;

(e) Residual Fund and within such fund a Special Water Infrastructure Account; and

(f) Construction Fund and within such fund an Existing Projects Account, a Bonds Proceeds Account and a Capital Account.

The foregoing funds are referred to herein as the "Water and Wastewater Funds." The General Ordinance also establishes a Rebate Fund, which is not held for the benefit of the holders of the Water and Wastewater Revenue Bonds.

The application of Project Revenues under the General Ordinance and priority of payments are set forth below under the sub-heading "– Application of Project Revenues."

The Water and Wastewater Funds are required under the General Ordinance to be held separate and apart from all other funds and accounts of the City and the Fiscal Agent, and the funds and accounts therein shall not be commingled with, loaned or transferred among themselves or to any other City funds or accounts except as expressly permitted by the General Ordinance.

The City is required by the General Ordinance to cause all Project Revenues received by it on any date to be deposited into the Revenue Fund upon receipt thereof by the City, and the Fiscal Agent shall, upon receipt of Project Revenues, deposit such Project Revenues into the Revenue Fund. The City and Fiscal Agent also shall cause to be deposited into the Revenue Fund such portion of the proceeds of the Bonds as are designated by Supplemental Ordinance or Bond Committee Determination and any other funds directed to be deposited into the Revenue Fund by the City.

If at any time sufficient moneys are not available in the Revenue Fund to pay Operating Expenses and to make the transfers described below under "Application of Project Revenues," then amounts on deposit in the Construction Fund, Rate Stabilization Fund and Residual Fund may be loaned temporarily, at the written direction of the City, to the Revenue Fund for the payment of such Operating Expenses to the extent of the deficiency, until such loaned amounts are required by the Water Department for purposes of the Fund making the loan. If a similar deficiency exists in the Construction Fund, amounts on deposit in the Revenue Fund, Rate Stabilization Fund and Residual Fund may be loaned temporarily, at the written direction of the City, to the Construction Fund, to the extent of the deficiency, until required by the Water Department for purposes of the Fund making the loan.

Application of Project Revenues

Under the provisions of the General Ordinance, Project Revenues are applied to the extent available in the following order of priority: (i) payment of Operating Expenses; (ii) payment of the principal or redemption price of and interest on Water and Wastewater Revenue Bonds issued under the General Ordinance (except Subordinated Bonds), regularly scheduled payments under any Swap Agreement, payments under a Credit Facility to repay advances thereunder to pay any of the foregoing and payments with respect to fees and expenses in respect of a Credit Facility; (iii) payments into the Debt Reserve Account to the extent necessary to cure a deficiency therein; (iv) payments into any debt reserve account established within the Sinking Fund and not held for the equal and ratable benefit of all Water and Wastewater Revenue Bonds (other than Subordinated Bonds) to the extent necessary to cure a deficiency therein; (v) payment of principal or redemption price of and interest on Subordinated Bonds; (vi) all payments other than regularly scheduled swap payments, including, without limitation, any payments due to a Swap Provider upon the early termination of a Swap Agreement; (vii) transfer to the City the amount necessary to pay General Obligation Bonds issued for the Water and Wastewater Systems; (viii) transfer to the Rate Stabilization Fund the amount determined by the Water Commissioner; (ix) transfer to the Capital Account of the Construction Fund the sum of the Capital Account Deposit Amount, the Debt Service Withdrawal and the Operating Expense Withdrawal, less any amounts transferred to the Capital Account from the Residual Fund; and (x) after providing for any inter-Fund loans, transfer to the Residual Fund any amount remaining on deposit in the Revenue Fund.

The City has covenanted in the General Ordinance that it will not direct the Fiscal Agent to transfer, loan or advance proceeds of the Bonds or Project Revenues from the Water and Wastewater Funds to any City account for application other than for Water Department purposes. The General Ordinance permits the application of Project Revenues to pay Interdepartmental Charges and also permits moneys to be transferred in each Fiscal Year from the Residual Fund to the City's General Fund in an amount not to exceed the lower of (A) all Net Reserve Earnings (as defined below) or (B) $4,994,000. "Net Reserve Earnings" means the amount of interest earnings during the Fiscal Year on amounts in the Debt Reserve Account and the Subordinated Bond Fund less the amount of interest earnings during the Fiscal Year on amounts in any such reserve funds and accounts giving rise to a rebate obligation pursuant to Section 148(f) of the Code.

Debt Reserve Account

The General Ordinance establishes within the Sinking Fund a Debt Reserve Account which shall be funded from the proceeds of each series of Water and Wastewater Revenue Bonds; provided, however, that if the Supplemental Ordinance authorizing a series of Water and Wastewater Revenue Bonds shall so authorize, the deposit to the Debt Reserve Account in respect of such Water and Wastewater Revenue Bonds may be accumulated from Project Revenues over a period of not more than three Fiscal Years after the issuance and delivery of such Water and Wastewater Revenue Bonds. The moneys and investments in the Debt Reserve Account shall be held and maintained in an amount equal at all times to the Debt Reserve Requirement. If at any time the moneys in the Debt Service Account of the Sinking Fund shall be insufficient to pay as and when due the principal of (and premium, if any) or interest on any Water and Wastewater Revenue Bonds or other obligations payable from the Debt Service Account (including obligations arising in connection with Qualified Swap Agreements and Credit Facilities), the Fiscal Agent is required to pay over from the Debt Reserve Account the amount of such deficiency for deposit in the Debt Service Account.

With respect to any issue of Water and Wastewater Revenue Bonds, in lieu of the required deposit into the Debt Reserve Account, the City may cause to be deposited into the Debt Reserve Account a surety bond, an insurance policy or an irrevocable letter of credit meeting the requirements of the General Ordinance and the Bond Committee Determination relating to such issue. Under the terms of the General Ordinance, any surety bond, insurance policy or letter of credit provided by the City in lieu of required deposits within the Debt Reserve Account would have to meet the credit quality requirements of the General Ordinance. The insurer providing a surety bond or insurance policy is required to be an insurer whose municipal bond insurance policies insuring the payment of bond issues results in such issues being rated not lower than the

second highest rating category (without regard to ratings subcategories) by either Moody's Investors Service Inc. ("Moody's") or Standard & Poor's Ratings Services ("S&P"). The letter of credit issuer providing a letter of credit is required to be a bank or trust company which is rated not lower than the second highest rating category (without regard to ratings subcategories) by either Moody's or S&P. See APPENDIX III - "SUMMARIES OF CERTAIN AUTHORIZATIONS FOR THE BONDS - The Restated General Water and Wastewater Revenue Bond Ordinance of 1989 – Debt Reserve Account."

The Mayor approved the Debt Reserve Account Amendment on January 23, 2007, which authorized (i) the Director of Finance to apply moneys currently on deposit in the Debt Reserve Account to purchase a surety bond or insurance policy complying with the terms of the General Ordinance (described below), (ii) the transfer of the resulting excess moneys in the Debt Reserve Account to the Revenue Fund and from there, upon compliance with the provisions of the General Ordinance to an account established in the Residual Fund pursuant to the Debt Reserve Account Amendment called the "Special Water Infrastructure Account," and (iii) the application of the moneys deposited in the Special Water Infrastructure Account to the cost of renewals, replacements and improvements to the Water and Wastewater Systems.

The Debt Reserve Account has been funded with the proceeds of Water and Wastewater Revenue Bonds, funds of the Water Department and earnings on the investment thereof. In addition, on November 26, 2007, pursuant to the Debt Reserve Account Amendment, the City deposited the Surety Policy issued by AGM in the principal amount of $67,000,000, creating an excess of cash and investments in the Debt Reserve Account that was transferred to the Revenue Fund. At the time the Surety Policy was deposited in the Debt Reserve Account, it satisfied the criteria set forth in the General Ordinance. However, on January 17, 2013, Moody's downgraded the insurance financial strength rating of AGM to A2 from Aa3. In response, on June 3, 2013, the Water Department, through the Trustee, transferred U.S. Treasury securities with a market value of $50,048,584.65 (as of May 31, 2013) and cash in the amount of $16,500,000.00 from the Residual Fund to the Debt Reserve Account. In the event of a draw on the Debt Reserve Account, the Surety Policy requires that cash available in the Debt Reserve Account be applied first before the Surety Policy is drawn upon. See APPENDIX III - "SUMMARIES OF CERTAIN AUTHORIZATIONS FOR THE BONDS – The Restated General Water and Wastewater Revenue Bond Ordinance of 1989 – Residual Fund" for a discussion of the Residual Fund and the permitted uses of amounts on deposit therein.

After the transfer, the balance of the Debt Reserve Account, excluding the Surety Policy, as of June 30, 2013, as calculated by Public Financial Management, Inc., was approximately $203,485,201.79, which exceeded the Debt Reserve Requirement for all Outstanding Bonds as of such date, equal to $202,634,538.43. On the date of issuance of the Bonds, the amount on deposit in the Debt Reserve Account, which will include the deposit related to the Bonds, will be sufficient to meet the Debt Reserve Requirement for all Water and Wastewater Revenue Bonds outstanding after the issuance of the Bonds. The value of the Surety Policy is excluded in calculating the amount on deposit in the Debt Reserve Account.

Rate Covenants

The Rate Covenant contained in Section 5.01 of the General Ordinance requires the City to establish rents, rates, fees and charges for the use of the Water and Wastewater Systems sufficient to yield Net Revenues, as defined therein, in each Fiscal Year at least equal to 1.20 times the Debt Service Requirements for such Fiscal Year (recalculated to exclude therefrom principal and interest payments in respect of Subordinated Bonds). In addition, Net Revenues, in each Fiscal Year, must be at least equal to 1.00 times: (i) the Debt Service Requirements for such Fiscal Year (including Debt Service Requirements in respect of Subordinated Bonds); (ii) amounts required to be deposited into the Debt Reserve Account during such Fiscal Year; (iii) the principal or redemption price of and interest on General Obligation Bonds issued for the Water and Wastewater Systems payable in such Fiscal Year; (iv) debt service requirements on Interim Debt payable in such Fiscal Year; and (v) the Capital Account Deposit Amount for such Fiscal Year, less any amounts transferred from the Residual Fund to the Capital Account during such Fiscal Year. To ensure compliance with the Rate Covenant, the General Ordinance requires that the City review its rents, rates, fees and charges

not less frequently than once in each Fiscal Year. For a discussion of the Water Department's experience in meeting the Rate Covenant, see "HISTORICAL AND PROJECTED FINANCIAL INFORMATION – Compliance with Rate Covenants" herein.

Insurance Covenants

In addition to the Rate Covenant described above, for each Fiscal Year, the City has covenanted to AGM that, for so long as any of the Series 2005A Bonds, the Series 2005B Bonds or the portion of the Series 2010A Bonds insured by AGM are outstanding, the City will establish rates and charges for the use of the Water and Wastewater Systems sufficient to yield Net Revenues (excluding amounts transferred from the Rate Stabilization Fund into the Revenue Fund during, or as of the end of, such Fiscal Year) at least equal to 90% of the Debt Service Requirements (excluding debt service due on any Subordinated Bonds) in such Fiscal Year; and that in addition to the conditions described below under "- Additional Bonds," any calculation by a Consulting Engineer of projected Rate Covenant compliance in connection with the proposed issuance of Additional Bonds for each Fiscal Year must state that Net Revenues (excluding amounts transferred from the Rate Stabilization Fund into the Revenue Fund during, or as of the end of, such Fiscal Year) in each Fiscal Year included in the projection period are projected to be at least equal to 90% of the Debt Service Requirements (excluding debt service due on any Subordinated Bonds) in such Fiscal Year. The foregoing agreement is for the benefit of AGM only and may be amended or waived by AGM in its sole discretion without the consent of holders of the Bonds.

Limitations on Effectiveness of Pledge of Project Revenues and Water and Wastewater Funds

The effectiveness of the pledge of the Project Revenues and the Water and Wastewater Funds may be limited because, while the Fiscal Agent will have custody of the Water and Wastewater Funds, the City will have complete control of deposits into and expenditures from the Water and Wastewater Funds, except that the City will not have control of the expenditure of amounts on deposit in the Sinking Fund, including the Debt Reserve Account. No requisition procedure or other similar procedure will be established for the expenditure of moneys by the City from the Water and Wastewater Funds, and no consent or approval of the Fiscal Agent is required to be obtained by the City as a condition of the City's expenditure of moneys in the Water and Wastewater Funds. The Fiscal Agent will not monitor deposits into or withdrawals from the Water and Wastewater Funds (other than the Sinking Fund, including the Debt Reserve Account) or the purposes to which moneys in the Water and Wastewater Funds are applied.

The General Ordinance provides that if, on any date when a deposit is required to be made of the Project Revenues, the City fails to comply with any provision of the General Ordinance, the Fiscal Agent is authorized to and shall seek, by mandamus or other suit, action or proceeding at law or in equity, the specific enforcement or performance of the obligation of the City to cause the Project Revenues to be transferred to the Revenue Fund.

No daily, monthly or other periodic deposits are required to be made into the Sinking Fund prior to the dates on which debt service payments on the Water and Wastewater Revenue Bonds are due.

The enforcement of remedies available to Bondholders (or the Fiscal Agent or any trustee for Bondholders) under the Act or the General Ordinance may be limited as described herein under "REMEDIES OF BONDHOLDERS."

Additional Bonds

The General Ordinance permits the issuance of additional bonds, which may be secured on a parity with the outstanding Water and Wastewater Revenue Bonds. The General Ordinance imposes certain conditions on the issuance of additional bonds thereunder, including the condition that a report of a Consulting Engineer be delivered to City Council stating that the Net Revenues are currently sufficient to comply with the

Rate Covenant and are projected to be sufficient to comply with the Rate Covenant for each of the two Fiscal Years following the Fiscal Year in which the additional bonds are to be issued; provided that if interest on the additional bonds or a portion thereof has been capitalized, the projection shall extend to the two Fiscal Years following the Fiscal Year up to which interest has been capitalized. See APPENDIX III - "SUMMARIES OF CERTAIN AUTHORIZATIONS FOR THE BONDS" for a discussion of the circumstances under which additional bonds may be issued under the General Ordinance.

Transfer to an Authority

The City is authorized under the General Ordinance, upon the satisfaction of the conditions specified in the General Ordinance, to convey and assign to a municipal authority or another entity all or substantially all of the City's right, title and interest in the Water and Wastewater Systems and thereupon to be released from all of its obligations under the General Ordinance and under the Water and Wastewater Revenue Bonds. For more information on the conditions precedent to such a transfer, see APPENDIX III - "SUMMARIES OF CERTAIN AUTHORIZATIONS FOR THE BONDS – Summary of Operative Provisions of the General Ordinance – Conveyance of System and Assignment, Assumption and Release."

For a further discussion of the funds and accounts, priority of payment, the Rate Covenant, transfer of the Water and Wastewater Systems and other provisions of the General Ordinance, see APPENDIX III - "SUMMARIES OF CERTAIN AUTHORIZATIONS FOR THE BONDS."

REMEDIES OF BONDHOLDERS

Remedies under the Act and the General Ordinance available to Bondholders and to any trustee for Bondholders appointed by the holders of 25% in outstanding principal amount of any series of Water and Wastewater Revenue Bonds in default are described in APPENDIX III - "SUMMARIES OF CERTAIN AUTHORIZATIONS FOR THE BONDS." In addition to the remedies therein described, Bondholders or a trustee therefor are entitled under the Pennsylvania Uniform Commercial Code to remedies as secured parties with respect to the Project Revenues and the funds on deposit in the Water and Wastewater Funds.

The ultimate enforcement of Bondholders' rights upon any default by the City in the performance of its obligations under the Act, the General Ordinance and the Bonds will depend upon the application of remedies provided in the Act, the General Ordinance and other applicable laws. Litigation may be necessary to obtain relief in accordance with these remedies. Such litigation may be protracted and costly. Remedies such as mandamus, specific performance or injunctive relief are equitable remedies, which are subject to the discretion of the court.

Enforcement of Bondholders' rights may be limited by and is subject to the provisions of the Federal Bankruptcy Code, as now or hereafter enacted, and to other laws or legal or equitable principles which may affect the enforcement of creditors' rights. The Pennsylvania Intergovernmental Cooperation Authority Act for Cities of the First Class (the "PICA Act") prevents the City from filing a petition for relief under Chapter 9 of the Federal Bankruptcy Code ("Chapter 9") as long as the Pennsylvania Intergovernmental Cooperation Authority has outstanding any bonds issued pursuant to the PICA Act ("PICA Bonds"), and if no such bonds were outstanding, requires approval in writing by the Governor of the Commonwealth for a filing under Chapter 9 by the City. As of the close of business on July 1, 2013, the principal amount of PICA Bonds outstanding was $409,280,000. See APPENDIX IV – "GOVERNMENT AND FINANCIAL INFORMATION OF THE CITY OF PHILADELPHIA – Summary Financial Information - Pennsylvania Intergovernmental Cooperation Authority."

The filing of a petition under Chapter 9 operates as an automatic stay of the commencement or continuation of any judicial or other proceeding against the debtor or its property. However, a petition filed under Chapter 9 does not operate as a stay of the application of pledged special revenues to the payment of indebtedness secured by such revenues. Special revenues include receipts derived from the ownership or

operation of systems that are used to provide utility services and the proceeds from borrowing to finance such systems. The Federal Bankruptcy Code further provides that special revenues acquired by the debtor after the commencement of a Chapter 9 case shall remain subject to any lien resulting from any security agreement entered into by the debtor before the commencement of the case. However, the lien on special revenues derived from a system will be subject to the payment of the necessary operating expenses of that system. Therefore, Project Revenues acquired by the City after the filing of a Chapter 9 petition will remain subject to the lien of the General Ordinance in favor of the Bondholders, but will be subject to the payment of the Water and Wastewater Systems' necessary operating expenses as determined by the City. The Federal Bankruptcy Code also provides that a transfer of property of a debtor to or for the benefit of a bondholder secured by pledged special revenues, on account of such bond, may not be avoided as a preferential transfer.

Unless the debtor consents or the plan proposed under Chapter 9 so provides, the bankruptcy court may not interfere with any of the property or revenues of a Chapter 9 debtor or with such debtor's use or enjoyment of any income-producing property. Accordingly, if the City decided to use Bond proceeds, the Project Revenues or the Water and Wastewater Funds pledged for the benefit of the Bondholders for other than Water Department purposes, a bankruptcy court would not have the power to interfere with that decision. Even if a bankruptcy court had such power, the court, in the exercise of its equitable powers, could refuse to require the City to use Bond proceeds, the Project Revenues and the Water and Wastewater Funds to pay Bondholders.

The debtor may file a plan for the adjustment of its debts which may include provisions modifying or altering the rights of creditors generally, or any class of them, secured or unsecured. The plan, when confirmed by the court, binds all creditors which have had notice or knowledge of the plan and discharges all claims against the debtor provided for in the plan. No plan may be confirmed unless certain conditions are met, among which are that the plan is in the best interests of creditors, is feasible and has been accepted by each class of claims impaired thereunder. Even if the plan is not so accepted, it may be confirmed if the court finds that the plan is fair and equitable with respect to each class of non-accepting creditors impaired thereunder and does not discriminate unfairly. Thus, under the above described "cram-down" provisions of the Federal Bankruptcy Code, a plan of adjustment could be imposed on the Bondholders that would give them less than their anticipated rate of interest on the Bonds or possibly even less than a full return of their principal, and/or extend the time for payment of principal of or interest on the Bonds.

The foregoing references to the Federal Bankruptcy Code should not be construed as implying that the City expects to resort to the provisions of such statute or that, if it did, any proposed restructuring would include a dilution of the sources of payment of and security for the Bonds.

THE WATER DEPARTMENT

General

The Water Department was established by the City pursuant to the Charter with the power and duty to operate, maintain, repair and improve the Water and Wastewater Systems. The Charter requires the Water Department to fix and regulate rates and charges for supplying water and for wastewater treatment service in accordance with standards established by City Council. Such standards must enable the City to realize from rates and charges an amount at least equal to operating expenses and debt service requirements on any debt incurred or to be incurred for the Water and Wastewater Systems, and proportionate charges for all services performed for the Water Department by all officers, departments, boards or commissions of the City. See "HISTORICAL AND PROJECTED FINANCIAL INFORMATION – Compliance with Rate Covenants" below. The Charter also authorizes the Water Department, with the approval of City Council, to enter into contracts for supplying water service and sewer and sewage disposal service to users outside the limits of the City.

The operations of the Water Department are accounted for in the Water Fund, which is an enterprise fund of the City. The Water Fund is an accounting convention established pursuant to the Charter for the purpose of accounting for the assets, liabilities, revenues, expenses and Rate Covenant compliance on a legally enacted basis for the Water and Wastewater Systems. See APPENDIX I – "FINANCIAL STATEMENTS OF THE WATER FUND FOR FISCAL YEAR ENDED JUNE 30, 2012" attached hereto.

The references to Water and Wastewater Funds (previously defined) herein are to all funds required by the General Ordinance to be established and maintained with the Fiscal Agent, for so long as the Water and Wastewater Revenue Bonds are outstanding, for the purpose of segregating Bond proceeds and Project Revenues from other funds of the City not held exclusively for Water Department purposes.

Administration

The Water Department is managed by a Commissioner appointed by the Managing Director of the City with the approval of the Mayor. The Commissioner appoints deputies with the approval of the City's Managing Director; substantially all other employees of the Water Department are appointed under the provisions of the City's Civil Service Regulations.

The City's Department of Revenue performs all functions relating to meter reading, customer accounts and collections for the Water Department through the Water Revenue Bureau. The Department of Revenue and the Water Revenue Bureau are under the direction of the Director of Finance. The Director of Finance, as the chief financial, accounting and budget officer of the City, has overall responsibility for the fiscal administration of all City departments, including the Water Department. Audits of all City departments, including the Water Department, are performed annually by the Office of the City Controller. The Law Department of the City, headed by the City Solicitor, handles all legal matters affecting the Water Department.

The following are brief biographical descriptions of the Commissioner, his deputies and the senior management of the Water Department:

Howard M. Neukrug, P.E. was appointed Water Commissioner on February 3, 2011. Prior to that time, Mr. Neukrug's 32-year career with the Water Department included the positions of Deputy Commissioner of Environmental Services; Director, Office of Watersheds; and Director, Planning and Technical Services. He is a national leader for sustainable practices, infrastructure, water quality and quality management in the water industry and has served as an advisor to the United States Environmental Protection Agency, the State of Pennsylvania and the Delaware River Basin Commission. He is a Professional Engineer and a graduate in Civil and Urban Engineering from the University of Pennsylvania.

Mami Hara, AICP, ASLA, was appointed Deputy Commissioner/Chief of Staff of the Philadelphia Water Department in April, 2012. Previously, Ms. Hara was a leader of a national private practice in urban planning and urban design for 24 years. She specialized in large scale civic projects, green infrastructure and sustainability plans, and water corridor planning around the U.S. and abroad. She has been an instructor in planning and design at the University of Pennsylvania and Temple University and an advisor to the Urban Land Institute, the Sustainable Cities Design Academy, U.S. Green Building Council, The Conservation Fund and the Mayors' Institute on City Design. She is a certified planner, with a B.A. in Design of the Environment from the University of Pennsylvania and a Master in Landscape Architecture from Harvard University.

Joseph S. Clare, III was appointed Deputy Commissioner in August, 2004. Mr. Clare previously served as General Manager of Finance from 2003 to 2004, Administrative Services Director and Assistant General Manager of Finance and Administration from 1998 to 2003, and as Accounting Manager and Contracts Audit Supervisor for the Water Department from 1987 to 1998. Prior to his tenure with the Water Department, he served as a Deputy Commissioner in the Department of Public Property. Mr. Clare is a Certified Public Accountant and received B.S. and M.B.A. degrees in Accounting Control and Finance from Drexel University.

Debra A. McCarty was appointed Deputy Water Commissioner in April, 2004. She is principally responsible for managing the Water Department's Operations Division. She received a Bachelor of Engineering Sciences of Environmental Engineering from Johns Hopkins University in Baltimore in 1979. After serving in a private engineering firm for several years, she began her employment with the Water Department in 1982. Since her initial appointment, Ms. McCarty has held a number of increasingly responsible engineering and managerial positions, most recently holding the position of Chief of Wastewater, which included responsibility for the operation of the City's three large wastewater treatment plants. She has also served as plant manager of the Southwest Water Pollution Control Plant and Process Manager for the Northeast Water Pollution Control Plant.

David A. Katz was appointed Deputy Water Commissioner in June, 2001, managing the Water Department's Environmental Policy and Planning efforts. Previously, Mr. Katz had served as Divisional Deputy City Solicitor. He had been with the City's Law Department since 1987 and had served as the General Counsel to the Water Department since April, 1992. He holds a B.S. in Economics from the Wharton School, University of Pennsylvania and a J.D. from the Washington College of Law, American University. Prior to joining the Law Department, Mr. Katz served in a variety of public and private legal positions.

Christopher Crockett was appointed Deputy Water Commissioner in February, 2011 managing the Water Department's Planning and Environmental Services efforts. He previously served as head of the Water Department's Planning and Research Unit since 2007. He has held a number of increasingly responsible positions since joining the Water Department in 1995, primarily in research, planning, regulatory compliance, and laboratory services, and has become a nationally-known expert on many aspects of the water and stormwater industries. He holds a bachelor's degree in Civil Engineering, a Masters in Environmental Engineering, and a Doctorate in Environmental Engineering from Drexel University and is also Registered Professional Engineer in Pennsylvania.

Scott J. Schwarz was appointed as Divisional Deputy City Solicitor and General Counsel to the Philadelphia Water Department in March, 2013. He joined the City's Law Department in 2009 serving as a Senior Attorney in the Law Department's Regulatory Affairs Unit. Prior to that, he spent over 25 years working in the environmental law divisions of law firms in Philadelphia and Washington, D.C. and gained government experience working for the State of Alabama's Office of the Attorney General and the U.S. Environmental Protection Agency. Mr. Schwarz received a Bachelor of Science degree in biology from Bucknell University and a J.D. from George Washington University.

Gerald D. Leatherman was appointed Deputy Water Commissioner for Human Resources & Administration in April, 2013. Prior to this appointment, Mr. Leatherman held the position of Divisional Deputy City Solicitor and General Counsel to the Water Department since March, 2008. He joined the City's Law Department in 2003 serving as a Deputy City Solicitor in the Housing Code Enforcement and Neighborhood Transformation Divisions. Prior to that, Mr. Leatherman worked in the General Counsel's Office of the Philadelphia Housing Development Corporation and as a private practitioner. Mr. Leatherman received a Bachelor of Arts from the American University and a J.D. from Temple University Beasley School of Law.

Joanne Dahme was appointed General Manager of the Public Affairs Division in January, 2009. She holds a B.C.E. degree in Civil Engineering from Villanova University and an M.J. in Journalism and a Masters in Creative Writing, both from Temple University. Ms. Dahme joined the Water Department in 1980 and served as the Manager of the Public Affairs Division from 1994 to 1999. She later served as a Watersheds Programs Manager for the Water Department's Office of Watersheds until returning to assume her current position in Public Affairs. She currently serves on the board of the Delaware Estuary Program in addition to several regional watershed planning committees.

Stephen J. Furtek was appointed General Manager of Planning and Engineering (now Engineering and Construction) on March 1, 2005. Mr. Furtek is a registered Professional Engineer and holds a B.S. degree in Civil and Urban Engineering from the University of Pennsylvania. He has held a number of increasingly

responsible positions since joining the Water Department in 1982, including Supervisor of the Water and Sewer Design Section and Manager of the Design Branch.

Geoffrey L. Brock was appointed Water IT Director in May 2012. He is responsible for directing Information Sciences and Technology services for the Water Department. Prior to this position, Mr. Brock had been Director of the Bureau of Laboratory Services for 27 years. In addition to these responsibilities, Mr. Brock serves as Director of a federally funded Contamination Warning System Demonstration Pilot. This is a 4.5 year, $12,000,000 project developed to prevent, detect and respond to threats to the drinking water supply and serves as a model to water utilities across the United States. Mr. Brock holds a Bachelor of Science in Civil and Environmental Engineering from Cornell University.

Michelle L. Bethel was appointed Deputy Revenue Commissioner in charge of the Water Revenue Bureau in July, 2008. She holds a B.S. in Accounting with a Minor in Public Relations from Kutztown University and an M.B.A. in Human Resource Management from the University of Phoenix. Prior to her appointment as Deputy Revenue Commissioner, Ms. Bethel worked for the Commonwealth of Pennsylvania Department of Revenue in Harrisburg for 14 years. Ms. Bethel has extensive knowledge with customer service, collections, and compliance issues gained through working in increasingly responsible management positions. She also is a certified trainer.

Personnel

As of June 30, 2013, the Water Department employed approximately 1,927 permanent employees, of whom 1,456 are represented by District Council 33, and 303 by District Council 47, both of the American Federation of State, County and Municipal Employees. The balance (168) represents the Water Department's upper management, supervisory and senior engineering and administrative personnel who are not eligible for union membership. There are approximately 239 employees in the Water Revenue Bureau of the Revenue Department whose positions are funded by the Water Department. Union representation in the Water Revenue Bureau parallels that of the Water Department.

The City entered into collective bargaining agreements with District Councils 33 and 47, effective July 1, 2004, each of which expired on June 30, 2008. The City and each of District Council 33 and District Council 47 agreed upon contract extensions that expired on June 30, 2009. The parties have continued to operate under the expired contract terms. For more information, see APPENDIX IV – "GOVERNMENT AND FINANCIAL INFORMATION OF THE CITY OF PHILADELPHIA – EXPENDITURES OF THE CITY – Labor Agreements."

Relationship to the City

The Water Department was established by the City pursuant to the Charter as one of the City's ten operating departments. As such, the Water Department reports to the Office of the Managing Director. The Water Department relies on other City departments and agencies for support of its operations. Eight departments receive a direct appropriation ("interdepartmental direct obligations") from the Water Department's operating budget at the beginning of each fiscal year to fund the support services to be rendered to the Water Department in such fiscal year. The eight departments are: the Revenue Department (Water Revenue Bureau) for meter reading, billing and collection services; the Law Department for legal services; the Department of Public Property for the rental of office space, communications and parking; the Office of Fleet Management for vehicle acquisition, fuel, and maintenance; the Department of Technology for computer support services; the Procurement Department for services related to the acquisition of goods and services; the Finance Department for fringe benefits, indemnities and support services; and to the Sinking Fund Commission for the payment of debt service.

Approximately 17 City departments and agencies, including the Revenue Department and the Department of Public Property, provide additional services to the Water Department during the year for which they are paid at the close of each fiscal year ("interfund charges"). Total interfund charges from these

departments totaled $9,074,727 for Fiscal Year 2012, $7,754,262 for Fiscal Year 2011 and $9,498,869 for Fiscal Year 2010. Preliminary data for Fiscal Year 2013 is not yet available. These additional services include purchasing of services, supplies and equipment by the Procurement Department; certain communication services by the Public Property Department; street repairs by the Streets Department; disbursements and cash management by the Director of Finance; auditing services by the Office of the City Controller; testing and hiring services from the Personnel department and Labor Relations unit and other support services provided by the Managing Director's Office, Civil Service Commission, Department of Licenses & Inspections, and the Police Department. The Water Department also charges the aviation fund through a year-end interfund charge. For a more detailed discussion of the amounts paid by the City's General Fund and the City's Aviation Fund to the Water Department, see "RATES – Current Rate Structure" herein.

The total interdepartmental direct obligations incurred by the Water Department for non-Water Department services for Fiscal Year 2012 were $322,364,037, including $192,422,754 for debt service payments and $87,008,417 for employee fringe benefits. The interfund charges from other departments totaled $9,074,727 for Fiscal Year 2012. The total interdepartmental direct obligations incurred by the Water Department for non-Water Department services for Fiscal Year 2011 were $311,844,017, including $185,543,172 for debt service payments and $82,430,000 for employee fringe benefits. The interfund charges from other departments totaled $7,754,262 for Fiscal Year 2011. The total interdepartmental direct obligations incurred by the Water Department for non-Water Department services for Fiscal Year 2010 were $303,803,711, including $196,717,154 for debt service payments and $68,542,599 for employee fringe benefits. The interfund charges from other departments totaled $9,498,869 for Fiscal Year 2010. Preliminary data for Fiscal Year 2013 for total interfund charges is not yet available. The Engineering Report includes interdepartmental charges of $69,857,000 (excluding debt service of $201,897,000 and fringe benefits of $93,300,000) in Fiscal Year 2013 and $71,913,000 (excluding debt service of $205,149,000 and fringe benefits of $93,195,000) in Fiscal Year 2014. The Fiscal Year 2013 budget includes an estimate of interdepartmental charges of $54,841,328 (excluding debt service of $201,986,000 and fringe benefits of $99,198,000). The Fiscal Year 2014 budget includes an estimate of interdepartmental charges of $56,042,395 (excluding debt service of $205,355,553 and fringe benefits of $102,530,000).

The Water System

The Water System provides water to the City, which comprises a service area of approximately 134 square miles. In addition, the Water Department has contracted to provide up to 35 million gallons ("MG") per day ("MGD") of water to Bucks County Water and Sewer Authority pursuant to an agreement with that authority. Based on the 2012 U.S. Census Bureau estimate, the population served by the Water System was estimated to be 1,710,607, of which 1,547,607 individuals live in the City, 106,000 live in Bucks County and 57,000 live in Montgomery and Delaware Counties.

The current projections on which the Engineering Report is based assume that the total population in the present service area will stabilize at approximately the levels indicated above for the remainder of this decade. As of June 2013, the Water System served 477,460 active retail customer accounts using 3,172 miles of mains and provided fire protection using 25,321 fire hydrants. As of June 2013, approximately 54,751 water and/or wastewater accounts were in non-service status for a variety of reasons largely including non-payment.

The City obtains approximately 58% of its water from the Delaware River and the balance from the Schuylkill River. The City has been authorized by applicable regulatory authorities to withdraw up to 390 MGD from the Delaware River and up to 258 MGD from the Schuylkill River. The renewal of the Water Department's water allocation permits is currently being negotiated with regulatory agencies. The Pennsylvania Department of Environmental Protection ("PaDEP") has proposed reducing the Water Department's water allocations to levels that more closely reflect current actual usage. If the Water Department's allocation is reduced, existing and future wholesale water rates and costs of providing additional new water service to surrounding communities could be affected.

Water treatment is provided by the Samuel S. Baxter Plant on the Delaware River and by the Belmont and Queen Lane Plants on the Schuylkill River. The combined rated capacity of these plants under the Water Department's Partnership for Safe Water procedures is 546 MGD and their combined maximum capacity is 680 MGD. The storage capacity for treated and untreated water in the combined plant and distribution system totals 1,065.5 MG. In Fiscal Year 2012, the Water System distributed 87,779 MG of water at an average rate of 237.1 MGD. In Fiscal Year 2012, the maximum water production experienced by the Water System in one day was 317.4 MG and occurred on July 22, 2011.

The Wastewater System

The Wastewater System service area totals 364 square miles, of which 134 square miles are in the City and 230 square miles are in suburban areas. Service to suburban areas is provided under agreements with adjacent municipalities and municipal authorities, which generally require delivery of wastewater to the Wastewater System. Based on the 2012 U.S. Census Bureau estimate, the population served by the Wastewater System is estimated to be 2,309,607, of which 1,547,607 individuals live in the City and 762,000 live in the suburban counties of Bucks, Delaware and Montgomery. As of June 2013, the Wastewater System served 554,603 retail customer accounts, including 50,749 stormwater-only accounts which were created as a result of the Water Department's Stormwater Billing initiative, together with ten wholesale contracts with neighboring municipalities and authorities serving suburban customers.

The Wastewater System consists of three water pollution control plants ("WPCPs"), 21 pumping stations, approximately 3,722 miles of sewers, and a privately managed centralized biosolids handling facility. The Wastewater System includes 1,827 miles of combined sewers, 749 miles of sanitary sewers and 720 miles of stormwater conduit. The three WPCPs processed an average of 393 MGD of wastewater in calendar year 2012 and have a 522 MGD combined average daily design capacity. The Wastewater System is divided into three drainage districts, Northeast, Southeast and Southwest, respectively.

The Federal Water Pollution Control Act, as amended (the "Clean Water Act"), provides for the restoration and maintenance of the chemical, physical and biological integrity of the nation's waters. To that end, the Clean Water Act establishes the National Pollution Discharge Elimination System ("NPDES"), a permit system administered by the United States Environmental Protection Agency (the "EPA") in conjunction with the states. The EPA has delegated the NPDES program for the Commonwealth to the PaDEP. The Water Department is subject to the requirements of the Clean Water Act and the conditions set forth in the NPDES applicable to each of the WPCPs. In addition, the City is subject to regulation by the PaDEP, which exercises regulatory authority over municipal sewage treatment operations, and by the Delaware River Basin Commission ("DRBC"), which exercises regulatory authority over withdrawals from and discharges into the Delaware and Schuylkill Rivers.

Current NPDES permits for the Northeast, Southeast and Southwest WPCPs were issued and became effective on September 1, 2007 and expired on August 31, 2012. The facilities are operating under a continuation of the expired permits, as dictated by PaDEP policy, and the expired NPDES permits will remain in place during the development of the new permits. Permit renewal applications were submitted to PaDEP as required in February 2012. Negotiations to renew the permits are ongoing. See "APPENDIX II - "ENGINEERING REPORT" herein. These permits provide flexibility to treat additional flows resulting from efforts to control combined sewer overflows ("CSO"). PaDEP requires the Water Department to update its Combined Sewer Overflow Long Term Control Plan and Capital Improvement Program to provide for additional projects to reduce CSO frequency and volume. The Water Department and PaDEP approved the Long Term Control Plan on June 1, 2011. See "ENVIRONMENTAL COMPLIANCE – Combined Sewer Overflow Program" herein. The Clean Water Act requires that publicly owned treatment works such as the treatment portions of the Wastewater System achieve levels of secondary treatment as defined in the Clean Water Act, or, where applicable, more stringent levels of treatment necessary to meet water quality standards established pursuant to any Commonwealth or federal law or regulation. By an order of the DRBC issued in

1969, the City is required to achieve effluent limitations, which are more stringent requirements than those needed to achieve secondary treatment levels as defined in the Clean Water Act.

In 2012, the Water Department's three Water Pollution Control Plants were selected to receive Awards from the National Association of Clean Water Agencies ("NACWA"). NACWA's Peak Performance Awards Program recognizes member agency facilities for excellence in wastewater treatment as measured by their compliance with NPDES permits. The Northeast and Southeast WPCPs were recognized with Platinum Awards. Platinum Awards pay special tribute to member agency facilities that have received 5 or more consecutive Gold Awards, which recognize 100% compliance for the calendar year. The Northeast and Southeast WPCPs have achieved perfect permit compliance for 9 and 14 years, respectively. The Southwest Plant received a Gold Award for perfect compliance in 2011 and 2012. In February 2010, the Southwest Plant received a violation for one NPDES parameter, which qualified the plant for a Silver award. Historically high flows in February 2010 contributed to the exceeding of the limit for monthly mass loading of CBOD. The Southwest plant had recorded perfect compliance for the previous seven years.

While the three WPCPs have continued their high levels of performance, the costs of operating them have been contained to approximately 3% annual increases between Fiscal Years 2000 and 2013 despite wage and energy cost increases. Currently, as part of its strategy to reduce CSO frequency and volume, the Water Department is treating a greater quantity of collected stormwater in the combined sewers that at one time was discharged to tributaries, removing pollutants at little additional cost for treatment. Optimization in the dosage of treatment chemicals, electricity use, reduced staffing levels and improved maintenance management practices have all contributed to this cost containment.

The Wastewater System has effectively and significantly improved the water quality of the Delaware River, thereby fostering both public and private development of the riverfront for commercial, residential and recreational uses.

HISTORICAL AND PROJECTED FINANCIAL INFORMATION

Historical Comparative Statement of Revenues and Expenses (Legally Enacted Basis)

The comparative statement of revenues and expenses set forth below has been derived from the financial statements of the Water Fund of the City. The City Controller has examined and expressed opinions on the basic financial statements of the City of Philadelphia contained in the City's Comprehensive Annual Financial Report for Fiscal Years 2008, 2009, 2010, 2011 and 2012 and its basic financial statements for Fiscal Years 2011 and 2012. See also, "GOVERNMENT AND FINANCIAL INFORMATION OF THE CITY OF PHILADELPHIA – Summary Financial Information – Independent Audit and Opinion of the City Controller" in APPENDIX IV. The City Controller has not examined and expressed an opinion on the financial statements for the Water Fund contained in APPENDIX I to this Official Statement or on any other financial data contained in this Official Statement. Such financial statements for the Water Fund have been prepared by the Water Department and approved by the Director of Finance.

The City Controller has not participated in the preparation of this Official Statement nor in the preparation of the budget estimates and projections and cash flow statements and forecasts set forth in various tables contained in this Official Statement. The City Controller expresses no opinion with respect to any of the data contained in this Official Statement.

For purposes of rate setting, calculating Rate Covenant compliance and debt service coverage and budgeting, the Water Fund accounts are maintained on the modified accrual basis of accounting, also referred to as the "Legally Enacted Basis." Under this basis, revenues are recorded on a receipts basis, except revenues from other governments and interest, which are accrued as earned. A 100% reserve is provided for all doubtful non-governmental receivables. With respect to governmental receivables, a 100% reserve is provided when the City has reason to believe that no appropriation has been made by other governments to finance these

receivables. The Water Department does not account for payments for water and sewer service from its governmental contract customers as "revenues from other governments."

Expenditures are recognized and recorded as expenses at the time they are paid or encumbered, except expenditures for debt service and lease payments which are recorded when paid. A reserve is maintained for encumbrances at the close of the fiscal year intended to be sufficient to liquidate estimated obligations incurred in such fiscal year.

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Philadelphia Water Department
Historical Operating Results
(In Thousands)

	Fiscal Year Ending June 30,				
	2008	2009	2010	2011	2012
Operating Revenues:					
Sales to General Customers	$427,007	$424,824	$460,278	$488,406	$507,709
Service (Sales) to Other Municipalities	$28,681	$28,982	$37,357	$32,020	$35,160
Services to Other Philadelphia Agencies (Includes Fire Protection)	$24,334	$23,427	$24,881	$26,984	$28,824
Private Fire Connections	$1,604	$1,370	$1,593	$1,846	$2,097
Industrial Sewer Surcharge	$4,382	$4,484	$4,576	$5,481	$5,110
Other Operating Revenue	$20,886	$21,813	$25,822	$25,374	$23,912
Subtotals – Water	$195,420	$196,890	$217,127	$235,459	$251,577
Wastewater	$311,474	$308,010	$337,380	$344,653	$351,235
Total Operating Revenue	$506,894	$504,900	$554,507	$580,112	$602,812
Operating Expenses:					
Water	$143,935	$147,303	$143,639	$153,786	$161,287
Wastewater	$190,797	$195,261	$190,406	$203,856	$213,798
Total Operating Expenses	$334,732	$342,564	$334,045	$357,642	$375,085
Excess of Operating Revenues over Operating Expenses	$172,162	$162,336	$220,462	$222,470	$227,727
Non-Operating Revenues					
Interest on Investments	$84,955	$12,131	$3,474	$1,530	$1,332
Operating Grants	$464	$674	$2,631	$2,869	$3,192
Other Non-Operating Revenues	$5,493	$9,803	$6,137	$5,183	$5,954
Total Non-Operating Revenues	$90,912	$22,608	$12,242	$9,582	$10,478
Excess of Revenues over Expenses before Interest Expenses and Principal Payments on Bonded Indebtedness	$263,074	$184,944	$232,704	$232,052	$238,205
Interest Expenses:					
General Obligation Bonds	$0	$0	$0	$0	$0
Revenue Bonds	$82,433	$92,678	$96,770	$82,736	$82,550
Less: Interest Capitalized					
Bond Anticipation Notes					
Pennvest Loan	$53	$41	$29	$17	$5
Total Interest Expenses	$82,486	$92,719	$96,799	$82,753	$82,555
Excess of Revenues over Expenses Exclusive of Debt Principal Payments	$180,588	$92,225	$135,905	$149,299	$155,650
Add: Unencumbered Funds Available for Appropriation at Beginning of Fiscal Year	$0	$0	$0	$0	$0
Deduct: Debt Principal Payments on Bonded Indebtedness During Fiscal Year	$92,501	$91,534	$100,118	$102,790	$109,868
Net Unapplied Project Revenues	$88,087	$691	$35,787	$46,509	$45,782
Deduct: Funds Transferred to General Fund	$4,994	$4,185	$2,304	$0	$1,086
Deduct: Funds Transferred to Residual Fund	$75,930	$14,052	$18,920	$17,523	$17,303
Deduct: Funds Transferred to Capital Account	$16,926	$17,140	$17,265	$18,113	$18,867
Transfer (TO)/FROM The Rate Stabilization Fund	$9,763	$34,686	$2,702	($10,873)	($8,526)
Unencumbered Funds Available for Appropriation at end of Fiscal Year	$0	$0	$0	$0	$0
Debt Service Coverage Ratio:					
Revenue Bond Debt Service	1.57	1.20	1.20	1.20	1.20
Total Debt Service	1.42	1.09	1.09	1.09	1.09

Analysis of Comparative Statement of Revenues and Expenses

Fiscal Year 2008

Revenues. Total operating revenues increased $5,600,000 primarily due to a 4.2% water and sewer rate increase effective July 1, 2007. Total non-operating revenues increased $65,600,000 due to a transfer of funds from the Sinking Fund Reserve for the New River City Project.

Expenses. Total operating expenses increased $41,400,000 due primarily to a $14,500,000 increase in purchase of services, a $5,200,000 increase in payroll services, coupled with a $6,900,000 increase in the cost of employee benefits, a $2,000,000 increase in the cost of materials and supplies, a $2,100,000 increase in indemnities and taxes, and an increase of $10,700,000 in the net effect of the fund transfers described in the next paragraph.

In Fiscal Year 2008, a withdrawal of $9,800,000 was made from the Rate Stabilization Fund. Deposits of $16,900,000 to the Capital Account and $75,900,000 to the Residual Fund, including transfers to the Special Water Infrastructure Account related to the New River City Program Sinking Fund Reserve substitution transaction in the amount of $64,325,000, were made from the Water Fund Account.

Fiscal Year 2009

Revenues. Total operating revenues increased $12,100,000 primarily due to a 7.1% water and sewer rate increase effective November 1, 2008. Total non-operating revenues decreased $57,500,000. The one-time transfer of funds from the Sinking Fund Reserve in Fiscal Year 2008 was not repeated in Fiscal Year 2009.

Expenses. Total operating expenses increased $32,800,000 due primarily to a $2,100,000 increase in purchase of services, a $5,200,000 increase in the cost of employee benefits, a $1,300,000 increase in the cost of materials and supplies, a $9,300,000 increase in debt service and an increase of $14,900,000 in the net effect of the fund transfers described in the next paragraph.

In Fiscal Year 2009, a withdrawal of $34,700,000 was made from the Rate Stabilization Fund. Deposits of $17,100,000 to the Capital Account and $14,100,000 to the Residual Fund were made from the Water Fund Account.

Fiscal Year 2010

Revenues. Total operating revenues increased $22,400,000 primarily due to a 6.4% water and sewer rate increase effective July 1, 2009. Total non-operating revenues decreased $15,800,000 due to decreased interest on investments.

Expenses. Total operating expenses decreased $41,100,000 due primarily to a $14,000,000 decrease in employee related expenses, including fringe benefits and a decrease of $37,000,000 in the net effect of the fund transfers described in the next paragraph. These decreases were offset by a $12,700,000 increase in required debt service payments.

In Fiscal Year 2010, a withdrawal of $2,700,000 was made from the Rate Stabilization Fund. In Fiscal Year 2009, a withdrawal of $34,700,000 was made from the Rate Stabilization Fund, which represents a decrease of $32,000,000. Deposits of $17,300,000 to the Capital Account and $18,900,000 to the Residual Fund were made from the Water Fund Account.

Fiscal Year 2011

Revenues. Total operating revenues increased $25,600,000 primarily due to a 5.7% water and sewer rate increase effective July 1, 2010. Total non-operating revenues decreased $2,700,000 due to decreased interest on investments.

Expenses. Total operating expenses increased $23,600,000 due primarily to a $15,300,000 increase in payroll services, including employee benefits and an increase of $10,600,000 in the purchase of contracted services. These increases were offset by a $2,300,000 decrease in the purchase of materials and supplies.

In Fiscal Year 2011, a deposit of $10,900,000 was made to the Rate Stabilization Fund. Deposits of $18,100,000 million to the Capital Account and $17,500,000 to the Residual Fund were made from the Water Fund Account.

Fiscal Year 2012

Revenues. Total operating revenues increased $22,700,000 primarily due to a 5.7% water and sewer rate increase effective on July 1, 2011. Total non-operating revenues increased $900,000 due to an increase in miscellaneous revenues.

Expenses. Total operating expenses increased $17,400,000 due primarily to a $15,800,000 increase in the purchase of contracted services, material, and supplies combined with an increase of $2,600,000 in personal services, including fringe benefits. These increases were offset by a $2,300,000 decrease in contributions, indemnities and taxes.

In Fiscal Year 2012, a deposit of $8,526,000 was made to the Rate Stabilization Fund. Deposits of $18,867,000 to the Capital Account and $17,304,000 to the Residual Fund were made from the Water Fund Account.

Projected Fiscal Year 2013

The Water Department's Fiscal Year 2013 ended on June 30, 2013, and final numbers are not yet available. Third quarter budgetary projections indicate a final revenue level of approximately $662,416,474 (which includes $20,000,000 in liquidated obligations for prior years), due to a 5.7% water and sewer rate increase from the prior fiscal year, and a 5.8% increase effective on January 1, 2013. A final expense level of approximately $662,416,474 is projected due to a $10,800,000 increase in pension and fringe benefit costs and a $17,000,000 increase in contractual services from the prior fiscal year. A Rate Stabilization Fund withdrawal of $33,171,174 is also projected.

Fiscal Year 2014 Budget

The Charter requires City Council to adopt a balanced operating budget for the fiscal year on or before May 31 of each year. The Mayor's operating budget is developed from proposed budgets submitted by the various City departments, including the Water Department. The Water Department began preparation of its operating budget for Fiscal Year 2014 in September 2012, when all divisions were supplied with documentation to complete and return to the Finance Division reflecting their budgetary requests for the next fiscal year. The Water Department has developed and installed a computerized budgeting system to enable each division to prepare budget requests based on historical and current operating experiences. Divisional budget proposals setting forth estimated obligations for the ensuing fiscal year were submitted to the Finance Division in November 2012. Revenue estimates are prepared by the Water Revenue Bureau under the direction of the City's Finance Department and the Water Department. The Water Commissioner reviewed all divisional budget proposals and the Water Revenue Bureau's budget with the assistance of the Finance Division and submitted the Water Department's proposed budget to the City's Budget Bureau and the City's Managing Director in January 2013. The Mayor reviewed and approved the Water Department's 2014 Operating Budget and included it as part of his proposed budget to City Council, which was presented to City Council on March 14, 2013. City Council approved the Fiscal Year 2014 budget on June 20, 2013, and the Mayor signed the budget into law on June 25, 2013.

The operating budget reflected projected revenue (including prior year liquidations) and expense levels of $710,080,000, including a projected Rate Stabilization Fund withdrawal of $47,814,000. These projections included debt service of $205,355,553. The projections indicate the Water Department will be in compliance with all of its debt service coverage requirements. The Engineering Report projects a Rate Stabilization Fund withdrawal of $45,300,000 for Fiscal Year 2013 and a withdrawal of $16,995,000 for Fiscal

Year 2014 in order for the Water Department to comply with its targeted debt service coverage ratios of 1.21 and 1.22 for Fiscal Year 2013 and 2014, respectively. For Fiscal Year 2013 and beyond, the Water Department's targeted debt service coverage ratio exceeds the debt service coverage ratio requirement for revenue bonds imposed by the General Ordinance. The projections in the Engineering Report may vary from the Water Department's internal projections based on differences in the underlying methodologies used by Black & Veatch Corporation and the Water Department.

Compliance with Rate Covenants

In Fiscal Years 2008, 2009, 2010, 2011 and 2012 the Water Department met bond debt service coverage requirements with a revenue bond debt service coverage ratio of at least 1.20 each year, and a total debt service coverage ratio of at least 1.09 each year. Senior debt service coverage requirements for Fiscal Years 2008, 2009 and 2010 resulted in transfers of amounts from the Rate Stabilization Fund to the Revenue Fund of $9,763,000, $34,686,000 and $2,702,000, respectively. Net revenues after operating expenses exceeded the amounts necessary to manage senior debt service coverage requirements in Fiscal Years 2011 and 2012 resulting in deposits to the Rate Stabilization Fund totaling $10,873,000 and $8,526,000, respectively. Preliminary data for Fiscal Year 2013 indicates that the Water Department will meet bond debt service coverage requirements with a revenue bond debt service coverage ratio of at least 1.20, and a total debt service coverage ratio of at least 1.08. The preliminary results indicate that a withdrawal in an aggregate amount of $33,171,174 will be made from the Rate Stabilization Fund.

The General Ordinance mandates a debt service coverage ratio of at least 1.20 for revenue bond debt service and at least 1.00 for total debt service. All Water Fund expenditures are included in the debt service coverage formula under the General Ordinance. Historically, the Water Department has used the Rate Stabilization Fund to manage debt service coverage to 1.20 each year, with any revenue which would raise debt service coverage over 1.20 deposited into the Rate Stabilization Fund. The Water Department's current financial plan calls for gradually increasing debt service coverage ratios as noted in the projected revenue and expense table.

For a summary of revenues, expenses and debt service coverage ratios for Fiscal Years 2008 through 2012, see "HISTORICAL COMPARATIVE STATEMENT OF REVENUES AND EXPENSES (LEGALLY ENACTED BASIS) – Analysis of Comparative Statement of Revenues and Expenses" herein. For a discussion of the Rate Covenant contained in the General Ordinance, see "SECURITY FOR THE BONDS – Rate Covenant" herein.

Compliance with Insurance Covenants

The Water Department has also met the additional rate covenants contained in its insurance agreements with AGM described herein under "SECURITY FOR THE BONDS – Insurance Covenants" for each of the Fiscal Years such covenants have been in effect. Please refer to the tables below for an illustration of historical and projected continued compliance.

Philadelphia Water Department
Historical Operating Results
(In Thousands)

	Fiscal Year Ending June 30,				
	2008	**2009**	**2010**	**2011**	**2012**
Excess of Revenues over Expenses before Interest Expenses and Principal Payments on Bonded Indebtedness	$263,074	$184,944	$232,704	$232,052	$238,205
Transfer (TO)/FROM the Rate Stabilization Fund	$9,763	$34,686	$2,702	($10,873)	($8,526)
Net Revenues including Rate Stabilization Fund	$272,837	$219,630	$235,406	$221,179	$229,679
Net Revenues excluding Rate Stabilization Fund	$263,074	$184,944	$232,704	$221,179	$229,679
Revenue Bond Debt Service	$173,759	$183,026	$195,690	$184,316	$191,400
Ratio (minimum 90%)	151%	101%	119%	120%	120%

Note: For Fiscal periods where there was a Rate Stabilization Fund deposit, this amount was excluded from net revenues for calculation of compliance with the 90% test.

Projected Revenues, Expenses and Debt Service

Black & Veatch Corporation has been retained by the Water Department to provide an engineering assessment of the current condition, use and maintenance of the Water and Wastewater Systems.

The following table, prepared by Black & Veatch Corporation, presents a statement of estimated actual and projected revenues and revenue requirements for Water and Wastewater Systems operations for the Fiscal Years Ending June 30, 2013 through June 30, 2019, consistent with the requirements of the General Ordinance.

See APPENDIX II – "ENGINEERING REPORT" herein for the full text of the Engineering Report prepared by Black & Veatch Corporation, dated June 28, 2013. The Engineering Report should be read in its entirety. As stated in the Engineering Report, actual results may differ materially from those projected, as influenced by the conditions, events, and circumstances that actually occur that are unknown at this time and/or which are beyond the control of Black & Veatch Corporation.

PROJECTED REVENUE AND REVENUE REQUIREMENTS
(in thousands of dollars)

	Description			2013	2014	2015	2016	2017	2018	2019
	OPERATING REVENUE									
1	Water Service - Existing Rates			232,147	231,791	230,247	226,934	225,217	223,493	217,338
2	Wastewater Service - Existing Rates			332,529	330,971	329,416	329,690	328,280	326,867	325,449
3	Total Service Revenue - Existing Rates			564,676	562,762	559,663	556,624	553,497	550,360	542,787
	Additional Service Revenue Required									
	Year	Percent Increase	Months Effective							
4	FY 2013	4.48%	6	9,512	25,212	25,073	24,937	24,797	24,656	24,317
5	FY 2014	4.48%	12		26,341	26,196	26,054	25,908	25,761	25,406
6	FY 2015	4.48%	12			27,370	27,221	27,068	26,915	26,544
7	FY 2016	5.75%	12				36,503	36,298	36,092	35,596
8	FY 2017	5.75%	12					38,385	38,168	37,642
9	FY 2018	5.75%	12						40,362	39,807
10	FY 2019	4.50%	12							32,944
11	Total Additional Service Revenue Required			9,512	51,553	78,639	114,715	152,456	191,954	222,256
12	Total Water & Wastewater Service Revenue			574,188	614,315	638,302	671,339	705,953	742,314	765,043
13	Transfer From/(To) Rate Stabilization Fund			45,300	16,995	8,540	15,485	(4,025)	(6,585)	(43,595)
	Other Income (a)									
14	Other Operating Revenue			19,139	19,705	19,659	19,595	19,548	19,503	19,404
15	Construction Fund Interest Income			833	1,134	1,366	1,390	1,569	1,565	1,517
16	Debt Reserve Account Interest Income			0	0	0	0	0	0	0
17	Operating Fund Interest Income			458	463	471	488	491	504	492
18	Rate Stabilization Interest Income			717	561	497	437	408	435	560
19	Total Revenues			640,635	653,173	668,835	708,734	723,944	757,736	743,421
	OPERATING EXPENSES									
20	Water & Wastewater Operations			326,475	330,975	333,944	345,832	357,677	370,015	382,872
21	Direct Interdepartmental Charges			69,857	71,913	71,371	73,434	75,237	77,087	78,983
22	Total Operating Expenses			396,332	402,888	405,315	419,266	432,914	447,102	461,855
23	**NET REVENUES AFTER OPERATIONS**			244,303	250,285	263,520	289,468	291,030	310,634	281,566
	DEBT SERVICE									
	Senior Debt Service									
	Revenue Bonds									
24	Outstanding Bonds			191,029	182,189	179,642	189,118	166,810	168,157	118,468
25	Pennvest Parity Bonds			9,175	11,943	12,320	12,320	12,320	12,904	13,112
26	Projected Future Bonds (b)			1,693	11,017	22,275	32,000	53,689	65,470	90,122
27	Total Senior Debt Service			201,897	205,149	214,237	233,438	232,819	246,531	221,702
28	**TOTAL SENIOR DEBT SERVICE COVERAGE (L23/L27)**			1.21x	1.22x	1.23x	1.24x	1.25x	1.26x	1.27x
	Subordinate Debt Service									
29	Outstanding General Obligation Bonds			0	0	0	0	0	0	0
30	Pennvest Subordinate Bonds			0	0	0	0	0	0	0
31	Total Subordinate Debt Service			0	0	0	0	0	0	0
32	Total Debt Service on Bonds			201,897	205,149	214,237	233,438	232,819	246,531	221,702
33	**CAPITAL ACCOUNT DEPOSIT**			19,380	19,864	20,361	20,870	21,392	21,927	22,475
34	**TOTAL COVERAGE (L23/(L32+L33))**			1.10x	1.11x	1.12x	1.13x	1.14x	1.15x	1.15x
	RESIDUAL FUND									
35	Beginning of Year Balance			44,707	1,015	6,787	15,209	15,368	15,687	15,863
36	Interest Income (c)			282	0	0	0	0	0	0
	Plus:									
37	End of Year Revenue Fund Balance			23,026	25,272	28,922	35,160	36,819	42,176	37,389
38	Deposit for Transfer to City General Fund (d)			1,320	1,390	1,459	1,492	1,518	1,526	1,526
	Less:									
39	Transfer to Construction Fund			0	19,500	20,500	35,000	36,500	42,000	37,900
40	Transfer to City's General Fund			1,320	1,390	1,459	1,492	1,518	1,526	1,526
41	Transfer to Debt Reserve Account			67,000	0	0	0	0	0	0
42	End of Year Balance			1,015	6,787	15,209	15,368	15,687	15,863	15,353
	RATE STABILIZATION FUND									
43	Beginning of Year Balance			166,014	120,714	103,719	95,179	79,694	83,719	90,304
44	Deposit From/(To) Revenue Fund			(45,300)	(16,995)	(8,540)	(15,485)	4,025	6,585	43,595
45	End of Year Balance			120,714	103,719	95,179	79,694	83,719	90,304	133,899

(a) Includes other operating and nonoperating income, including interest earnings on funds and accounts transferable to the Revenue Fund.

(b) Includes debt service on the Series 2013A Bonds.

(c) Includes interest earnings on Debt Reserve Account substitution funds deposited in the Special Water Infrastructure Account. See "CAPITAL IMPROVEMENT PROGRAM – New River City Program" herein.

(d) Reflects the transfer of interest earnings from the Debt Reserve Account to the Residual Fund in the amounts shown in Line 38 to satisfy the requirements for the transfer of funds to the City's General Fund.

The City has covenanted in the General Ordinance that it has authorized the imposition of rates and charges by the Water Department sufficient to comply with the Rate Covenant and that it will not repeal or materially adversely dilute or impair such authorization. See APPENDIX IV – "GOVERNMENT AND FINANCIAL INFORMATION OF THE CITY OF PHILADELPHIA."

The Philadelphia Code requires the Water Department to give written notice to City Council at least 30 days in advance of the filing of notice of any proposed change in water or sewer rates or charges and to submit with such written notice financial, engineering and other data upon which the proposed changes are based. After the filing of the proposed regulations providing for changes in rates or charges with the City's Department of Records, the Department of Records is required to give public notice that the regulations have been filed and that any person affected by the proposed regulations may request a public hearing before the Water Department and the City Solicitor. Revised rates and charges become effective ten days after filing of a decision by the Water Commissioner at the conclusion of hearings or at any time thereafter, at the Commissioner's discretion.

In August 1992, the Water Department adopted Water Regulation 74 and Sewer Regulation 17 (currently codified in Philadelphia Water Department Regulations §§ 301.1 through 301.9), governing the process for setting water, sewer and stormwater management rates and charges. These regulations provide for appointment of a Hearing Officer, enumeration of the duties of the Hearing Officer, provision of a time frame for various elements of the rate change process, establishment of rules and guidelines for public hearings on proposed rate changes and advertisement thereof, compilation of a hearing record, the Hearing Officer's report and the Water Commissioner's determination regarding rates (the "Rate Determination"). See "RATES – Proposed Revision to the Water Department's Rate Process" for a discussion regarding the proposed Councilmanic change in the water rate making process.

Swap Agreement

On December 5, 2002, the City entered into an ISDA Master Agreement, Schedule and a Confirmation (collectively, the "Swap Agreement") with Citigroup Financial Products Inc., as successor to Salomon Brothers Holding Company, Inc. (the "Swap Provider"), in association with the Series 2005B Bonds. The Confirmation under the Swap Agreement evidences a swaption with an initial notional amount of $86,105,000 and a termination date of August 1, 2018 (the "Swaption"). The City initially received a rate equal to the rate on the related Series 2005B Bonds and paid a fixed rate of 4.53% and the Swap Provider obtained the right to change the floating rate leg payable by the Swap Provider to 68.5% of one-month LIBOR in the event the average rate on the Series 2005B Bonds as a percentage of the average of the one-month LIBOR has exceeded 68.5% of one-month LIBOR for a period of more than 180 days. The City received an upfront payment of $4,000,000 for entering into the Swaption. On May 4, 2005, the Swap Provider exercised its option under the Swaption to convert the floating rate leg of the Swaption to 68.5% of 1-month LIBOR. As of July 31, 2013, the notional amount under the Swaption is $81,995,000 and the fair value of the Swaption, from the City's perspective inclusive of all net accrued payments, is negative $8,643,540. The Series 2005B Bonds associated with the Swaption represent approximately 4.3% of the Water Department's outstanding debt.

Under certain conditions, the Swap Agreement may be terminated prior to its stated termination date in which case the City may be obligated to make a substantial payment to, or may be entitled to receive a substantial payment from, the Swap Provider. There can be no assurance that the Swap Provider will pay or perform its obligations under the Swap Agreement in accordance with the terms thereof, or that the Swap Provider will be able to pay any termination payment which it may be required to pay upon the occurrence of certain events of default or termination events under the Swap Agreement.

The Swap Agreement is considered a Qualified Swap under the General Ordinance. The City's regularly scheduled payments under the Swap Agreement are secured on a parity basis with the Water and Wastewater Revenue Bonds by a lien on and a security interest in all Project Revenues for the benefit of the Swap Provider, as the Swap Provider. All other obligations of the City under the Swap Agreement, including

payments due upon the early termination of the Swap Agreement, are secured by a lien on and security interest on all Project Revenues subordinate to the lien described in the preceding sentence.

RATES

Current Rate Structure

General service water rates for customers of the Water Department consist of a service charge related to the size of the meter, plus a schedule of quantity charges for all water use. Sewer rates for general service customers are similar in form. Stormwater charges are based on a customer's property lot size and its relative imperviousness characteristics. For residential customers there is a universal stormwater charge based the average characteristics for all of these customers. Non-residential customers' charges are based on the individual customer lot characteristics. For more information about stormwater rates see, "Changes in Rates and Charges for Stormwater Management Services," later in the "RATES" section. The Water Department estimates that a typical customer has a 5/8 inch meter and uses 7,200 cubic feet of water per year, which, based on the rate schedule effective through the end of Fiscal Year 2013, results in an annual charge of $330.00 for water service, $253.68 for wastewater service and $145.20 for stormwater service, for a total of $728.88 per year. After the rate increase effective on July 1, 2013, these typical annual charges amount to $344.52 for water service, $264.96 for wastewater service and $161.40 for stormwater service, for a total of $770.88 per year.

The Water Department completed the process of implementing an increase in rates and charges for water, wastewater and stormwater service for Fiscal Years 2013 through 2015 on January 1, 2013, the effective date of the new rates. This process officially commenced on February 3, 2012, when the Water Department filed a notice of the rate increase with City Council. On March 6, 2012 a formal rate filing was submitted to the Department of Records (including engineering, financial and rate data in support of the requested rate change). In accordance with the Water Department's regulations, a Hearing Officer and Public Advocate were appointed to participate in the rate process. In addition, numerous parties intervened representing residential, commercial and institutional customers. The rate process was bi-furcated into two phases, after a scheduling conference convened by the Hearing Officer. Phase I of the rate case concerned revenues, revenue requirements, cost allocation and rate design issues. Phase II concerned stormwater policy issues, credits, incentives and assistance programs offered to customers significantly impacted under the new parcel based program for stormwater cost allocation. As a part of the rate process, public input hearings were convened in neighborhoods throughout the City during the period July 9 through 31, 2012. Technical hearings were held on August 7 and 8, 2012. Phase II hearings were held on October 24 and 25, 2012.

During the course of preparation for hearings in Phase I, the parties determined that most issues in dispute could be resolved and a Joint Petition for Settlement was prepared and submitted for the approval of the Hearing Officer and Water Commissioner. The proposed settlement is based upon a three-year rate period (Fiscal Years 2013 through 2015) as opposed to the four-year period originally proposed. The settlement also proposes a reduction in the Fiscal Years 2013 through 2015 additional revenue requirements from $174,000,000 to $140,000,000. The Phase I settlement was approved by the Hearing Officer on October 14, 2012 and by the Water Commissioner in his decision of December 7, 2012, and authorizes an increase in revenues by 4.48% on an average annual basis for the three-year period from Fiscal Year 2013 through Fiscal Year 2015, as compared to the originally proposed 6.50% average annual increase over a four year period from Fiscal Year 2013 through Fiscal Year 2016. Any additional revenues necessary for Fiscal Year 2016 will be the subject of a future rate increase. The settlement also provides for mediation of certain issues related to customer service, billing dispute procedures and collection functions which will take place before the next rate case.

The Hearing Officer approved the Joint Petition for Settlement (Phase II) in his report dated December 15, 2012, which was approved by the Water Commissioner in his decision dated December 20, 2012. The Water Commissioner's Decision and implementing regulations were filed with the Department of

Records on December 20, 2012, and no rate challenges or requests for reconsideration have been received. The new rates became effective on January 1, 2013.

By way of background, the legality of the Water Commissioner's 2008 Rate Determination had been challenged in a civil action that commenced on December 17, 2009 upon the filing of a Complaint in Equity (the "Complaint") with the Court of Common Pleas. The Complaint contained seven counts that purported to state claims seeking declaratory relief under the Declaratory Judgments Act, 42 Pa. C.S. 7531, et seq., challenging the legality of portions of the Rate Determination and related regulations (Sections 300, et seq.) issued by the Water Commissioner, effective November 1, 2009 (the "Rate Determination Regulations"), to the extent that the Rate Determination Regulations established three successive increases in water and sewer rates implemented during the period including Fiscal Years 2010 through 2012.

Concurrent with the rate case settlement in 2012, the Water Department negotiated the withdrawal of the Complaint challenging the Water Commissioner's 2008 Rate Determination. As a result of these negotiations, the Water Department has entered into an agreement pursuant to which it will perform a limited audit of certain data, practices and procedures. The agreement became effective simultaneously with the implementation of the 2012 Rate Determination.

In addition to charges for general service customers, which are based on metered water consumption, the Water Department charges the City for water and wastewater service provided to City properties and the cost of standard pressure public fire protection. Private protection also is billed at a flat rate varying with the size of the connection. The City is the largest customer of the Water Department. For Fiscal Year 2012, the City paid $26,809,515 from its General Fund for water, sewer, stormwater and fire connection charges and other services provided by the Water Department, with an additional $2,794,544 paid by the Division of Aviation. For Fiscal Year 2011, the City's General Fund paid $25,888,232 for Water Department services, with an additional $1,095,694 paid by the Division of Aviation. Preliminary Fiscal Year 2013 data indicates an estimated amount due from the City of $27,468,014, with an additional $2,875,586 due from the Division of Aviation. The Fiscal Year 2014 budget includes an estimate of $28,930,000 for charges to the City's General Fund and an additional $3,042,000 for charges to the City's Aviation Fund. Projections in the Engineering Report include $27,828,000 in charges for Fiscal Year 2013 and $29,305,000 in charges for Fiscal Year 2014 from the City's General Fund and Division of Aviation combined. City payments to the Water Fund are made as of the close of each Fiscal Year. See APPENDIX IV – "GOVERNMENT AND FINANCIAL INFORMATION OF THE CITY OF PHILADELPHIA." The ten largest water customers for Fiscal Year 2012 are set forth below.

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Top 10 Water Customers
Fiscal Year Ending June 30, 2012

	Customer	Billing ($)	% Total Billings	Consumption (ccf)	Total Consumption
1	City of Philadelphia	$30,108,137.00	5.38%	4,524,125	6.05%
2	Philadelphia Housing Authority	11,729,572.58	2.10%	1,778,939	2.38%
3	School District of Philadelphia	6,248,067.14	1.12%	567,122	0.76%
4	Veolia Energy Philadelphia	4,207,916.84	0.75%	986,720	1.32%
5	University of Pennsylvania	3,786,194.26	0.68%	702,931	0.94%
6	Federal Government	3,522,906.22	0.63%	425,721	0.57%
7	Temple University	2,740,399.61	0.49%	548,044	0.73%
8	SEPTA	2,244,001.75	0.40%	196,506	0.26%
9	Paperworks Industries Inc	2,182,623.63	0.39%	1,394,320	1.86%
10	University of Pennsylvania Health System	1,919,217.21	0.34%	405,451	0.54%
	Total	$68,689,036.24	12.28%	11,529,879	15.41%
	Total Overall Billing/Consumption	$559,688,584.42	100.00%	74,817,165	100.00%

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Historical Rates

The table below shows historical monthly water and sewer bills, based, in each case, on a typical general service residential customer with a 5/8 inch meter using 600 cubic feet or 4,488 gallons per month and the typical senior citizen with a 5/8 inch meter using 500 cubic feet or 3,740 gallons per month. Sewer charges include stormwater costs.

Philadelphia Water Department
Monthly Water and Sewer Rate Charges
July 1, 1993 to July 1, 2014

	Effective Date	Water	Sewer *	Total	% Increase
5/8" Meter Residential	07/01/93	$9.46	$22.33	$31.79	-
600 Cu. Ft. monthly	07/01/94	9.68	22.85	32.53	2.3
	07/01/95	9.98	23.55	33.53	3.1
	09/04/01	10.82	23.49	34.31	2.3
	07/01/02	12.23	23.11	35.34	3.0
	07/01/03	13.40	22.17	35.57	0.7
	02/01/05	15.68	24.36	40.04	12.6
	08/01/05	16.07	24.72	40.79	1.9
	07/01/06	17.29	26.24	43.53	6.7
	07/01/07	18.18	27.22	45.40	4.3
	11/01/08	19.84	28.58	48.42	6.7
	07/01/09	21.84	29.63	51.47	6.3
	07/01/10	23.85	30.47	54.32	5.5
	07/01/11	26.08	31.35	57.43	5.7
	01/01/13	27.50	33.24	60.74	5.8
	07/01/13	28.71	35.53	64.24	5.8
	07/01/14	29.89	37.54	67.43	5.0
5/8" Meter Residential	07/01/93	$6.23	$15.87	$22.10	-
500 Cu. Ft. monthly	07/01/94	6.37	16.23	22.60	2.3
Senior Citizen	07/01/95	6.57	16.73	23.30	3.1
(25% Discount)	09/04/01	7.11	16.67	23.78	2.1
	07/01/02	8.04	16.31	24.35	2.4
	07/01/03	8.81	15.55	24.36	0.0
	02/01/05	10.31	17.08	27.39	12.4
	08/01/05	10.56	17.34	27.91	1.9
	07/01/06	11.39	18.40	29.79	6.7
	07/01/07	12.00	19.09	31.09	4.4
	11/01/08	13.05	19.96	33.01	6.2
	07/01/09	14.35	20.68	35.03	6.1
	07/01/10	15.65	21.26	36.91	5.4
	07/01/11	17.10	21.86	38.96	5.6
	01/01/13	17.95	23.08	41.03	5.3
	07/01/13	18.75	24.68	43.43	5.8
	07/01/14	19.49	26.05	45.54	4.9

* Sewer charges include stormwater costs.

Rate Comparison

The Water Department's rates are competitive in the region and are nearly half the rates charged by public and private local water purveyors. A chart of comparative rates is set forth below:

Rate Comparisons With Local Water and Sewer Providers[1,2]

Providers	Monthly Water Bill	Monthly Sewer Bill
Aqua Pennsylvania	$59.90	N/A
Pennsylvania American Water	54.60	N/A
New Jersey American Water	37.26	N/A
North Penn Water Authority	23.25	N/A
North Wales Water Authority	20.16	N/A
Doylestown Township	29.02	$38.75
Lower Gywnedd Municipal Authority	N/A	29.23
Cherry Hill Township (Camden County)	37.26	34.92
City of Trenton, New Jersey	28.11	25.69
Water Department	**$27.50**	**$21.14**[3]

Source: Pennsylvania Public Utility Commission.
[1]Rates in effect as of January 1, 2013.
[2]Calculations based upon 5/8" meter assumed usage of 4,488 gallons per month (600 cubic feet).
[3]Water Department monthly sewer bill shown here does not reflect additional stormwater charge.

Proposed Revision to the Water Department's Rate Process

In April 2012, City Council introduced Ordinance #120177 and Resolution #120188 (each enacted and adopted in May 2012) requiring that a ballot referendum appear on the November 2012 ballot concerning ratemaking for water and sewer services. The referendum, which passed on November 6, 2012, amends the Charter to allow City Council to (a) establish an independent ratemaking body to be responsible for fixing and regulating rates and charges for water and sewer services; and (b) establish open and transparent processes and procedures for fixing and regulating said rates and charges. Prospective rates established by any new ratemaking agency would be subject to the Act and the covenants and requirements of the General Ordinance, including the Rate Covenant. Any revisions to the rate process are planned for future rate proceedings applicable to Fiscal Year 2016 and future years.

On April 4, 2013, City Council introduced Ordinance #130251 (the "Rate Ordinance"), which would establish a five member board (the "Board") to oversee the water, sewer and stormwater rate process. The Rate Ordinance would require the preparation of a Water Department Financial Stability Plan ("Financial Stability Plan"), which would forecast capital and operating costs and expenses and corresponding revenue requirements. The Financial Stability Plan would also be required to identify strengths and challenges to the Water Department's overall financial status, including the Water Fund's credit ratings, planned and actual debt service coverage, capital and operating reserves, condition of assets and utility service benchmarks and to compare the Water Department to similar agencies in peer cities in the United States. The Financial Stability Plan would be required to be submitted to City Council every four years, and updated prior to proposing revisions in rates and charges.

The Rate Ordinance would also establish additional rate standards to be utilized by the Board in the establishment of future rates as follows:

- Rates and charges shall be fixed to provide a minimum of 100% of funding for operating expenses, other City fund charges and debt service from current revenues with reasonable sums to cover unforeseeable or unusual expenses, reasonably anticipated cost increases or diminutions in expected revenue;

- Rates and charges shall be fixed to provide a minimum of 20% of capital expenditures from revenue sources excluding grants and bond proceeds. Commencing in Fiscal Year 2019 the minimum percentage shall be 25%;

- Rates and charges shall be fixed to maintain a minimum total balance of cash, working capital and rate stabilization funds equal to 120 days of Water Fund appropriations. This minimum balance specifically excludes restricted capital construction funds, bond proceeds and debt service reserves. In addition, such fund levels shall be set to meet or exceed all legal requirements and provide adequate assurance to ratepayers, investors and others that the existing quality of services and financial ratings will be maintained;

- Rates and charges may be fixed to stabilize customer costs over a reasonable number of years and include anticipated changes in operating and capital costs, including personnel cost changes and other cost inflation;

- In fixing rates and charges the Board shall recognize the importance of financial stability to customers, consider the Water Department's Financial Stability Plan and evaluate the impact of the Board-approved rates and charges on planned improvements, operating expenses, debt service coverage requirements, financial reserves, credit ratings and future rates and charges;

- Rates and charges shall be developed in accordance with sound utility rate making practices and consistent with the current industry standards for water, wastewater and stormwater rates. Industry standards include the current versions of: American Waterworks Association (AWWA) Principles of Rates, Fees and Charges Manual (M-1) and Water Environment Foundation's Wastewater Financing & Charges for Wastewater Systems; and

- Whenever the Water Department proposes changes to the rates and charges, the Board shall issue a written report incorporating the information used by the Board in reaching a decision to approve, modify or reject the proposed rates and charges. The Board shall approve the proposed rates and charges unless the Board finds that the Water Department has proposed rates and charges that are inequitable or have not been reasonably supported by the information provided to the Board by all participants in the rate setting process. If the Board has rejected or modified the proposed rates and charges, the Board's report shall identify the impacts of the approved rates and charges on planned improvements, operating expenses, debt service coverage requirements, reserve fund levels and future rates and charges.

A hearing with respect to the proposed Rate Ordinance was held on June 11, 2013. Further action on the Rate Ordinance is not expected until City Council returns from recess in September 2013. **There can be no assurance that the Rate Ordinance will be enacted by City Council or approved by the Mayor and, if enacted and approved, no assurance that the Rate Ordinance as enacted and approved will be in the same form as described above.**

Billing, Collections and Bookkeeping

Under the Charter, the Water Revenue Bureau is directly responsible for the billing, metering and collection of revenues for the Water Fund. The Water Revenue Bureau is part of the City's Revenue Department, which comes under the direction of the Finance Director. Since February 2003, oversight of the Water Revenue Bureau has been under the City's Revenue Commissioner, who reports directly to the Finance

Director. Over the years, the Water Department and the Water Revenue Bureau have developed a close level of cooperation, which is expected to continue regardless of the reporting structure.

In the early 1990s, the Water Revenue Bureau began using outside collection agencies to collect unpaid revenues. The collection agencies' responsibilities include the implementation of the Utility Services Tenant's Rights Act ("USTRA"), which enables the Water Revenue Bureau to collect payments directly from the tenants when landlords refuse to pay. Collection agencies generated $4,000,000 in Fiscal Year 2009, $2,100,000 in Fiscal Year 2010, $2,600,000 in Fiscal Year 2011 and $3,100,000 in Fiscal Year 2012. Collection agencies are also being utilized to collect on commercial delinquencies.

Current Water Department regulations provide for a strict moratorium on residential water service shut-offs from December 1 to March 31. A recently enacted ordinance further restricts the Water Department's ability to pursue customer payment and prohibits the termination of water service on holidays, Fridays and weekends throughout the year. The Water Department currently has a thorough process for customer notification prior to any shut-off activity that includes multiple mailed warnings to properties scheduled for termination of water service unless the customer makes full payment or enters into a payment agreement with the Water Revenue Bureau. The last action that the Water Department wishes to take is the shut-off of a water service.

During Fiscal Year 2010, 68,588 accounts were referred for shut-off. Of these, 35,520 were either shut off or were found off. The Water Department also restored service to approximately 23,613 accounts and collected almost $5,304,854 as part of its shut-off process. During Fiscal Year 2011, 74,338 accounts were referred for shut-off. Of these 36,553 were either shut off or were found off. The Water Department also restored service to approximately 27,426 accounts and collected $5,477,295 as part of its shut-off process. During Fiscal Year 2012, 77,754 accounts were referred for shut-off. Of these, 42,651 were either shut off or were found off. The Water Department also restored service to approximately 32,628 accounts and collected $6,068,655 as part of its shut-off process. During Fiscal Year 2013, 83,541 accounts were referred for shut-off. Of these, 45,006 were either shut off or were found off. The Water Department also restored service to approximately 37,695 accounts and collected $6,225,807 as part of its shut-off process.

The City is required to maintain accounts receivable on its books for at least fifteen years. After that time, a panel determines what receivable, if any, should be written off. An allowance for doubtful accounts is provided for in the Water Department's financial statements for any receivables for which collection is unlikely. The City utilizes many methods to enforce collections of delinquent receivables including the termination of service, the filing and enforcement of property liens, legal proceedings with municipal courts and the Commonwealth Court, and Sheriff's sales. Ultimately, Water Revenue Bureau has been able to collect approximately 98.0% of all amounts due to the Water Department. The Water Fund accounts receivable balance also contains payment due by all City agencies (which pay balances once per year), and revenues outstanding from the City's sister agencies such as the Philadelphia Housing Authority and the Redevelopment Authority.

In January 2008, the Water Department instituted a new billing system called Basis 2. This system enhances the Water Department's ability to track customer billing history and to automatically flag delinquent accounts. Moving forward, the Water Department and the Water Revenue Bureau plan to improve their integration of systems for early notification of billing delinquency with the Water Department's enforcement shut-off unit. They have already initiated a termination of service procedure for delinquent government-owned properties. The Water Revenue Bureau has a "water only" Sheriff's sale initiative whereby properties with high water delinquencies are identified for Sheriff's sales. The Water Department and Water Revenue Bureau are also collaborating to improve the collection of third party accounts receivable and have implemented procedures for follow-up notices, the payment of most permit fees in advance and denial of new permits to delinquent contractors.

Over the past few years, the Water Department has slowly expanded the acceptance of credit cards and other forms of electronic payment. On-line credit card payments have steadily increased and are now averaging $2,000,000 monthly for commercial and residential accounts combined. The Water Department also plans to expand the types of payments accepted during on-site collections.

Recently, based on the recommendation of an outside consultant, the City established a new Chief Collections Officer position responsible for coordinating and improving the City's collections efforts, including the collection of water, sewer, stormwater and nuisance abatement receivables of the Water Department.

Automatic Meter Reading

In September 1997, the Water Department and the Water Revenue Bureau began the implementation of the Automatic Meter Reading Program (the "AMR Program") involving the replacement of all residential water meters with new meters equipped with radio transmitter meter reading devices ("ERT"). The AMR Program is one of the largest and most significant municipal water automatic meter reading endeavors to be implemented in the country. Installation commenced on schedule on September 11, 1997. By June 30, 2012, more than 482,841 new meters had been installed. This program has greatly improved the accuracy of billing and has resulted in fewer billing disputes, which has had a positive effect on customer service and collections. In addition to the increased revenue that results from such billing program improvements, the AMR Program significantly reduced the costs of meter reading and related support. As of June 30, 2012, more than 99.5% of the Water Department's customers have AMR meters, drastically improving the Water Department's ability to initiate and enforce collection of delinquent accounts. The Water Department's AMR vendor ITRON has also begun the process of a wholesale battery replacement. The Water Department is also working on the purchase and installation of upgraded AMR devices for all commercial customers that have ERTs.

Wholesale Contracts

The Water Department has two wholesale contracts to sell water to the Bucks County Water and Sewer Authority (the "BCWSA") and to Aqua Pennsylvania ("AP"). Charges for metered water service to the BCWSA were set under a contract based on the recovery of operating costs and certain capital costs allocated to the BCWSA. In Fiscal Years 2009 and 2010, the Water Department received payments of $5,620,823 and $5,777,578, respectively, for water service rendered to the BCWSA. Payments for Fiscal Years 2011 and 2012 were $6,481,920 and $7,203,094, respectively. The contract for water service to the BCWSA expired on March 15, 2011, and a new six-year contract was signed May 18, 2011. For more information about this new contract see "Bucks County Water and Sewer Authority" below. Sales to AP generated total annual revenue of $3,797,974 in Fiscal 2012, $3,445,684 in Fiscal Year 2011, $3,200,800 in Fiscal Year 2010, and $3,064,858 in Fiscal Year 2009.

Contracts for wastewater treatment service with ten neighboring municipalities and authorities provide for the billing of charges based on operating costs attributable to the volume and strength of the wastewater received from each of these customers. Capital costs for wholesale wastewater customers are recovered by one of two different methods. Four contract customers are billed monthly for depreciation and return on investment on allocated wastewater conveyance and treatment facilities, while three contracting entities have made, and continue to make, capital contributions to the Water Department for their allocated share of the investment in facilities related to the provision of service to these customers. The remaining three wholesale customers previously made capital contributions, but have been converted to paying based on depreciation and return on investment for all future capital investments. Revenues for Fiscal Year 2009 were $29,950,733; Fiscal Year 2010 revenues were $34,069,431; Fiscal Year 2011 revenues were $31,951,036; and Fiscal Year 2012 revenues were $34,942,778. Total capital contributions from wholesale wastewater customers received by the Water Department as of June 30, 2012 are $116,406,862. Wholesale customer revenues for Fiscal Year 2012 are set forth on the following page.

Wholesale Customer Revenues
Fiscal Year Ending June 30, 2012

Wastewater	**O & M**	**Capital**	**Total**
Delcora	$8,440,530	N/A	$8,440,530
BCWSA	7,820,704	N/A	7,820,704
Cheltenham Township	4,278,091	N/A	4,278,091
Upper Darby Township	3,222,837	228,263	3,451,100
Lower Merion Township	2,643,277	161,388	2,804,665
Lower Southampton Township	2,200,955	N/A	2,200,955
Springfield Township-Erdenheim	1,685,156	N/A	1,685,156
Springfield Township-Wyndmoor	232,623	N/A	232,623
BCWSA (for Bensalem)*	1,566,606	231,338	1,797,944
Abington Township	1,433,486	N/A	1,433,486
Lower Moreland Township	797,524	N/A	797,524
Subtotal	$34,321,789	$620,989	$34,942,778

Water	**O & M**	**Capital**	**Total**
BCWSA	7,203,094	N/A	7,203,094
Aqua Pennsylvania	3,797,974	N/A	3,797,974
Subtotal	$11,001,067		$11,001,067
Total Wholesale Revenues	**$45,322,857**	**$620,989**	**$45,943,846**

*BCWSA maintains and operates the Bensalem Township Sewer System.

Contract with Aqua Pennsylvania. On June 29, 2000, the Water Department entered into a contract with the Philadelphia Suburban Water Company (which, as the result of a subsequent merger, is now Aqua Pennsylvania, Inc., referred to herein as "AP") under which the Water Department agreed to provide wholesale water service through March 1, 2026. This agreement provides for service through two interconnections – one in Tinicum Township, Delaware County and another in Cheltenham Township, Montgomery County. The Tinicum interconnection allows for an average daily draw of 3.705 MGD and maximum daily demand of 7.0 MGD, and became operational in November, 2001. The Cheltenham interconnection allows for an average daily draw of 2.0 MGD and a maximum daily demand of 2.5 MGD. This interconnection was activated in 2002.

The Water Department has also had several preliminary discussions with AP regarding the possibility of additional wholesale water sales at other interconnection points with their systems. In addition the Water Department and AP are discussing the transfer of approximately 170 Water Department customer accounts to AP and the sale of the associated water mains to AP in a very small section of Springfield Township. Given the modest revenue generated from these customers, the advanced age of the water mains, and the operational difficulties of working in another jurisdiction, the Water Department believes it would be advantageous to transfer these customers to AP.

Bucks County Water and Sewer Authority. On March 15, 2011, the 45-year wholesale water agreement between the Water Department and the Bucks County Water and Sewer Authority ("BCWSA") expired, and a new six-year contract with BCWSA was executed on May 18, 2011. The new contract institutes a 12% management fee and phases in a new rate methodology over the term of the contract. The new rate methodology is based on the cost of service on a system-wide basis and not just the cost of the portion of the water system that directly serves BCWSA. This is similar to the rate methodology used for the AP contract. The contract includes several opportunities for BCWSA to reduce its contractual capacity, primarily to align with the anticipated withdrawal of AP purchases for the Bensalem Township area. On July 1, 2012, BCWSA's contract capacity was reduced at its request by 4.0 MGD to reflect reduced sales for portions of Bucks County served by AP. The Water Department expects that BCWSA will substantially reduce or eliminate its wholesale water purchases from the Water Department over the next ten years. Projected sales

volumes in the Engineering Report reflect a 3.5 MGD reduction starting in Fiscal Year 2013, an additional 3.0 MGD reduction in Fiscal Year 2016 and the elimination of water sales to BCWSA in Fiscal Year 2019.

The Water Department and the BCWSA executed an amendment to their 1988 wastewater agreement on May 18, 2011, which resolved the BCWSA's previous challenges to the Water Department's rate methodology and required clarification of the use of the existing rate methodology in future rate studies as part of the new six-year water contract. On August 22, 2012 BCWSA filed a dispute letter with the Water Department regarding its billed wastewater strength at two of their Bensalem Township connections. They valued the dispute at approximately $28,000 for the current quarterly bill. The Water Department responded to BCWSA's request on September 12, 2012 with a plan for re-sampling each of the standardized connections as required by the contract over subsequent quarters as time and resources permit. Re-sampling of these connections is complete and a formal response has been sent to BCWSA advising them of the results.

Lower Southampton Township. The Water Department executed a new agreement with Lower Southampton Township in June 2010 that ended the Township's on-going capital contributions as of December 31, 2009 (including all accumulated charges for the PC-30 sewer) and implemented an increasing annual charge for depreciation and return on investment. The new agreement provided an initial payment of $863,111 and a restructuring of capital payments to the Water Department, as well as an increased management fee of 12% on the Township's future wastewater billings. Lower Southampton Township issued an objection letter dated May 13, 2013 to the Water Department questioning the total quarterly flow utilized in the preparation of the bill for the first quarter of 2013. Lower Southampton claims that its own meters maintained for quality control purposes indicated a flow that was approximately 23% less than the flow billed by the Water Department. Lower Southampton Township issued another objection letter dated July 29, 2013 to the Water Department questioning the total quarterly flow utilized in the preparation of the bill for the first quarter of 2013. Lower Southampton claims that its own meters maintained for quality control purposes indicated a flow that was approximately 27% less than the flow billed by the Water Department. Lower Southampton Township also questioned the Department's sampling data for suspended solids and biological oxygen demand, which are used in determining and billing the strength of the wastewater. The Water Department plans to review the billing and test the accuracy of the Water Department's meters and to meet with Lower Southampton Township to discuss and resolve the disputed flows.

Delaware County Regional Water Quality Control Authority. The Water Department had been serving the Delaware County Regional Water Quality Control Authority ("DELCORA") under a 30-year agreement to provide 50 MGD of wastewater treatment capacity at its Southwest Water Pollution Control Plant. In mid 2006, the Water Department and DELCORA extended their long-term wastewater agreement, which then expired on July 25, 2011. Subsequently, the Water Department and DELCORA executed a new two-year contract on July 25, 2011, which increased the management fee to 12%, maintained the contractual flow limits at current levels, and re-structured the exceedance charges for any exceedances in flows or pollutant loadings. DELCORA's 50 MGD contract capacity represents approximately 25% of the flow to the Water Department's Southwest Water Pollution Control Plant.

On April 1, 2013, the Water Department and DELCORA executed a new 15-year contract that maintains DELCORA's existing flow and loading limits and requires that DELCORA pay depreciation and return on investment on all new capital facilities serving it, including approximately 9.4% of the Water Department's LTCP expenditures. The LTCP payments are projected to grow to approximately $900,000 annually by the time the contract expires in 2028.

Fiscal Years 2009 and 2010 revenues were $7,661,288 and $8,789,736, respectively. Fiscal Years 2011 and 2012 revenues were $8,857,559 and $8,440,530, respectively.

Lower Moreland Township. Lower Moreland Township exceeded its contractual instantaneous flow limit and has clearly indicated its willingness to participate in the Water Department's capital project to eliminate effluent violations at the PC-30 location. A new contract incorporating Lower Moreland Township's

obligations in this project as well as increases in Lower Moreland Township's relatively small contractual flows was completed in 2007.

Springfield Township. Springfield Township, Montgomery County, has exceeded its contractual limits for the delivery of both biochemical oxygen demand and suspended solids, and has been notified of the Water Department's need to have a new agreement with the township. Discussions regarding a new agreement which will be retroactive to the current expiration date are underway and will require that Springfield pay depreciation and return on investment on all capital facilities serving the township, including its approximate proportional share of the Water Department's LTCP expenditures. The Water Department is also evaluating the current flow and loading parameters for this agreement and will likely modify the contractual limits for this contract once the analysis is completed.

Abington Township. Abington Township, Montgomery County, has been provided with a 6-month notice of the Water Department's intent to terminate the current agreement. Discussions regarding a new agreement which would be retroactive to the current expiration date are underway and will require that Abington pay depreciation and return on investment on all capital facilities serving it, including its approximate proportional share of the Water Department's LTCP expenditures. The Water Department is also evaluating the current flow and loading parameters for this agreement and will likely modify the contractual limits for this contract once the analysis is completed.

Cheltenham Township. In June 2010, Cheltenham Township and the Water Department entered into an agreement for a new five year term, which provides for a 12% management fee on Cheltenham's future wastewater billings. Discussions regarding an amendment are underway and will require that Cheltenham pay depreciation and return on investment on all new capital facilities serving the township, including its approximate proportional share of the Water Department's LTCP expenditures. The Water Department and Cheltenham Township have completed a preliminary evaluation of flow and loading parameters for this agreement and it is expected that the amendment will include a new contractual limit of 31.75 CFS. Expanded capacity for Cheltenham Township will also likely result in certain improvements to the Water Department's collection system which will be borne by the township.

Lower Merion Township. Lower Merion Township has requested that the Water Department modify the current agreement to permit an additional connection with approximately 242,000 GPD in an area known as the Righter's Ferry Road Planning Area. The Water Department has agreed to consider this request and is negotiating with Lower Merion over additional terms and conditions, including Lower Merion's agreement to pay for its proportional share of the long term control plan. Additional discussions are planned that will memorialize the agreement of the parties in an amendment to the contract.

Changes in Rates and Charges for Stormwater Management Services

The Water Department filed a notice of request for new rates for Fiscal Year 2012 through Fiscal Year 2016 with City Council on February 3, 2012. See "HISTORICAL AND PROJECTED FINANCIAL INFORMATION – Current Rate Structure" herein. New stormwater rates and charges became effective on January 1, 2013, and are being phased in over the four-year period from Fiscal Year 2011 through Fiscal Year 2014. The latest stormwater rate increase occurred on July 1, 2013.

The City's cost of stormwater management has been steadily and significantly increasing. As the City's stormwater management costs increase, it becomes more important to recover the costs of management on a basis that is the most fair and reasonable to all properties that place a demand on the sewer systems. Over a decade ago, the Water Department convened a Citizens Advisory Committee ("CAC") to recommend to the City a more equitable stormwater charge methodology. After a two year deliberation, CAC came to a consensus and recommended that the Water Department transition from a meter-based stormwater management charge to one that was based on a property or parcel's gross area and impervious area. At the time, the Water Department was unable to implement this recommendation due to technological limitations.

Today, the City has the information systems necessary to develop a more equitable program and the Water Department has designed a new parcel area based stormwater charge consistent with the principles recommended by CAC.

For many years, the Water Department has recovered the costs of operation and maintenance of its stormwater system components (pipes, storm drains, pump stations, treatment facilities, and billing) through a service charge related to customers' water meter size. This method was considered a reasonable means to approximate the contribution of stormwater runoff from a property. Properties with larger water meters usually also have large impervious area (land covered by asphalt, pavement and structures which generate runoff). Many other utilities use meter sizes or a combination of meters and measured volume to allocate the cost responsibility among customers for stormwater runoff and infiltration/inflow volume conveyed to the sewer system. Most municipalities do not finance stormwater operations through dedicated stormwater user fee revenues, and instead finance stormwater operations through their General Fund revenues.

Residential properties are currently charged for stormwater collection and treatment in the amount of $11.80 plus a billing and collection charge of $1.65 for a combined charge of $13.45 monthly. Such amounts reflect a rate increase that took effect July 1, 2013. This charge is currently based on the average gross and impervious area square footage of all residential parcels. Historically, this charge was included in the wastewater service charge, but has been provided as a separate line item on a customer's bill beginning in Fiscal Year 2011.

All non-residential properties are in the final phase of transitioning from a meter based charge to a charge based on the property's specific gross and impervious area. This transition, which began on July 1, 2010, will result in more equitable stormwater charges that closely match the cost of managing stormwater runoff from each property. Current calculations show that the majority of large meter customers will see a reduction or otherwise minor impact on the stormwater component of their bills. For those customers that will see noticeable increases in their stormwater fees, the Water Department is working to identify opportunities to reduce the stormwater runoff from the properties through the use of best management practices, and thus decrease their stormwater fees.

The Water Department also is assessing properties that do not presently have water or sewer accounts for stormwater management. These parcels generate stormwater runoff that is managed by the City and therefore should be reasonably charged for such service. Such previous non-customers include parking lots, utility right-of-ways and vacant land. Charges to these parcels began with the four-year phase-in plan that commenced in Fiscal Year 2011. Approximately 40,000 new parcels are billed for these charges.

The CAC also encouraged the City to provide a mechanism for customers to ease the burden of property based stormwater charges. The Water Department has included a stormwater credit process as part of the new stormwater rates. Customers who have the ability to decrease the amount of directly connected impervious area (hard surfaces that direct runoff to the City's sewer system) on their property may do so using any number of stormwater management practices (rain gardens, infiltration islands, porous asphalt and sidewalks, vegetated swales, green roofs) and may apply for applicable stormwater credits. The Water Department reviews the stormwater credit request, and based on the stormwater credit program regulations, re-evaluates stormwater charges for that property.

Since the July 2010 implementation of the new stormwater parcel based fee, a number of other programs have been instituted to address non-residential customer concerns, including:

- A new Citizens Advisory Committee has been formed to review the Water Department's regulations involving credits, incentives and other options to mitigate the high cost to a small group of impacted customers.

- The development of the Stormwater Management Incentives Program ("SMIP"), which provides fee credits and grants to customers who meet selective criteria to invest in the design and implementation of a stormwater management practice that meets the Water Department's Clean Water Act permit requirements. Successful completion of these stormwater management best practices will result in stormwater fee credits for the property owner. Eight applicants were awarded in Fiscal Year 2012, and sixteen applicants were awarded in Fiscal Year 2013.

- A stormwater Customer Assistance Program ("CAP") that limits the phase-in increase for non-residential customers who see more than both a 10% and $100 increase in their monthly bill was instituted on January 1, 2013. This program replaced the Water Department's temporary Stormwater Assistance Phase-In Program. Currently, 381 accounts are enrolled in this program.

- In June 2011, City Council amended the City Code to provide for the billing of parcel-based stormwater charges for properties that had previously obtained a discontinuance permit. This action allows the Water Department to bill previously exempted properties for stormwater services. Billings for these properties began in November 2011.

Proposed Revisions to Stormwater Rate Methodology

In April 2012, City Council also introduced Ordinance #120276 concerning standards for stormwater rates. This ordinance was to create a "base" rate and limit the amount that parcel based fees could be assessed. This Ordinance triggered the discussion of a more extensive assistance program for non-residential parcels adversely affected by the conversion to parcel based rates.

After several discussions with City Council, the Water Department was asked to develop an assistance program that would further reduce the burden of the Stormwater Management Service ("SWMS") charge on the most impacted customers, preferably with little or no negative effect on other customers. Pursuant to this directive, the Water Department developed an enhanced stormwater CAP program. Under this program, impacted non-residential parcels would achieve a significantly extended period of assistance (of over 30 years in the case of extremely impacted parcels) in transitioning fully to the parcel area based SWMS charge. The enhanced CAP approach nominally increases the monthly Residential SWMS charge in the Fiscal Years 2014-2016 period, when compared with that submitted in the proposed rate filing.

It should be noted that this enhanced CAP program framework has now been agreed to by City Council and many of the significantly impacted parcel owners. Sixteen of the seventeen members of City Council submitted a letter to the Hearing Officer outlining their support for the enhanced CAP program. Action on the proposed ordinance has been suspended. The enhanced CAP program was incorporated into the Water Department's Regulations on December 20, 2012 as a result of the Water Commissioner's Phase II Rate Decision.

CAPITAL IMPROVEMENT PROGRAM

The Charter requires the City Council to adopt annually, on or prior to May 31, a capital budget for the ensuing fiscal year and a capital program showing the capital expenditures planned for that year and each of the five ensuing fiscal years. See "HISTORICAL AND PROJECTED FINANCIAL INFORMATION – Analysis of Comparative Statement of Revenues and Expenses." The Capital Improvement Program of the Water Department for Fiscal Years 2014 through 2019 and the Water Department's 2014 capital budget are described below. Expenditures have been approved by City Council as part of the City's capital program and capital budget, except as noted below. Additionally, the City may change the elements of the Capital Improvement Program from time to time and may change the proposed financing schedule reflected in the Capital Improvement Program.

The Water Department's Operations, Planning and Environmental Services and Engineering and Construction Divisions are continuing to implement improvements to the Water Department's capital program planning process to better anticipate future needs for infrastructure maintenance and upgrades in an evolving regulatory environment. To that end, the Water Department is in its sixth year of the sewer assessment program, evaluating the Water Department's collector systems infrastructure. This project includes cleaning and video inspection of approximately 60 miles of the sewer system per year. This information is used to evaluate the current Collector System Capital Program and make recommendations for changes accordingly. The Water Department has also enhanced the capital planning process by developing and implementing a standardized planning approach for large capital projects throughout all of its units.

Another capital program initiative includes a second generation of the Water Department's capital program information system. The computerized system is browser based using state of the art computer technology to track and schedule the Water Department's Capital Program. This system links numerous Water Department programs and databases including the Geographic Information System, the Water Main Break database, the vender payment system, and the plant maintenance management system. As a result of the implementation of ERV (Engineering Records Viewer), the Water Department and selected managers from other departments can access, at their workstation, all record drawings, as-builts, and historic information pertaining to a specific section of the City, block, or project, electronically. The system was built for long-term use through open architecture design, expandability, and programming flexibility. The Water Department has expanded the preventive and predictive maintenance management system to all seven treatment plants, initiated new procedures to plan and track long-term capital projects within the treatment plants, and improved communication through reporting capabilities and tracking of projects among the Operations, Planning and Environmental Services and Engineering and Construction Divisions. Through these initiatives and capital planning tools, both the level and volatility of the Water Department's long-term capital expenditures can be managed more cost-effectively.

The following table sets forth major elements of the Water Department's adopted Capital Improvement Program for Fiscal Years 2014 through 2019.

Fiscal Years 2014-2019
Capital Improvement Program
(In Dollars)

Capital Budget Summary	2014	2014-2019
Collector System/CSO/Flood Relief	$106,860,000	$762,660,000
Conveyance System	36,085,000	312,385,000
Engineering, Administration & Material Support[(a)(b)]	32,208,000	209,968,000
Treatment Facilities	60,000,000	388,000,000
Totals	$235,153,000	$1,673,013,000

[(a)] Includes amounts expected to be used for the purchase of vehicles.
[(b)] Engineering and administration costs include an allowance for inflation.

Fiscal Year 2014 Capital Budget

The Charter requires City Council to adopt a balanced capital budget for each fiscal year on or before May 31 of the preceding fiscal year. The Water Department has developed and installed a computerized

budgeting system to enable each division to prepare budget requests based on historical and current experience. The Water Department began preparation of its capital budget for Fiscal Year 2014 in October 2012. The budget was approved by the City Planning Commission and the Mayor's office and was included in the City budget and five-year financial plan presented to City Council on March 14, 2013. City Council approved the Fiscal Year 2014 capital budget in June 2013.

Future Financings

Approximately 80% of the costs of the Capital Improvement Program are expected to be funded with the proceeds of debt to be incurred during Fiscal Years 2014 through 2019. The City expects most of such debt to be in the form of Water and Wastewater Revenue Bonds issued under the Act and the General Ordinance. Any additional grants or loans received by the Water Department from Pennvest or other agencies will reduce the amount of future Water and Wastewater Revenue Bonds to be issued.

The current financial plan anticipates the issuance of new money bonds, in addition to the Bonds, in several transactions as necessary to fund the approved Capital Improvement Program. The emphasis of the Capital Improvement Program is on the renewal and replacement of the water conveyance and sewage collection systems along with improvements to the water and wastewater treatment plants, as well as Combined Sewer Overflow (CSO) mitigation projects consistent with the Water Department's CSO consent order. As described in the Engineering Report, the Water Department anticipates additional borrowings of $250,000,000 in Fiscal Year 2015, $250,000,000 in Fiscal Year 2016, $300,000,000 in Fiscal Year 2017, $300,000,000 in Fiscal Year 2018 and $260,000,000 in Fiscal Year 2019. The anticipated bond issue in Fiscal Year 2015 is authorized under the Fourteenth Supplemental Ordinance. The remaining anticipated bond issues in Fiscal Years 2016 to 2018 have yet to be authorized by City Council. See "APPENDIX II - "ENGINEERING REPORT" herein.

The City is continually monitoring refunding opportunities for its outstanding debt and may undertake certain refundings depending on market conditions.

Pennvest Loans

On April 20, 2009, the Water Department was notified that three of its traditional water and sewer applications, totaling $184,893,000, were approved for funding by Pennvest through low interest loans of 1.193% during the construction period and for the first five years of amortization (interest only payments are due during the construction period, up to three years) and 2.107% for the remaining 15 years. In addition, its $30,000,000 green infrastructure application was approved for funding through a low interest loan on the same terms. Additional debt service for these loans has been included in the Water Department's Fiscal Year 2013 budget, the Water Department's five-year plan projections and the Engineering Report. These loans are being provided on an "interest only" basis during the construction period of up to three years, after which they are amortized on a 20-year basis at 1.193% for the first five years and 2.107% for the next 15 years. The Water Department has accepted all of the funding offered, and the City issued the 2009 Pennvest Bonds and the 2010 Pennvest Bond to secure such loans under the Twelfth Supplemental Ordinance and will be issuing future Water and Wastewater Revenue Bonds with respect to such funding. The Water Department has borrowed $146,431,109.70 through these Pennvest loans as of June 30, 2013, of which $139,014,118.93 remains outstanding.

New River City Program

Under the terms of the General Ordinance, as amended by the Debt Reserve Account Amendment, the City is permitted to replace up to approximately $131,000,000 of Water and Wastewater Bond proceeds in the Debt Reserve Account with one or more surety policies to be utilized to acquire or construct Water and Sewer infrastructure projects that are consistent with the original purposes of such bonds and to reimburse the Water Department for the costs related to such transactions. Any surety bond, insurance policy or letter of credit

provided by the City in lieu of required deposits within the Debt Reserve Account would have to meet the credit quality requirements of the General Ordinance. See "SECURITY FOR THE BONDS - Debt Reserve Account."

In accordance with the General Ordinance, a partial substitution in the amount of $67,000,000 was completed in late November 2007. AGM provided the Surety Policy, transaction costs were paid, and the balance of the funds ($64,325,000) was deposited initially into the Revenue Fund and then transferred to the Special Water Infrastructure Account of the Residual Fund, as required by the General Ordinance. There have been no subsequent surety policies deposited into the Debt Reserve Account. Due to Moody's downgrade of AGM, the Water Department recently deposited approximately $67,000,000 into the Debt Reserve Account. See "SECURITY FOR THE BONDS – Debt Reserve Account."

In connection with the New River City Program, the Water Department executed a program agreement with Philadelphia Authority for Industrial Development ("PAID") to provide program management and oversight for the program. To date, twelve projects, with costs totaling $83,697,833, have been executed (actual disbursements will be limited to the $64,325,000 currently available in the Special Water Infrastructure Account and may be supplemented with other grants and/or loans). Eight of the twelve projects are completed. As of June 30, 2013, $1,180,231.44 of the project funds remain undisbursed for approved projects currently under construction and expected to be completed before June 30, 2013. As subsequently described, the transfer of the water and sewer utilities at Philadelphia Naval Business Center from PAID to the Water Department, including the projects outlined above, occurred in November, 2009. See "MANAGEMENT INITIATIVES – The Philadelphia Naval Shipyard" herein.

Capital Facilities Assessment Program

The Water Department has developed a comprehensive assessment program for its water, wastewater, and finished water pumping facilities, which proactively addresses future capital funding requirements. The program is called The Capital Facilities Assessment Program ("CFAP") and its intention is to complement the established maintenance program at each facility by instituting a framework for the periodic assessment of major infrastructure. CFAP inspections are prompted in Maximo, the computerized maintenance management system, utilized at these facilities. These assessments give the Water Department the physical condition, re-inspection schedule and inspection methodology for each infrastructure asset. All of this information is organized and documented, which aids the facility managers in scheduling Operations and Maintenance and capital inspections.

Capital Planning Program

The Planning and Research (P&R) unit enhanced the capital planning process by developing and implementing a comprehensive and standardized planning approach for capital projects estimated at or over $2,000,000 throughout all units of the Water Department. One enhancement to the capital planning process includes the utilization of a standard point system to capture the primary driving factors associated with a wide range of project types. The improved planning process will also help inform the Water Department's future critical Strategic Planning efforts, in addition to improving communication and coordination.

ENVIRONMENTAL COMPLIANCE

Combined Sewer Overflow Program

The fundamental goal of the Water Department's Long Term Combined Sewer Overflow Program referred to as the "Green City, Clean Waters Program," is to improve and preserve the water environment in the Philadelphia area and to fulfill the Water Department's obligations under the Clean Water Act and the Pennsylvania Clean Streams Law by implementing technically viable, cost-effective improvements and operational changes and utilizing numerous green stormwater infrastructure alternatives.

The present NPDES permits require the Water Department to implement a combined sewer overflow program. In older sections of the City, both wastewater and stormwater are conveyed in one pipe to the sewage treatment plant. This is known as a combined system. Combined systems were designed so that during dry weather all wastewater is conveyed to the sewage treatment plant. However, during certain rain events, additional stormwater exceeds the capacity of the collection system and/or wastewater treatment plant. During these rain events, the combined system was designed to discharge, or overflow, the excess stormwater/wastewater mix directly to local waterways. The Water Department has 164 CSO points in its collection system.

In 1997, the Water Department submitted its Combined Sewer Overflow Long Term Control Plan ("CSOLTCP") to the PaDEP. This Plan required that the Water Department continue implementation of the Nine Minimum Controls ("NMCs"), which are industry accepted best practices to efficiently operate and maintain the sewer system, and identify $48,000,000 (1997 dollars) of capital improvement projects that would ensure localized capture and storage of wet weather flows within the existing sewer collection system. These two efforts successfully reduced overflow volume by five to ten percent or roughly two billion gallons per year. Initial efforts were focused on detecting and eliminating overflows during dry weather, obtaining the most storage possible in the sewer system, and stepping up inspections and monitoring at sites where overflows occur. The final component of the CSOLTCP embraced the development of regional watershed partnerships and comprehensive watershed based planning and analyses that would identify additional, priority actions to further improve water quality in Philadelphia area water bodies. The Water Department committed to the development of Integrated Watershed Management Plans ("IWMPs"), which are guided by a 20-year vision to restore the region's waterways to fishable, swimmable and beautiful rivers and streams that are life sustaining and are an amenity to nearby communities.

Included within the NPDES permit issued by the PaDEP on August 15, 2007, was the requirement to update the original CSOLTCP by September 1, 2009. This CSOLTCP Update ("LTCPU"), or what is also referred to as the Green City, Clean Waters Program, can best be described by listing the basic underlying principles:

- Utilizing rainwater as a resource by recycling, re-using and recharging long neglected groundwater supplies;
- Maintaining and upgrading one of the nation's oldest water infrastructure systems;
- Transforming rivers and streams into recreation destinations and green open space for visitors and citizens;
- Preserving and restoring habitat for aquatic species within urban stream corridors;
- Collaboration to revitalize the City with an emphasis on sustainability; and
- Energizing citizens, partnerships, public and regulatory partners to adopt and join in this watershed-based strategy.

The PaDEP and the Water Department signed a consent order and agreement dated as of June 1, 2011 (the "COA") that will allow the Water Department to officially embark on the implementation of its landmark strategy that uses green practices to substantially eliminate combined sewer overflow (CSO) to the City's waterways as set forth in the Green City, Clean Waters Program. The City of Philadelphia has been recognized as a national leader in its approach to the management and reduction of CSO. Its Green City, Clean Waters Program is the most innovative stormwater management program in the nation to date, markedly ambitious in its use of "green" infrastructure rather than undertaking a "grey" approach to the management of CSO. The green approach relies on the use of largely green technologies such as stormwater tree pits, vegetated bumpouts, porous asphalt, rain gardens and sidewalk planters as a means to transform manmade surfaces that repel the rain to green acres which capture rainwater runoff to infiltrate, store and manage the rain as a precious resource. By contrast, a grey approach relies on the construction of tunnels and holding tanks for

storage of combined sewer overflow until it can be processed. The Green City, Clean Waters Program is by far the most cost-effective way for the City to meet the requirements of the COA, the PaDEP, the Clean Water Act and its own laudable goal of protecting its waterways. The Water Department estimates that the City's use of green infrastructure in lieu of a grey approach will save the City approximately $8.0 billion over the length of the Program, as discussed below.

The Water Department submitted the plan to the U.S. EPA and the PaDEP in September 2009 after vetting the plan with the public. Green City, Clean Waters lays the groundwork for the Water Department to spend approximately $2.4 billion over the next 25 years ($1.2 billion in 2009 dollars) to use largely green technologies described above. The plan also includes wastewater treatment facility enhancements and pipe renewal and replacement. Green City, Clean Waters works in tandem with the Mayor's Greenworks Philadelphia vision in order to reinvent Philadelphia into a green, sustainable city of the future. The Water Department projects that utilizing a grey approach to achieve combined sewer overflow compliance targets would have cost the City approximately $10 billion.

The COA complies with Clean Water Act requirements by adopting the Presumption Approach to CSO control. Under the Presumption Approach, the COA sets the ultimate water quality goal as the elimination or removal of the mass of pollutants that otherwise would be removed by the capture of 85% by volume of the combined sewage collected in the City's combined sewer system during precipitation events. To ensure this ultimate goal is met, the COA requires that interim water quality milestones at Years 5, 10, 15 and 20 of the COA. The interim milestones require the City to achieve specific targets in four categories: (1) Total Greened Acres; (2) Overflow Reduction Volume; (3) Miles of Interceptor Lined; and (4) WPCP Upgrades: Design and Construction. A "Greened Acre" is described as an acre of impervious cover connected (tributary) to a combined sewer that subsequently is reconfigured to utilize green stormwater infrastructure to manage all or a portion of the stormwater runoff from that acre. Green stormwater infrastructure manages storm water using one or more of the source control processes of infiltration, evaporation, transpiration, decentralized storage, alternative stormwater routing, reuse and others. The COA includes financial protections in the event that the costs of complying with the COA exceed the Water Department's projections. Should COA costs increase to the point where they exceed 2.27% of the Median Household Income the City may petition the PaDEP for an extension of time to complete the COA so that the financial burden does not become excessive on ratepayers. The COA also includes stipulated penalties for violations of the COA. The only significant penalties involve non-compliance with the 5-year milestone targets. Penalties start at $25,000 per month for each violation (for the first 6 months) and increase up to $100,000 per month for uncured violations of 13 months or more. COA negotiations took almost two years. The negotiations resulted in a document memorializing the ultimate goal for the program and setting interim milestones that the Water Department believes are fair, reasonable, affordable and achievable.

The EPA participated in negotiations of the COA and is fully informed on its status. The EPA has delegated authority over the COA to the PaDEP but has reserved the right to take future action if it deems so necessary. On September 27, 2012, EPA Region 3 and the Water Department agreed to an "Administrative Order for Compliance On Consent" which incorporates the Water Department's COA with DEP.

The Water Department is nearing the conclusion of the second year of the 25-year Green City, Clean Waters Program. Significant progress has been made towards meeting the first 5-year milestones within the Consent Order and Agreement. For more information regarding the milestones contained in the Consent Order and Agreement, please see APPENDIX II – "ENGINEERING REPORT – Wastewater System – Consent Order and Agreement for Combined Sewer Overflows."

Information about Green City, Clean Waters can be found at the Water Department's website: http://www.phillywatersheds.org.

Lead and Copper Rule Compliance History

Beginning in 1992, the Water Department has conducted ten rounds of in-home sampling for compliance with the Lead and Copper Rule ("LCR") as summarized in the table below. During the first round of sampling in 1992, the Water Department was above the action level ("AL") for lead. Compliance with the AL for lead is defined as less than or equal to 0.015 mg/L in 90% of the home tap samples. Compliance with the AL for copper is defined as less than or equal to 1.3 mg/L in 90% of the home tap samples. Following that initial round, the Water Department made various changes in its corrosion control strategy, based on in-house research and industry knowledge. In subsequent rounds, Philadelphia complied with the action levels for both lead and copper.

Lead and Copper Monitoring History

			Lead		Copper	
Period	Samples Required	Homes Sampled	90th Percentile	Action Level	90th Percentile	Action Level
Jan-Jun 1992	100	162	0.021 mg/L		0.9 mg/L	
Jul-Dec 1992	100	143	0.015 mg/L		0.8 mg/L	
Jan-Jun 1997	100	118	0.014 mg/L		0.4 mg/L	
Jul-Dec 1997	100	108	0.011 mg/L		0.4 mg/L	
Jun-Sep 1998	50	78	0.010 mg/L	0.015 mg/L	0.3 mg/L	1.3 mg/L
Jun-Sep 1999	50	59	0.009 mg/L		0.3 mg/L	
Jun-Sep 2002	50	63	0.013 mg/L		0.3 mg/L	
Jun-Sep 2005	50	107	0.010 mg/L		0.3 mg/L	
Jun-Sep 2008	50	97	0.006 mg/L		0.3 mg/L	
Jun-Sep 2011	50	92	0.006 mg/L		0.3 mg/L	

Following the initial sampling period, the PaDEP allowed the Water Department to go to reduced monitoring. Currently, the Water Department has to conduct LCR monitoring every three years. The Water Department did not exceed the AL for copper in any of the ten rounds of sampling and the latest round of testing produced relatively low lead results again. The next sampling period for the LCR is June to September 2014.

Drinking Water Regulatory Achievements

The water provided by the Water System meets all physical, chemical, radiological and bacteriological water quality standards established by the EPA under the Safe Drinking Water Act and by the PaDEP. The Water Department is aware of recent proposed and planned state and federal regulations relating to drinking water quality and has completed research and monitoring efforts with respect to the content and status of these regulations so that it will be able to comply with such regulations when adopted.

The Water Department continues to prepare for possible future regulations regarding the distribution system. The Water Department has a district metered zone, uses online water quality monitors at reservoirs, pump stations and other distribution system locations, and water system hydraulic monitoring and modeling. All of these tools allow the Load Control Center to research and track water through the system. The Water Department is actively involved in monitoring, commenting on, and implementing practices to respond to PaDEP and EPA rulemaking for distribution systems.

Full implementation of EPA's Stage 2 Disinfection and Disinfection Byproducts Rule ("Stage 2 D/DBPR") began in April 2012 with reporting to the PaDEP as the primary agency. The Water Department,

through previous treatment changes made over the last decade to reduce disinfection byproduct production, is in full compliance with the rule requirements. All three water treatment facilities, Baxter, Queen Lane and Belmont, are operating the enhanced coagulation process to achieve the total organic carbon removal goals. Belmont and Queen Lane WTPs dose potassium permanganate at the raw water intake to control algae and oxidize organics from March to October each year. Baxter WTP routinely utilizes powdered activated carbon primarily for enhanced removal of total organic carbon. Chlorine contact goals ("CT") are achieved through multi-staged chlorine application points at each facility. Total trihalomethanes (TTHM) and Haloacetic acids (HAA5) average about 50% and 65% of the regulatory limits, respectively, of 80 and 60 ppb. The Water Department's Bureau of Laboratory Services ("BLS") completed a one-year study of distribution disinfection byproduct sampling locations as required by the EPA's Stage 2 D/DBPR and the Initial Distribution System Evaluation (IDSE) requirement in 2008. The IDSE report was submitted to the PaDEP in 2009. A selection of 16 monitoring locations determined by the IDSE process was approved by the PaDEP that are now being used for compliance monitoring with Stage 2 D/DBPR. The Water Department expects that full compliance with this rule will be achieved in 2013 when locational running annual averages (LRAA) can be calculated for compliance determinations.

Also in April 2012, EPA's Long Term Stage 2 Enhanced Surface Water Treatment Rule ("LT2ESWTR") was fully implemented. The Water Department, through previous treatment changes, is in full compliance with requirements of the rule for all three facilities: the Baxter, Belmont and Queen Lane Water Treatment plants. Combined filter effluent turbidity at each facility routinely averages 0.06 NTU, well under the 0.30 NTU regulatory turbidity limit. The Queen Lane Water Treatment Plant is the only one of the three facilities designated as a Bin 2 facility under LT2ESWTR and as such is required to obtain an additional 1-log removal to meet the Cryptosporidium removal credit requirements. To comply with the additional 1-log removal requirements, the Queen Lane Plant has routinely achieved stricter turbidity removal goals necessary to obtain combined filter effluent (CFE) and individual filter effluent (IFE) credits under the LT2ESWTR. Queen Lane has over the past six years consistently achieved the stricter CFE and IFE turbidity removal targets necessary to obtain the additional 1-log credit requirements. A back-up credit of 0.5-log for source water protection was obtained in April 2012 with the PaDEP approval of the Water Department Source Water Control Plan. A second round of regulatory monitoring for Cryptosporidium will begin in 2015 for a two year sampling period after which the new Cryptosporidium data and new Bin calculations will be submitted. BLS will maintain two EPA and PaDEP-approved analysts who will perform the testing and reporting to PaDEP for Cryptospodium in 2015-2017.

The U.S. EPA's third Unregulated Contaminant Monitoring Regulation ("UCMR-3") was published in May, 2012. Every five years, the U.S. EPA is required to collect national occurrence data for unregulated contaminants from a list of up to 30 unregulated contaminants. Previously, the Water Department complied with UCMRs 1 & 2. The Water Department's BLS began UCMR-3 monitoring in May 2013, and will collect quarterly samples for one year. Drinking water samples will be collected and analyzed for 27 chemical contaminants. In compliance with the regulation, the Water Department's BLS will review and report all results to the U.S. EPA. The results will also be published in the Water Department's annual Consumer Confidence Report.

Clean Air Act

The federal Clean Air Act ("CAA"), as amended, sets forth requirements for the regulation of certain air emissions. In January 1994, the PaDEP published regulations pursuant to the CAA's mandates for the control of Volatile Organic Compounds ("VOC") and Nitrogen Oxide ("NOx") emissions from major stationary sources. The Northeast WPCP and the Biosolids Recycling Center/Southwest WPCP complex (the "BRC/SW facility") were found to be a major source of VOC and NOx emissions, while the Southeast WPCP is a Natural Minor source. The Office of Philadelphia Air Management Services ("AMS") issued the Water Department a Title V State Operating Permit for the Northeast WPCP and BRC/SW facility on June 1, 2001. Prior to their expiration in June 2006, the Water Department properly filed for renewal of the Title V permits

and is currently awaiting their renewal. The State's Odor Emission Limitation Regulations are included as part of these permits.

The Water Department is currently in negotiations with AMS for the renewal permits. AMS has requested an Administrative Consent Order for odors at the Northeast WPCP and the BRC/SW facility before it issues the Water Department its new Title V permits. Those Administrative Consent Orders, for both the Northeast WPCP and the BRC/SW facility were signed and finalized on January 19, 2013. Pursuant to these Orders, the Water Department paid a total fine of $10,300, which settled and resolved all order violations through the date of the Orders. In addition, the Water Department agreed to build sludge gravity thickeners at the Northeast WPCP by December 31, 2018. The BRC facility is now operated independently by a private contractor, Philadelphia Biosolids Services, LLC ("PBS"). As such, the Title V permit for the BRC will be separated from the SW facility permit and be held by PBS.

AMS issued two violations in both 2007 and 2008 calendar years at the Northeast WPCP and none at the BRC/SW facility. Due to these odor incidents, the Water Department hired a consultant to assist in the development of a long-term odor control strategy. The Water Department has worked closely with AMS in developing an Odor Response Plan (which is part of the permit) and this plan is implemented whenever odors are detected. The Water Department continues to operate its facilities in a manner that maximizes treatment while minimizing odors.

Since 2009 there have been no odor violations at either facility. A major source of the odors at the Northeast Plant was identified by the Water Department. The discharger of the source is no longer in operation thereby minimizing the potential for odor issues at the facility. Odors at the BRC/SW facility have been dramatically reduced with the termination of composting and the startup of the new pellet facility by PBS at the BRC/SW facility.

The CAA also has a Risk Management Plan ("RMP") component which is required for all facilities where regulated substances (chlorine, ammonia, methane) are stored above designated levels. The RMPs are designed to minimize the impact of a process accident on the surrounding community. In June 1999, the Water Department submitted to EPA, their RMPs for covered facilities. In 2007, the Water Department eliminated the use of compressed liquid chlorine gas at all of its facilities substituting instead liquid sodium hypochlorite. Therefore, none of the Water Department facilities are regulated under the RMP component of the CAA.

Polychlorinated Biphenyls (PCBs)

Pursuant to Section 303(d) of the Clean Water Act, the Delaware River has been declared impaired because of the level of an organic chemical known as polychlorinated biphenyls ("PCBs"). As a result of this, the DRBC is performing a Total Maximum Daily Load ("TMDL") analysis. The TMDL will define how severely the river is impaired and will set forth a plan to reduce loadings of PCBs into the river. The current understanding is that the river exceeds its allowable loadings by three orders of magnitude (that is 1,000 times greater than allowed). Loadings come from virtually every source imaginable, e.g., sediments, air, runoff from land, contaminated sites as well as point sources which include the Water Department's three wastewater treatment plants. The Water Department's NPDES permits require it to implement a pollutant minimization plan ("PMP") which involves tracking down sources of PCBs and referring them to the appropriate agency for remediation. This involves additional staff to track down the sources of PCBs coming into the plant and devising programs to reduce the loadings coming to the Water Department's plants. The level and extent of clean up that will be required by each source category in the future is currently being evaluated by the DRBC, EPA and the states comprising the DRBC.

The Poquessing Intercepting Sewer

The Water Department has determined that a manhole located along the Poquessing Creek Interceptor overflows and discharges into the Poquessing Creek in Northeast Philadelphia during extreme wet weather events. This manhole's monitoring and maintenance designation is PC-30. The Poquessing Interceptor not only serves the City but also accepts flow from three suburban townships, namely Lower Southampton, Bensalem and Lower Moreland. The discharge of sanitary waste and stormwater from PC-30 into the Poquessing Creek constitutes a violation of Pennsylvania's Clean Streams Law and the Clean Water Act. The Water Department worked, along with the PaDEP, to understand the causes of the overflow and discharge and to develop a plan to correct the discharge.

It has been determined that the root cause of the discharge from PC-30 stems from the fact that during extreme wet weather events, the amount of stormwater discharged into the Interceptor by the City, Lower Southampton, Bensalem and Lower Moreland exceeds the carrying capacity of the City's conveyance system. PC-30 thus becomes a relief point overflowing and discharging into the Poquessing Creek. Since the capacity of the City's conveyance system is exceeded in these extreme wet weather events, the PaDEP has asked the City, pursuant to the Pennsylvania Sewage Facilities Act, known as Act 537, to place a moratorium on the addition of any new connections to the Poquessing Interceptor until the City submits a Corrective Action Plan ("CAP") to address the overflow and a Connection Management Plan ("CMP") to ensure that newly allowed connections won't have a materially adverse impact on the environment.

The City has agreed and has submitted its CAP and CMP to the PaDEP, and the PaDEP has approved both documents. The City's CAP involved the building of a relief sewer to capture and transport the overflow. The cost of the relief sewer is $51,300,000. The City's CAP addresses both the environmental issue under the Cleans Streams Law as well as the requirements under Act 537. The City's CMP will allow for and manage new connections to the Poquessing Interceptor. In addition, the City is working along with Lower Southampton, Bensalem and Lower Moreland to either share the costs of relief sewer or to have these Townships build their own solutions so that their wet weather flows do not exceed their contractual limits. Further, the City is requiring, and the Townships are implementing, an Infiltration and Inflow (I&I) program to reduce infiltration into the Townships' sewers thus reducing the flows into the Poquessing Interceptor.

The PaDEP issued a Consent Order and Agreement ("COA") regarding the overflows at manhole PC-30. The COA requires the Water Department to construct a parallel relief sewer. The Water Department submitted a Water Quality Management Part II Application for authorization to construct and operate the parallel relief sewer in December, 2008. The PaDEP issued the permit on May 21, 2009. The contractor was issued a Notice to Proceed on September 30, 2009. The estimated original completion date of the project was July 21, 2011. The project experienced minor delays and the Water Department asked for and obtained a time extension from the PaDEP extending the completion date to December 31, 2011. The relief sewer was placed into service, meeting the December 31st deadline.

Manayunk Main Intercepting Sewer

The Water Department has determined that the Main Intercepting Sewer located along the Schuylkill River overflows during extreme rain events and discharges into the Schuylkill River in the Manayunk section of the City. This overflow is referred to as Relief Point R-20. The Main Intercepting Sewer serves the Northwest section of the City. The discharge of sanitary waste and stormwater from R-20 into the Schuylkill River constitutes a violation of Pennsylvania's Clean Streams Law and the Clean Water Act. The Water Department has been working along with the PaDEP to understand the causes of the overflow and discharge and to develop a plan to correct the discharge.

It has been determined that the root cause of the discharge from R-20 stems from the fact that during extreme wet weather events the amount of stormwater discharged into the Interceptor by the City exceeds the carrying capacity of the City's conveyance system. Since the capacity of the City's conveyance system is

exceeded in these extreme wet weather events, the PaDEP has asked the City, pursuant to Act 537, to place a moratorium on the addition of any new connections to the Main Intercepting Sewer until the City submits a CAP to address the overflow and a CMP to ensure that newly allowed connections will not have a materially adverse impact on the environment.

The City has agreed and has submitted its CAP and CMP to the PaDEP. The City's CAP involves the building of a 3.0 million gallon storage tank on Venice Island along the Main Interceptor to capture the overflow. The City's CAP addresses both the environmental issue under the Cleans Streams Law as well as the requirements under Act 537. The City's CMP will allow for and manage new connections to the Main Interceptor. This project is also incorporated into the Water Department's current NPDES Permit.

The PaDEP issued a COA regarding the overflows at Relief Point R-20. In accordance with the CAP, the COA requires the Water Department to construct a 3.0 million gallon storage tank on Venice Island. The Water Department submitted a Water Quality Management Part II Permit Application for authorization to construct and operate the storage tank. The PaDEP issued a Water Quality Part II Permit on July 21, 2010. The project was bid on May 10, 2011, with a total bid of $44,600,000. The contractor was issued the Notice to Proceed on July 22, 2011 per the requirements of the COA. The storage tank must be constructed and operational within 34 months of receipt of the Water Quality Management Permit. In order to allow additional time for acceptance testing of the tank and associated equipment, the Water Department requested a six-month extension. The PaDEP has approved the request, and the new date for the facility to be operational is November 22, 2013.

Stormwater Management

The Water Department delivers many of the City's stormwater management services, including maintenance of the City's 734 miles of separate storm sewers, 1,856 miles of combined sewers and approximately 74,430 stormwater inlets. In recent years, changes in work practices and investment in new equipment have enabled the Water Department to steadily increase the number of inlets cleaned annually from 52,349 in Fiscal Year 1995 to 81,239 in Fiscal Year 2012. In Fiscal Year 2010, the Water Department cleaned 72,902 inlets, removing over 10,008 tons of debris. In addition, the Waterways Restoration team and the Water Department's skimmer vessel removed a total of 1,437 tons of debris and 18.45 tons of debris, respectively. In Fiscal Year 2011, the Water Department cleaned 71,771 inlets, removing over 11,500 tons of debris. In addition, the Waterways Restoration team and the Water Department's skimmer vessel removed a total of 748 tons of debris and 34.73 tons of debris, respectively. In Fiscal Year 2012, the Water Department cleaned 81,239 inlets, removing over 9,782 tons of debris. In addition, the Waterways Restoration team and the Water Department's skimmer vessel removed a total of 704 tons of debris and 36.12 tons of debris, respectively. More recently, the Water Department has set the goal of cleaning all inlets at least once per year, averaging 6,200 inlets cleaned per month.

In 1987, the Clean Water Act was amended to address discharges from municipal separate storm sewer systems. Municipal separate storm sewer systems collect stormwater from homes, businesses, streets, and other sources and convey it directly to rivers and creeks without treatment. Cities whose separate storm sewer systems serve a population of over 100,000 were required under these amendments to obtain a NPDES permit for their discharges. The Clean Water Act requires dischargers to reduce any contaminated flow in the storm sewer system to the maximum extent practicable.

The PaDEP issued the City its initial stormwater permit on September 29, 1995, effective for five years. The permit requires the City to implement four management programs to reduce the discharge of pollutants from its municipal separate storm sewer systems. The management programs require the City to reduce pollution from (1) commercial and residential areas; (2) illicit connections; (3) industrial facilities; and (4) construction sites.

The initial five-year NPDES Phase I stormwater permit issued in 1995 was scheduled to expire in September 2000. The Water Department applied for a new permit in March 2000, as required. The Water Department received a new stormwater permit in 2005, which expired on September 30, 2010. Preliminary discussions were held with the PaDEP to delay the permit renewal two years in order to align it with expiration of the CSO permit on August 31, 2012. An application for renewal of the NPDES permit was timely submitted on March 29, 2010, which provides an outline of and possible additions and/or changes to the permit. This permit complements the philosophy and implementation strategies of the City's CSO permit.

The MS4 permit is currently under negotiation, and the Water Department expects to have a new permit in place by the spring of 2014. The Water Department has also been a municipal partner in the state-sponsored Act 167 Stormwater Management Plan for the Darby-Cobbs Watershed (completed in 2006) and was the sponsor for the Tookany/Tacony-Frankford Watershed Act 167 Plan (completed in 2009). The Water Department contracted with the PaDEP to conduct a county-wide Act 167 Plan, focusing on stormwater management for the Pennypack (completed Summer 2011), Poquessing (Spring 2012) and Wissahickon (Fall 2013) watersheds.

Most importantly, these planning efforts resulted in ground breaking revisions to the City's Stormwater Regulations, which went into effect on January 1, 2006. There are four main components of the Regulations: Water Quality, Channel Protection, Flood Control, and Nonstructural Site Design. All projects with more than 15,000 square feet of earth disturbance must comply with all four of the components. Some redevelopment projects may be exempt from the channel protection and flood control requirements. Since 2006, the Water Department's Stormwater Team reviewed over 1,750 conceptual plans for stormwater zoning permits, over 1,375 final technical plans for stormwater building permits, over 550 coordinated reviews with the State Department of Environmental Protection, and over 530 erosion and sediment control site inspections. Plans reviewed cover approximately 3.2 square miles of earth disturbance, in which the first one inch of rainfall is required to be captured or infiltrated, thereby mitigating CSOs.

RECENT DEVELOPMENTS

Iodine-131 Watershed Characterization Program

Iodine-131 (131I) sampling is not required under the SDWA; however, the Water Department has been working with the EPA since 1979 on a voluntary basis to provide quarterly samples of river water and drinking water for analysis of various radiological elements. 131I is a radioactive form of iodine that is a byproduct of nuclear energy production and is widely used in the medical field for the diagnosis and treatment of thyroid disease. Following the nuclear accidents in Japan in 2011, the EPA and the PaDEP increased monitoring of radionuclides, including 131I, in both surface water and finished drinking water in Pennsylvania. The initial monitoring results from both agencies prompted the Water Department to conduct an unprecedented 131I sampling program to characterize and better understand 131I concentrations in Philadelphia's source water and drinking water. The Water Department partnered with PaDEP and EPA to undertake and coordinate a one year cross-agency sampling effort and to develop a comprehensive radiological monitoring and communication strategy.

During the year long 131I sampling program, which began April 12, 2011, the Water Department collected and analyzed over 500 samples of source water and drinking water. The Water Department results show 131I levels in drinking water averaged less than 1.0 pCi/l, well below the federal Maximum Contaminant Level (MCL) of 3 pCi/L. All source water results indicate that there are detectable levels of 131I in Philadelphia's source waters; however, these concentrations are well below MCL set by the EPA and pose no risk to public health. International and national studies of 131I in the environment have documented the impact of 131I thyroid disorder treatments, in which a large portion of the 131I medicinal dose is excreted by the patient into the sewer systems and is eventually discharged into surface waters via wastewater treatment plants. The Water Department and PaDEP source water data collected during the one-year sampling period confirms wastewater plant effluent as a pathway for 131I. The Water Department and joint partners PaDEP

and EPA are in agreement that 131I is not just a local/regional issue. Trace amounts are present in waterways around the world and in Philadelphia's rivers; however, as stated above, the Water Department drinking water 131I levels are well below EPA limits and pose no risk to public health.

Water Department research of 131I in the drinking water supply and finished drinking water has garnered national attention and generated industry-wide discussion. The Water Department co-hosted a two-day workshop in January 2013 with the American Water Works Association (AWWA), EPA, Water Research Foundation (WRF) and the Water Environment Research Federation (WERF). The workshop included presentations of research results and discussion of future efforts and opportunities for collaboration among drinking, wastewater and nuclear regulatory communities, medical professionals, other utilities and researchers.

Baxter Water Plant Clear Well

In May 2010, the Water Department discovered a failed 4-foot by 6-foot section in the vegetated roof cover of the clear water basin (CWB). The CWB contains 50 million gallons of Baxter Plant finished water and supplies the Lardner's Point Pump Station. The Water Department temporarily repaired and covered the breach and continuously monitors water quality at the influent and effluent of the CWB. On-line readings and trends include water level, turbidity, conductivity, pH and chlorine residual. Real-time continuously monitored turbidity and water level data for the CWB influent and effluent is equipped with out of range alarms and alarm triggered response protocols for shift operators and chemists. To ensure the current reliable operation of the CWB, weekly visual inspections of the repair site are conducted and additional inspections scheduled post rain or snow events. No adverse effects have been observed and access to the failed roof area has been closed-off to prevent further damage to the basin in operation.

Coordinated efforts have been underway within the Water Department to address current basin conditions and develop contingency plans and a long term plan for the replacement of the CWB. The Water Department has completed a through underwater inspection and condition assessment of the basin, the outlet chamber and the influent valves. Structural improvements were made to the CWB outlet structure and stoplog chamber and new aluminum stoplog panels fabricated, installed and tested in January and March 2012. The successful test of the stoplog panels and operation of the influent valves, confirmed the capability to isolate the CWB in case of an emergency. The Water Department has sufficient storage upstream of the CWB and a permanent by-pass conduit as a viable emergency alternative to the CWB.

The Water Department has also repaired, re-commissioned and demonstrated the "A-stage" pumps at Lardner's Point Pump Station that would be required to be put into service in the event of a CWB outage. The Water Department has evaluated alternatives for repair and replacement of the CWB and chosen to replace the CWB with a smaller set of basins to be constructed on an adjacent 5 acre site and tied into the gravity line to Lardner's Point Pump Station and the south side of the Torresdale High Service Station. Design is underway for the permanent replacement of the CWB, which will include a new redundant supply line, control valves and gate house between the Baxter Plant and the new CWB structure. The project consists of two 10MG basins and associated piping. The design is 80% complete and the project is anticipated to be bid in Fiscal Year 2014.

Oak Lane Reservoir

The Oak Lane Reservoir was taken out of service on February 24, 2009, immediately after it was discovered that the polypropylene membrane cover was deteriorating and particles from the cover were released into the water. Operations to implement the shut down were efficient and effective with no negative impact on water supply. The lining and floating covers of the dual-basin, 70-MG reservoir were originally installed in May 1997. After studying several options, it was determined to replace the cover and liner at this reservoir site. Design work was expedited and the low bid of $4,300,000 was awarded in March 2011. The cover and liner replacement work was completed and the reservoir was placed back in service in March 2013.

MANAGEMENT INITIATIVES

Water Accountability

The Water Department has been very successful in developing and applying programs to reduce uncaptured revenue and the loss of finished water from the distribution system. The Water Department has cut its non-revenue water by 40% over the past decade, from a typical annual level of 120-140 MGD prior to Fiscal Year 1995 to 84.6 MGD at the close of Fiscal Year 2012. The Water Department has been very active in promoting new methods through the AWWA, and has attained recognition as an industry leader in this regard. The Water Department was the first water utility in the United States to adopt the best management water audit approach published by the International Water Association and the AWWA in 2000. The method accounts for all water as either consumption or losses. Apparent losses are paper losses due to customer meter inaccuracies, billing error and unauthorized consumption. These losses cause water utilities to lose a portion of the revenue to which they are entitled. Real losses are physical losses, largely leakage. These losses cause excess production costs for water utilities. The summary data from the Water Department's recent water auditing history is given below.

Philadelphia Water Department – Water Revenue Bureau Annual Water Audit Summary

Component	FY2012	FY2011	FY2010	FY2009	FY2008	FY2007	FY2006	FY2005	FY2004	FY2003
Water Supplied, mgd (A)	237.1	250.0	244.5	245.8	250.7	255.3	253.8	260.3	263.0	270.2
Billed Consumption, mgd (B)	152.6	158.4	165.9	174.6	175.8	169.5	177.0	176.9	176.9	183.4
Unbilled Authorized Consumption, mgd (C)	3.3	2.1	2.0	2.1	2.1	2.3	2.4	2.3	2.4	3.0
Unbilled Authorized Consumption Costs	$1,052,000	$866,917	$778,548	$713,800	$717,200	$214,300	$191,000	$155,200	$159,700	$180,400
Total Authorized Consumption, mgd (D=B + C)	155.9	160.5	167.9	176.6	177.9	171.8	179.4	179.2	179.3	186.4
Water Losses, mgd (A-D)	81.2	91.2	76.6	71.2	72.8	83.5	74.4	81.1	83.7	83.8
Apparent Losses, mgd (E)	21.4	23.1	17.0	15.0	19.0	21.9	15.2	14.2	11.1	13.3
Apparent Losses costs, million	$43.1	$43.5	$30.0	$22.2	$27.3	$30.8	$20.3	$19.1	$10.9	$10.0
Real Losses, mgd (F)	60.0	66.3	59.6	56.2	53.8	61.6	59.2	66.9	72.6	70.5
Real Losses costs, million	$8.32	$7.36	$5.87	$4.84	$4.9	$5.1	$4.3	$3.9	$4.1	$3.7
Infrastructure Leakage Index, dimensionless	10.2	11.5	9.9	8.9	9.0	10.3	9.9	11.0	12.1	11.9
Non-revenue Water, mgd	84.6	91.6	78.6	73.3	74.9	85.8	76.8	83.4	86.1	86.8
Percent Non-revenue Water by volume*	38.4	39.7	34.9	32.3	32.4	36.3	32.7	34.6	35.4	32.1
Percent Non-revenue Water by cost	22.2	23.2	16.3	12.5	15.1	17.5	13.0	12.4	9.0	8.3

Unbilled Authorized Consumption = components of Authorized Consumption which are not billed and do not produce revenue.

Non-revenue Water = Unbilled Authorized Consumption (C) + Apparent Losses (E) + Real Losses (F), or

Non-revenue Water = Unbilled Authorized Consumption + Water Losses

***Percent Non-revenue Water by volume = Non-revenue Water/(Water Supplied – Exports).**
For example, in Fiscal Year 2010, 78.6/(244.5 – 19.2) = 34.9% Non-revenue Water by volume.

During Fiscal Year 2008, the City transitioned from its long time legacy customer billing system to the Basis2 Customer Billing System by Prophecy International Holdings, Ltd. Applications of this system continued to be refined in Fiscal Year 2011, and considerable progress was achieved in creating new output reports and expanding existing reports to include stormwater billing totals. Total billable consumption for

Fiscal Year 2011 was quantified at 158.4 MGD and at 152.6 MGD for Fiscal Year 2012. Both numbers reflect the continuing trend of declining customer billings.

Over recent years the Water Department has implemented a host of programs to reduce and control water and revenue losses. In order to optimize revenue capture, the Water Department operates a Customer Meter Management Program featuring the nation's second largest water utility Automatic Meter Reading system, and a successful Revenue Protection Program which has recouped millions of dollars of uncaptured revenue as shown in the table below.

Revenue Recoveries through the Water Department's and Water Revenue Bureau's Revenue Protection Program and Reinspection Program

Fiscal Year	Water Recovered (MGD)	Revenue Recovered
2000	1.39	$2,493,949
2001	5.81	3,398,952
2002	0.69	1,705,932
2003	1.14	2,386,379
2004	1.67	2,449,327
2005	1.74	3,084,261
2006	1.01	1,622,768
2007	0.36	871,780
2008	0.40	1,026,920
2009	1.00	1,803,272
2010	1.49	2,554,261
2011	2.30	3,889,675
2012	2.40	4,336,492
Total	21.40	$31,623,968

Note: Revenue Recovered is based on additional billings that were rendered. Data regarding actual collections of these billings is not available.

The Water Department also has been an industry leader in controlling leakage losses in the water distribution system. The successful Leak Detection Program has been in continuous use for over 30 years and employs the latest electronic leak pinpointing equipment. In Fiscal Year 2007, the Water Department installed instrumentation to control leakage by advanced pressure management in a District Metered Area (DMA), a technique that has proven successful internationally. The Water Department is one of the first water utilities in the United States to employ this effective technique. By the close of Fiscal Year 2009, this pilot installation in an area of the water distribution system known as District Metered Area 5 had experienced a 90% reduction in leakage, and leakage remains at low levels since this time. Most importantly, this technique includes capabilities to inhibit the return of leakage and should lessen water main breaks, all in a very cost-effective manner.

During Fiscal Year 2007, the Water Department also began employing contracted services for in-line leak detection in active large-diameter transmission water piping. In the first seven years of the program a total of almost 40 miles of piping was scanned and 82 hidden leaks were pinpointed; all but a few have been repaired. A number of these leaks were found to exist on inaccessible piping beneath interstate highways and wooded parkland. This service has added another highly effective tool to the battery of methods that the Water Department is employing to minimize lost water.

In Fiscal Year 2012, hydrant availability was 99.6%. The implementation of a new process to track hydrant information and deploy repair crews has resulted in hydrant availability remaining significantly above 99% since January 2006. A proactive program is responsible for this high reliability. The program calls for

routine inspection, repair and painting. During Fiscal Year 2012, the Water Department coordinated with the Philadelphia Fire Department to inspect virtually all of the City's 25,321 fire hydrants and conducted 6,284 repairs, painted 4,837 hydrants and installed 583 tamper-proof hydrant locks on hydrants. Over 84% of the Water Department's hydrants have locking devices. Due to these locking devices, hydrant abuse is controlled to levels that had no noticeable effect on the operation of the Water System.

Water Main Replacement

The Water Department's current accelerated water main replacement program has been in place for over fifteen years. The five-year average of 23.6 breaks per 100 miles/year is significantly better than the national average of 27.0 breaks per 100 miles/year that was quoted in recent years. The Water Department is assessing its water main break rate against the optimal level of 15 breaks per 100 miles/year as defined by the Distribution System Optimization Program under the AWWA Partnership for Safe Water. The Water Department closely monitors water main conditions to determine that adequate capital investment is made to ensure the integrity of the Water System. A significant effort continued in Fiscal Year 2012 to expand the level of assessment of water main failures to by evaluating both the likelihood of failure of individual pipe segments, and the consequence of failure for individual pipe segments. The Water Department is using this information to predict long-term water main replacement needs and refine the decision criteria for replacement selection.

Distribution System Reservoir Planning Initiative

The Reservoir Team was created to better manage the strategic planning, capital program projects and operations and maintenance functions of the Water Department's distribution system finished water storage reservoirs. In its initial work, the team updated all standard operating procedures and improved as-built facility documentation. In 2004, a comprehensive assessment of reservoir practices was conducted by a noted engineering consulting firm, Economic and Engineering Services, Inc. This assessment found that the Water Department provides outstanding upkeep of its reservoirs to meet the quantity and quality needs of the Water System. Since this time the Reservoir Team has strategically focused on the long-term options for the East Park and Oak Lane Reservoirs where the floating covers are into the second half of their useful lives. The Team's Strategic Planning Group obtained the services of the consulting group CH2M Hill who conducted hydraulic analysis and a life-cycle cost evaluation comparing replacement of floating covers and construction of pre-stressed wire-wound concrete tanks at East Park Reservoir. Based upon the consultant's findings, the team recommended, and the Water Department administration approved, a plan to construct concrete tanks at the East Park site. Concrete tanks are known to provide superior protection of water quality and have become common in the use of ground level reservoirs throughout the United States. Two tanks are now planned at a cost of $70,000,000 with the first tank targeted for 2014. CH2M Hill was selected in a competitive process to develop detailed design plans and specifications, and the design work is complete.

Optimization Programs

A full scale plant trial using the Belmont post chlorine contactor was conducted during summers 2009, 2010, 2011 and 2012. The PaDEP has been kept updated on the operational changes necessary and progress of all the plant trials. The results indicate that, by operating without the addition of chlorine in the coagulation and sedimentation process while adding post filter chlorine treatment, a 41% - 66% reduction in disinfection byproducts can be achieved. The full scale plant trial conducted May 2010 through October 2010 was the longest of the trial periods. No unforeseen operational problems occurred in 2010. During the 2011 truncated test period, uncontrolled algae growth in the sedimentation basins and raw water conditions presented challenges to filter operations necessitating extended periods of filter wasting prior to filter's return to service. In readiness for the 2012 trial, Belmont Plant staff purchased and installed Ultrasonic Units to restrict algae reproduction, coated and covered the North plant concrete weirs and installed new chlorine dosing locations on both the south and north pre-weirs. The 2012 trial period began in June 2012 and ended in August 2012, and involved a 1-week chlorine application within the sedimentation basin after every 30 days of zero chlorine

operation. This chlorine "shock" to the basins was designed to minimize the growth of algae and fish within the basins. Anionic polymer in the rapid mix was also tested on the South plant during the 2012 trial. The 2012 trial again showed disinfection byproduct reduction greater than 50%. The basin modifications improved, but did not eliminate, the effects of algae growth on filter run performance. Because of the rehabilitation work in the raw water pre-sedimentation basins, a full scale post contactor study will not be performed in 2013. A workshop was held in May 2013 in conjunction with the Water Research Foundation. The Water Department intends to incorporate several recommendations from that workshop into plans for 2014, including the analysis of extracellular organic matter and additional chemical treatment options to eliminate algae sources from the river.

The Water Department continues to participate in the Partnership for Safe Water (the "PfSW"), a national, joint program of the EPA and the water industry. The Water Department's three water treatment plants have received the 10-year Director's Award from the PfSW for compliance with the Phase III requirements for over 10 years. The Water Department continues to improve on individual filter performance and the combined filter effluent turbidity is less than 0.10 ntu nearly 100% of the time. Individual filters meet PfSW standards greater than 99% of the time. The finished water effluent average turbidity at all three plants is less than 0.06 ntu, which is five times lower than the current regulatory standard of 0.30 ntu. The Water Department is fully committed to operating within guidelines that are far more rigorous than Commonwealth or federal laws require.

An additional example of its "more rigorous than required" approach is the Water Department's Water Quality Event and Microbial Communication Plan. This plan describes communications/notification protocol at each level of treatment to appropriate management and response personnel triggered by various water quality parameters, events or conditions. In the plan, management includes Operations Management, the Bureau of Laboratory Services, and the Water Quality Committee (a management team comprising managers from the Health Department, Public Affairs, Operations, Engineering, and Law). It also includes notification and involvement from the PaDEP, in addition to the City's Health Department, at water quality triggers of concern but below the regulatory limits. This level of oversight and review helps to maintain very high standards and supports treatment plant management.

The Water Department pursues its proactive position within the community by exercising its risk communication plan. This plan is in place to develop tools that clearly explain issues of concern to the public. The basic elements of the process are: collection of pertinent "up to date," detailed information, often by conducting cutting edge research, for a topic position paper, sharing this information with preselected experts and citizen groups, and using the feedback to craft a document which helps communicate an issue effectively to the public. Examples of risk communication efforts include lead and copper corrosion, pharmaceuticals, haloacetic acids and chloramine.

Water Treatment Research

The Water Department is in the process of conducting a treatment alternatives evaluation using the internal water quality and pilot plant database, coupled with operational expertise and external consulting experts to develop and rank conceptual design strategies. This evaluation will assess membrane filtration, ultraviolet radiation and magnetic ion exchange (MIEX) technologies and potential benefits and costs using water quality goals, feasibility, and economics to produce conceptual designs. Based on over 10 years of pilot plant research and full scale plant trials, the advanced treatment technology project will plot out the future of water treatment. With additional full scale plant studies, the Water Department has developed a database which allows assessment of process alternatives, or combinations of processes based on the impact on disinfection byproduct (DBP) levels. The final conceptual designs and assessments will determine and recommend a plan for future advanced treatment technologies for each treatment plant and for the Water Department.

A demonstration scale study has been initiated at the Queen Lane Water Treatment Plant to evaluate filter backwash alternatives. This study involves an evaluation of air scour enhanced filters as well as

optimization of the existing surface wash enhanced backwash system, the intent of which is to achieve the greatest possible reductions in backwash water consumption, energy use and filter downtime. Data collected over the course of the study will be utilized to inform a comparison of costs for both methods, and a determination of payback period for a full installation of the air scour technology. If successful, this study will be expanded to additional facilities.

Drought Management

The Water Department has been a participant in the development of drought management plans, which allocate Delaware River Basin water resources during drought periods among jurisdictions dependent on the Delaware River for water supply. These plans have been used to effectively manage drought emergencies in the past and are expected to adequately address future drought emergencies. In addition, the City is able to draw water supply from both the Schuylkill and the Delaware River systems and therefore is not dependent on a single source of supply. Currently, the City and the Commonwealth are not under a drought watch or warning. The Water Department actively participates in flow management planning with the Delaware River Basin Commission as an advisor to Pennsylvania on the Supreme Court Consent Decree Parties Flow Working Group for the Delaware River.

Partnership for Safe Water Distribution Optimization Program

The Water Department became a charter member of the Partnership for Safe Water Distribution Optimization Program in March 2011. The program is patterned after the Water Treatment Program and is designed to achieve continuous improvement by optimizing operational performance to ensure delivery of high quality water. It is a self-assessment program supported by the AWWA and the EPA.

Sewer Infrastructure Assessment Program

A $6,000,000 pilot sewer assessment program completed in Fiscal Year 2005 evaluated the condition of sewer system infrastructure using video technology to inspect over 215 miles of sewers, and used this information to build a database and ranking system to prioritize needed improvements. Trained Water Department personnel are continuing the sewer assessment surveys begun in Fiscal Year 2006 through Fiscal Year 2012. Beginning in Fiscal Year 2006, the Water Department commenced using data collected through the sewer assessment program to prioritize needed sewer reconstruction and repair, and schedule this work in the capital and operating budgets. This project has already helped to identify sewers that were in immediate need of repair, and it is anticipated that over time this project will result in a reduction of costly and disruptive emergency sewer repairs, such as those that occur when a sewer collapses. In Fiscal Year 2013, the Water Department has continued the video inspections and performed additional excavations and repairs. A total of 435.9 miles of sewer have been inspected during the period from January 1, 2005 through April 30, 2013.

Wastewater Treatment and Resource Recovery Research

Sludge pre-digestion enhancement through the OpenCEL focused pulse technology at Southwest WPCP is currently under feasibility study. A demonstration scale yearlong assessment will evaluate the improvement on sludge digestibility through electroporation and cell lysis of waste activated sludge (WAS). This technology is expected to increase biogas production, and enhance sludge reduction with minimal energy input. The increased biogas production is expected to feed the device of combined heat and power generation to achieve the near energy neutral operation at Northeast WPCP and compensate the gas purchasing for producing Class A Product in the Biosolids Recycle Center (BRC). In addition, this research project also includes the economic analysis to determine the cost savings based on the consumption of natural gas, electricity, and dewatering polymer and the elimination of payment of annual tonnage overage fees for third-party biosolids disposal.

Nutrient removal and recovery is emerging as the next major water quality challenge for wastewater treatment. Since EPA released a draft nationwide on ammonia criteria for surface water based on ammonia toxicity for aquatic animals, a movement towards increasingly stringent nutrient standards across the country will continue throughout 2013 and beyond. Pennsylvania is rapidly pursuing reduced nutrient levels. The DRBC Nutrient Subcommittee has been modeling and estimating the impact on dissolved oxygen depletion based on nutrients discharge in the Lower Delaware. In response, ongoing research in the Water Department has been focusing on side stream treatment with DEMON technology to convert ammonia to nitrogen gas by retrofitting an existing aeration tank at Southwest WPCP. This innovative process is expected to remove 85% and 75% of ammonia and total nitrogen, respectively, from the side stream and will reduce approximately 23% of ammonia contribution to the Delaware River from the plant effluent discharge. The design phase of the DEMON project is nearly complete.

Algae as a surrogate of resource recovery from wastewater are currently receiving a significant amount of attention. Under different nutrient levels in wastewater, various type conditions can support the growth of different algae strains. The high lipid content algae is a good source of biofuel and high protein content strain is also a good source of animal feed or fertilizer. The extraction residue could be recycled as a source of biogas production booster in the anaerobic digester. Several initiatives are under investigation to use algae to recover resources, including nutrients and biofuel to achieve energy sustainability at WPCPs in general, and these initiatives are being followed to determine applicability for the Water Department.

Wastewater Facility Master Planning

The Water Department is creating a year 2050 Wastewater Facility Master Plan for each of the three wastewater treatment plants, Northeast, Southeast, and Southwest WPCPs. As outlined above, the Water Department has a combination of regulatory requirements such as the LTCPU to construct new plant processes, economic opportunities to develop energy initiatives from waste treatment, research projects investigating alternative technologies to treat wastewater and potentially recover resources from the waste stream, as well as replacement of capital assets such as buildings, pumps, electrical switch gear, etc., that will require large capital investments over the next 35 years. The Water Department is committed to developing a holistic facility master plan to meet these challenges, and providing fiscal guidance for the timing for the construction of new projects. The Facility Master Plan will incorporate elements of long term population projections changes, sewer flow projections including suburban contracts, land redevelopment, as well as aging infrastructure by year 2050, and the potential to rebuild or replace wastewater treatment plants city-wide to meet the changing city and changing technologies in the years ahead.

Planning and Research has initiated the NE WPCP Facility Master Plan, by assessing the existing plant infrastructure, and mapping timelines for LTCPU and AMS regulatory construction timelines. By 2016, the Water Department will have completed the Master Plans for all three wastewater facilities, and will continue to re-examine the city-wide strategy often to ensure the Water Department can proactively meet any new regulatory issues or demographics, and maximize the resources in the wastewater to capture energy or nutrients as part of the Water Department's mission of sustainability and cost savings.

Computational Fluid Dynamics

Planning & Research provides in-house capability to perform complex computational fluid dynamic (CFD) modeling. This cost-effective tool of computer flow simulations allows for alternative selection, design, and analysis of hydraulic processes. This capacity is utilized extensively by the water and wastewater treatment plant processes, as well as distribution tanks reservoirs, and even stream flow and the Fairmount Fish Ladder optimization. Many alternatives can be studied in a matter of weeks, without the need to build physical models. The CFD capacity is in line with the Water Department's history of strong internal engineering.

Specific examples of CFD use for regulatory requirements include wastewater plant expansion required for the Long Term Control Plan Update (LTCPU) to prevent sewer overflow. CFD modeling

identified a hydraulic bottleneck in the NE WPCP secondary clarifier, and was then used to develop a series of potential solutions. The optimal solution was completed in 2012, resulting in a 15 MGD capacity increase and improved overall plant operations. Likewise, a chlorine feed system was designed for disinfection treated wastewater in a proposed 215 MGD conduit. Planning & Research performs laboratory studies of wastewater disinfection rates to calibrate the reaction rates necessary for a chlorine feed system. An optimized feed system was modeled by CFD flow simulations to properly size the chemical feed system to ensure regulatory compliance with a newly constructed plant unit.

Biosolids Treatment and Utilization

The City is required by federal and Commonwealth law, administered by the EPA and the PaDEP, respectively, to treat and dispose of biosolids captured during wastewater treatment at the City's WPCPs. Biosolids from the three WPCPs are treated at the Biosolids Recycling Center (the "BRC"). The BRC had historically produced two grades of biosolids, as defined by state and federal regulations. These were Class A biosolids compost and Class B dewatered biosolids cake. Class B biosolids were used on farmlands and at mine reclamation sites and co-disposed with trash at municipal solid waste landfills. Class A compost, which was produced at the BRC until October 2007, was put to a variety of local and regional uses, including garden and horticultural applications and recreation sites.

Biosolids processing and distribution is governed at the national level by EPA regulations published at 40 CFR Part 503 regulations in February 1993 (the "Part 503 Regulations"). The Part 503 Regulations require, among other things, certain record keeping and monitoring procedures and compliance with technical standards for pathogen reduction, vector attraction reduction and pollutant limits. These regulations are self-implementing and directly enforceable in that the EPA can initiate enforcement actions for non-compliance even in the absence of the EPA's issuance of permits under the NPDES permitting program. The Water Department is in full compliance with the technical standards in the Part 503 Regulations.

While the Water Department has administered a successful Class A and B biosolids program over the last 25 years, the nation has witnessed continuing health and environmental concerns raised by the public with Class B biosolids recycling. As such, in the summer of 2003, the Water Department began a process to move to an entirely Class A biosolids process, which could operate in Philadelphia without odors. It entered into a contract with the engineering consultant firm Camp, Dresser & McKee to assist with the procurement of facilities and services for Philadelphia, to operate the dewatering station for 20 years and to construct new facilities to produce Class A biosolids products. Alternative processes identified for this procurement process included fully-enclosed composting systems and heat drying technologies. The Request for Qualifications was released in August 2003, and, in response, the City received qualification statements from four teams, two of which were found qualified and invited to receive a Request for Proposals.

One team, Philadelphia Biosolids Services, LLC ("PBS") submitted a proposal on November 24, 2004. This team proposed to build a pair of sludge dryers to produce Class A pellets. On June 19, 2008, City Council passed enabling legislation to allow the proposed contract with PBS to proceed. Mayor Nutter approved the contract with PBS in October 2008 and PBS has been operating the facility since October 13, 2008. The Water Department entered into a contract and lease with the Philadelphia Municipal Authority ("PMA") to operate the Water Department's existing BRC, including a dewatering station, and to construct new thermal drying facilities to produce Class A biosolids pellets. The contract term is up to 25 years, including a five-year renewal option. PMA has contracted with PBS to provide these services. PBS, in turn, has assigned certain of its rights and obligations under its contract with PMA to affiliated special purpose entities, Philadelphia Renewable Bio-Fuels, LLC ("PRB") and Philadelphia Project Finance, LLC ("PPF"). PRB and PPF are each wholly owned subsidiaries of Synagro Technologies, Inc. ("Synagro"). A 70% share of PBS is owned by Synagro-WWT, Inc., a wholly owned subsidiary of Synagro.

The contract included a provision for an initial transition period of up to five years, during which PBS took over operation of the existing Biosolids Recycling Center. Within the first four years of this period, PBS,

using tax-exempt bond financing in the aggregate principal amount of $68,275,000 obtained through the Pennsylvania Economic Development Financing Authority, designed, constructed and now owns and operates a thermal drying facility that handles all of the sludge processed by the Water Department and makes a Class A product in the form of pellets to be used as fertilizer and potentially as a fuel. PBS is also responsible for the disposition of the Class A pellets. The Class A period of operation will last 20 years with a five-year renewal at the option of the Water Department. The project is estimated and remains on track to result in savings of approximately $200,000,000 over the contract life.

When the contract was executed, the Water Department transferred the remaining 60 employees at this facility to other assignments. Subsequently, the Water Department also transferred to other units certain vehicles and equipment that had been part of the existing BRC operation but were no longer needed by the contractor. At this time, most of the fixed assets associated with the facility, except for those related to the discontinued composting operations, remain in service.

Fiscal Year 2009 payments to PBS totaled $16,387,368.08 for nine months. Fiscal Year 2010 payments totaled $20,792,641 for this contract. Fiscal Year 2011 payments were $22,493,502, including a one-time payment of $1,009,000 to Philadelphia Gas Works for an upgrade to the Texas Eastern natural gas pipeline that will serve the BRC. Fiscal Year 2012 payments totaled $21,835,872, which included partial year operation of the new Class A pellet facility. Fiscal Year 2013 was the first full year of operation of the Class A facility, with payments totaling $16,303,205.09. The Fiscal Year 2014 budget includes $21,1000,000 for payments on this contract.

Recent Developments Related to Synagro Technologies, Inc.

On April 24, 2013, Synagro filed for bankruptcy protection under Chapter 11 of the United States Bankruptcy Code ("Bankruptcy Code") with a plan to sell certain of its subsidiaries under Section 363 of the Bankruptcy Code. The filing was made with the bankruptcy court in Delaware and is docketed as Case No. 13-11041-BLS. The bankruptcy excludes Synagro project companies in Philadelphia involved in the operation of the Water Department's Biosolids Recycling Center (i.e., Philadelphia Project Holding, Inc., PPF, PRB and PBS). Synagro filed an amended plan of reorganization and related disclosure statement on July 3, 2013. The amended plan includes a stock sale of Synagro's special purpose entities to EQT (including the project companies operating facilities in Philadelphia), although these entities are outside the Chapter 11 filing. Under the proposed stock sale, the existing corporate structure will be retained and Synagro will continue in its role as guarantor of the services provided by the Philadelphia subsidiaries. The recently filed disclosure statement was approved by the bankruptcy court on July 18, 2013. A hearing to consider the confirmation of the plan of reorganization has been scheduled for August 20, 2013.

Synagro describes the bankruptcy filing as being designed to (i) re-organize its capital structure and (ii) facilitate the sale of certain project companies (including project companies noted above) to EQT. The filing of the proposed plan of reorganization was intended to make the sale to EQT more seamless for Synagro's customers and partners. The proposed sale is not anticipated to impact operations at the Biosolids Recycling Center.

The Water Department has developed a contingency plan in the event of a service disruption, which includes both legal and practical solutions to avoid any impact on the Water Department's wastewater operations. The Water Department believes it has the ability to address any possible disruption in the biosolids treatment and disposal process. The Water Department does not believe there will be a material increase in cost should there be a disruption in the biosolids treatment and disposal process.

Watershed Management

The Water Department's Office of Watersheds (the "OOW"), created by the Water Department in Fiscal Year 1999, is working to achieve viable and measurable improvements to the region's waterways by

implementing planning and management strategies that foster good science, public involvement and fiscal responsibility. Its goal is to meet regulatory requirements while enhancing the health and aesthetics of the environment. The OOW has been charged with the mission of integrating traditionally separate tasked programs, including the City's CSO program, the Stormwater Management Program, and its Source Water Protection Program, to maximize the resources allocated to these programs and to ensure the comprehensive achievement of each of their goals. The OOW organization is composed of engineers, aquatic biologists, environmental specialists, urban planners, GIS specialists and community and education outreach staff, which facilitates the necessary interdisciplinary approach to achieve watershed protection. The OOW is formulating watershed management plans for the City's receiving waters through the establishment of watershed partnerships. These partnerships act as a forum for participating members to work together to develop a watershed strategy that meets state and federal regulatory requirements but that also embraces the environmental/public sensitive approach to improve stream water quality and quality of life in communities. The Water Department has implemented an approach to water quality management that seeks to reduce water pollution from all sources in a manner that is based on measurable results, be it improvements to the dissolved oxygen and fecal coliform levels of the stream, or streambank restoration and the addition of riparian buffers to the adjoining park land, or a mixture of both. These improvements translate into a fair and equitable distribution of the costs related to pollution abatement and achieving water quality goals. The Water Department has also successfully engaged urban and suburban communities to explore inter-regional cooperation based on an understanding of the impact of land use and human activities on water quality. The Water Department has also been a municipal partner in the state-sponsored Act 167 Stormwater Management Plan for the Darby-Cobbs Watershed (completed in 2006) and was the sponsor for the Tookany/Tacony-Frankford Watershed Act 167 Plan (completed in 2009). The Water Department has contracted with the PaDEP to conduct a county-wide Act 167 Plan, focusing on the Pennypack (completed Summer 2011), Poquessing (Spring 2012) and Wissahickon (Fall 2013) watersheds.

A river conservation plan was also initiated for the Delaware Direct Watershed, within the City's boundaries, in the winter of 2007. This river conservation plan will serve as the basis an integrated watershed management plan, with a special focus on storm flood relief projects and the Water Department's CSOLTCP (described below). The Water Department kicked off the IWMP planning for the Delaware River Watershed at the end of 2009.

Source Water Protection

Based on the assessment findings and identification of top priorities for source water protection, the Water Department facilitated the formation of the Schuylkill Action Network ("SAN") in spring 2003 to focus on drinking water quality issues of the Schuylkill River Watershed, which covers parts of 11 counties in southeastern Pennsylvania. SAN team members include EPA Region III, PaDEP, the Water Department, DRBC, conservation districts, locally elected officials, watershed organizations, and other stakeholders assisting with the development of local solutions to watershed issues. In 2004, SAN was awarded a $1,150,000 grant from the EPA's Targeted Watershed Program - one of only 13 awarded nationally in 2004. Funding from the grant was applied to priority projects identified by SAN's working groups. SAN continues to successfully implement priority projects throughout the watershed due largely to its established network of participating watershed partners and working groups.

SAN's working groups include a steering committee, a planning workgroup, and technical workgroups to address the complex issues in the Schuylkill River watershed. SAN has been developing and implementing projects that restore and protect the watershed as a regional drinking water source and promote stewardship and education. SAN's projects have also involved transferring the experience and lessons learned to other communities and enhancing intergovernmental communication and coordination.

Most notably, SAN initiated the first early warning notification system for regional water quality and quantity events. The early notification of changes in surface water quality and quantity is important to public water suppliers and industrial users with intakes on both the Schuylkill and Delaware Rivers. The Delaware

Valley Early Warning System ("EWS") is a fully integrated computer-based system that includes three major components: a telephone-based notification system, the website and data management system, and a water quality monitoring network. The system provides a secure and centralized location through which the EWS participants, including water utility personnel, emergency responders, government agencies and industry representatives, can share information about source water quality and large scale contamination events. Additional features of the website include easy access to real time and historic water quality data, detailed event records, ArcGIS event mapping and a spill model analysis tool.

In addition, SAN also launched the first recreational advisory system of its kind in the summer of 2005. The Philly RiverCast System, www.phillyrivercast.org, uses near real-time precipitation, turbidity, and flow data to forecast probable bacteria levels in the Schuylkill River between Flat Rock Dam and Fairmount Dam (i.e., between Manayunk and Boathouse Row). The Philly RiverCast System relays this information to the public using a three-tier color scale to designate the suitability of water quality for contact recreational activities. The color scale is as follows:

- Green: Water quality is suitable for all recreational activities.
- Yellow: Water quality may not be suitable for activities involving direct contact with the river
- Red: Water quality is not suitable for activities involving direct contact with the river.

Since its launch in 2005, the Philly RiverCast website has experienced over 500,000 visits. The interest in this site provides the Water Department will the ability to gauge the public's interest in the recreational use of the Schuylkill River, an essential component to encouraging public stewardship of the river's natural resources.

Based on the success of the Source Water Protection Program, the Water Department has been awarded the EPA Region III (Mid Atlantic States) 2002 Source Water Protection Award, the American Water Works Association's 2003 Exemplary Source Water Protection Award and the 2005 American Council of Engineering Companies Diamond Award for the Schuylkill River Source Water Assessment. More recently, the Schuylkill Action Network has received the 2013 Governor's Award for Environmental Excellence. These awards recognize the Water Department as the model for the region and country in the area of Source Water Protection.

Investigation and Mitigation of Flooding

Several areas of the City (South Philadelphia, Northern Liberties, Washington Square West and Germantown) have experienced significant basement flooding during intense rain events. The frequency and intensity of flood producing rain events have increased in recent years. As a result of these events, the Water Department has initiated an intensive study of the basement flooding situation. The Water Department has initiated a hydraulic analysis of the sewer system in the flood prone areas in order to understand the cause of basement flooding as well as to determine possible solutions. The Water Department has begun and will continue to schedule flood relief capital projects into its capital program as determined by the hydraulic analysis. Thus far, the Water Department has programmed flood relief projects in Snyder Avenue, in South Philadelphia, and in the Northern Liberties area. These projects by their complex nature will take many years to design and construct. In order to provide more immediate relief for properties while capital solutions are identified, designed, and constructed, the Water Department has budgeted $1,332,500 in Fiscal Year 2013 for a Backwater Valve installation program. For Fiscal Year 2011, the Basement Protection Program installed 71 backwater valves and other preventive devices at a total cost of $225,675.48. In Fiscal Year 2012, the Basement Protection Program installed 40 backwater valves and other preventive devices at a total cost of $115,636.00.

As part of the Backwater Valve installation program, the Water Department will use private plumbers to evaluate flood prone properties to determine if they would benefit from the installation of one or more

backwater valves. If the determination is positive, then a backwater valve configuration will be engineered for that particular property and installed by a private plumber at the Water Department's cost. The property owners must agree to accept maintenance responsibility for the backwater valves. The Water Department has established an assistance program to alleviate flooding condition in basements due to heavy rainstorms. The following zip codes are eligible: 19107, 19123, 19145, 19146, 19147 and 19148. Seventy-two (72) properties were served in Fiscal Year 2009 at a total cost of $220,199.10. One hundred seventy-six (176) properties were served in Fiscal Year 2010 at a total cost of $566,552.00. Ninety-six (96) properties were served in Fiscal Year 2011 at a total cost of $202,438.00. Forty (40) properties were served in Fiscal Year 2012 at a total cost of $115,636.00.

Cityworks Computerized Maintenance Management System

The Water Department has utilized computer tracking of its operations and maintenance activities for over 30 years. Most of the water and wastewater infrastructure located in treatment plants, pumping stations and other above-ground infrastructure has been tracked using the MAXIMO application. Historically, the Water Department created individual databases for the tracking of linear, under-ground assets, with separate systems tracking work conducted on storm inlets, fire hydrants, valves, pipeline and sewer repairs, and over one dozen other systems. With the implementation of the Water Department's Geographical Information System (GIS) in the mid-2000s, the Water Department was ready to undertake a consolidation of the multiple systems for underground asset maintenance. Cityworks, by Azteca, Inc., was selected due to its strengths in interaction with the GIS and its strong customer front-end feature for assisting call center personnel. Cityworks licenses were obtained in 2009 and work to implement the system started in phases. Phase I included the incremental implementation of five autonomous workgroups between November 2010 and May 2011. On June 5, 2012, Phase II launched and included simultaneous activation of the numerous core field workgroups, including Customer Service, Emergency Desk, Distribution, Sewer Maintenance and full activation of the Call Center. This transition proceeded smoothly and represents a notable milestone of progress in improved customer service and data handling. Phase III will run from November 2012 until June 2013 and will complete the implementation of this system. Several groups including Industrial Waste, Construction, Sewer Examinations, and Green Infrastructure will launch into Cityworks during this final phase. Cityworks is creating an immense level of improvement by combining the formerly disparate tracking of many functions into a single streamlined system. Eventually, many reporting and data analysis capabilities are targeted for development; features that will assist process improvement in the Water Department's operations and maintenance activities.

Asset Management Initiative

The Water Department is developing an asset management structure, which will enhance the Water Department's philosophy and practices for infrastructure renewal. Presently functional units (i.e. wastewater operations) have developed performance measures and goals to achieve their core missions in managing assets. The Water Department currently employs a suite of programs to manage and assess its infrastructure in order to best meet its core missions (Maximo, capital facility inspection program, predictive/preventive maintenance programs for key assets, "point system" for scheduling water main replacement/rehabilitation, sewer assessment program for collector system condition assessment and GIS). These individual programs are utilized to make "best practice" rehabilitation or renewal decisions for the Water Department's collective infrastructure. The asset management initiative will investigate and identify appropriate asset management strategies for the Water Department to integrate into its decision making process to assist decision making and capital project ranking. This process will take place over the next several years. The Asset Management initiative will consider the relative risk of failure for the individual asset, life-cycle costing for replacement, ancillary damage/consequences if the asset were to fail, and operations and maintenance history of the asset (to evaluate non-capital options for extending the individual assets life). With this information and existing Water Department programs, an effective process will be developed to assist managers in making informed decisions of either increased maintenance (operating budget) to extend useful life, planning for capital expenditure using

life-cycle costing principles, and the relative rank of the capital expenditure compared to other proposed capital expenditures.

The water distribution system will be the first program to undergo enhanced risk-based evaluation to determine renewal and replacement needs for water distribution main pipes. The overall goal of this undertaking is to report a successful test case in using asset management strategies for a specific application and to expand such asset management strategies to other areas of the Water Department.

Innovyze CapPlan software is being utilized to evaluate the Water Department's distribution system characteristics. The software is designed to assign predictive break rates to each era of water main and a risk consequence to each water main segment. A long-term financial analysis to refine the target replacement rate for the water main inventory is expected to be completed by the end of Fiscal Year 2014.

The Water Department's Materials Engineering Laboratory ("MEL") at BLS is responsible for testing products used by the Water Department and other city agencies. While its focus is on testing products used in construction of the Water Department's infrastructure, it also tests items such as tools, fasteners, and paint for adherence to specifications and performance. MEL uses a Quality Certification Program ("QCP") to obtain quality materials for construction projects. The objective of the QCP is to protect the quality of major infrastructure materials and products by requiring adherence to accepted principles of quality control at the point of manufacture. In order to be eligible for supplying listed products to the Water Department, the supplier must achieve certification by MEL. Qualifications include an approved quality control manual and evidence that the standards contained therein are consistently being followed. Periodic on-site audits of manufacturing facilities are performed by MEL. For example, in 2012, MEL inspected a manufacturing site in Minnesota to witness the quality control testing of six, large diameter butterfly valves. Three of the valves failed at least one of the Water Department's specified tests (hydrostatic, leakage and performance). MEL stayed on-site to witness repairs and successful re-testing. The cost of the inspection was 1.5% of the value of the valve order ($180,000).

Energy

Historically, the pricing of energy has determined how the Water Department thinks about energy. By monitoring electrical demand and reducing waste, the Water Department has effectively controlled its energy costs. However, removal of the rate caps on electricity, volatile energy markets in general, wet weather pumping scenarios, and carbon footprint reduction have initiated a fresh look into policies and procedures to conserve energy and identify alternative sources. The Water Department convened an energy management team which developed a comprehensive energy policy titled the Utility-Wide Strategic Energy Plan. This Plan includes Key Performance Indicators, Energy Conservation Measures, energy cost projections, and options to develop renewable energy sources.

In alignment with the Strategic Energy Plan, construction of a 5.6 MegaWatt digester gas (biomethane which is a renewable energy source) cogeneration facility is in progress at the Water Department's Northeast Water Pollution Control Plant ("WPCP"). Once operational, this project is expected to produce over 40 million kWh per year, which is approximately 15% of the Water Department's current annual electricity usage.

Efforts to enhance digester gas production at the Water Department's WPCPs have been initiated. The Water Department accepts glycol (aircraft de-icer fluid) from the Philadelphia International Airport directly into the anaerobic digesters at the Southwest WPCP. The addition of glycol to the digesters creates revenue for the Water Department and saves the airport money by reducing the cost of glycol disposal. Most importantly, this moves the waste stream processing of glycol from an energy intensive aerobic process to an energy producing anaerobic process. A successful preliminary feasibility analysis was conducted to evaluate the OpenCEL system, leading to the full-scale piloting of the system, currently underway. The OpenCEL system lyses the cells of the organic matter entering the anaerobic digester, resulting in an increase in available food for digester microbiology, reduced solids, and increased methane generation. The Water Department has

commissioned a two-phase feasibility study on the addition of food waste to the anaerobic digesters at the Southwest WPCP.

The Water Department participates annually in a "demand reduction program," through which the largest electrical users within the Water Department (primarily Wastewater Operations) curtail energy use for a specified period during times of high demand. This enables the regional transmission authority to keep the grid active on high energy demand days, helping to prevent system-wide blackouts and/or rolling brownouts. Participation in this program is compensated. In Fiscal Year 2013, the Water Department received over $300,000. The Water Department continues to optimize its participation in this and similar programs.

In February 2012, the Water Department's Southeast WPCP sewage geothermal project was put into operation, marking the first use of Novathermal's sewage geothermal technology in the United States. This renewable energy technology extracts the thermal energy from sewage and uses it to heat the plant's Compressor Building. This project is currently being evaluated for modifications to allow for expanded us and for enhanced monitoring to advance the state of knowledge in sewage geothermal systems.

The Water Department installed and operates a 250 kWp photovoltaic solar system at the Southeast WPCP. This solar panel system generates approximately 300,000 kWh AC power per year which is equivalent to about 30 homes in Philadelphia. Solar power offsets daytime demand and produces renewable energy "behind the grid."

The Water Department continues to explore the feasibility of renewable energy opportunities at its facilities including biogas co-digestion, geothermal wells, hydroelectric, hydrokinetic, food waste co-digestion, and other enhanced gas production pathways. The Water Department looks to continue is leadership in renewable energy generation and sustainable energy innovation.

The Philadelphia Naval Shipyard

The ownership of the water and sewer infrastructure within the former Philadelphia Naval Shipyard, now referred to as the Philadelphia Navy Yard ("PNY") was transferred from PAID to the Water Department in November 2009. PNY is a developing 1,200 acre industrial and commercial site. The Water Department had operated much of the water and sewer system under a contract with PAID since it was relinquished by the U.S. Navy under the federal base closure process. The Water Department has been working on a transition plan to assimilate the water and sewer systems into the public systems serving the rest of the City. Since some of the Navy-built water and sewer infrastructure at PNY did not comply with Water Department standards, improvements have been underway to modify and improve the existing system. In addition, significant development has occurred that required the expansion or reconfiguration of the existing water and sewer infrastructure. The New River City program budget included approximately $60,000,000 for the expansion and modernization of the water and sewer systems at PNY, of which $1,180,231.44 has not yet been disbursed.

The Water Department commenced retail billing for water and sewer services during April 2012. Since April 2012, the Water Department delivers water, wastewater and stormwater services to approximately 169 active accounts at PNY. The monthly billings for water, sewer and stormwater to the Water Department through the 96 meters for the month of July 2012 totaled $172,043 or approximately $2,065,000 per year, based upon rates in effect as of July 2012.

Security of Water Department Facilities and Water Supply

In light of the events of September 11, 2001, the Water Department took steps to improve the security of the City's water supply and all other major Water Department facilities and assets. These steps were taken in close coordination with the City's Managing Director's Office and all other appropriate City agencies and departments. The Water Department is representative agency in the City of Philadelphia Emergency Operations Center, which is designed to permit City emergency personnel to respond quickly to any major

event through specialized computer and communications equipment, including a backup 911 system. The Water Department remains in contact with federal, state, and local law enforcement and emergency personnel and has performed a vulnerability analysis of its entire potable water system. The work was primarily funded by the EPA.

It should be noted that the Water Department had an extensive water quality protection and security plan in place prior to the events of September 11, 2001. All finished water basins are completely covered; all plants are fenced in and topped by barbed wire; gates are secured; video surveillance equipment has been installed; and the Water Department continues to draw and conduct nearly one thousand tests on water samples from various locations each day. Municipal guards have been assigned to the main entrance at each water plant since 2002 to control access to the facility to only authorized persons and/or deliveries. Online water quality monitors provide continuous testing of all stages of the treatment process.

To further ensure the safety and quality of the City's drinking water, the Water Department will continue to expand its network to continuously monitor water quality using online instrumentation. The system provides the Water Department with the ability to track real-time water quality conditions at strategic locations throughout the City's water distribution system and to monitor any variations should they occur. Water quality data are currently transmitted from more than 37 monitoring sites to the Water Department's central laboratory (BLS) where engineers and scientists check for early warning signs of water quality deterioration and document any unforeseen changes. A team of engineers and technicians routinely calibrate and maintain these instruments. Ten of these sites are connected to an event detection system, BlueBox, wherein the continuously generated data are evaluated and unusual data are automatically alarmed. Alarms are then sent to water quality engineers at BLS for determinations of response.

The EPA, under its Water Security Initiative program, awarded a grant to the Water Department to develop and install a Contamination Warning System Demonstration Pilot for detecting and mitigating possible contamination of the City's drinking water distribution system. The City's project included total costs of $11,870,544. On November 21, 2008, the Water Department was notified that appropriations for the initial phase of the project totaling $2,677,963 were approved. The initial phase included $2,000,000 in Federal funds and $677,963 in local share. In calendar 2009, the Water Department received $3,750,000 of federal funding with an additional $3,750,000 in calendar year 2010. Thus the City received its full federal funding of $9,500,000 for the Demonstration Pilot. The City's share will comprise approximately $2,386,000 when the project is finished. More than 80% of the City's share is comprised of services-in-kind which are comprised of salaries and benefits for existing City employees assigned to the project. This CWS project was completed in May 2013. The technologies, tools and plan developed under the CWS are now being implemented as part of the Water Department's routine operations and emergency response capabilities.

BLS became a member of the U.S. EPA's Emergency Response Laboratory Network ("ERLN") and Water Laboratory Alliance ("WLA") on April 8, 2011. The ERLN is EPA's overarching laboratory network, created to address all types of environmental responses. The WLA is specifically focused on water laboratories and therefore is limited to incidents associated with water. Laboratories that participate in the ERLN and have the necessary capability for analyzing drinking water qualify as WLA members.

In 2009 preparations began to add back-up power generation to the Samuel S. Baxter Plant, the Torresdale High Service Pump Station and the Roxborough High Service Pump Station. Work on the Baxter Plant and the Roxborough High Station Pump Station was completed in 2010, and work at the Torresdale High Station Pump Station was completed in 2011.

Design preparation is currently underway for emergency generation equipment and switchgear replacement at the following facilities: Fox Chase Booster pump station, Torresdale Raw Water pump station and East Oak Lane pumping station. The remainder of the Water Department facilities are being studied and evaluated. Subject to space constraints, switchgear requirements, and coordination with other projects, it is anticipated that most of these facilities will be outfitted with back-up power generators by 2017.

LITIGATION AND CLAIMS

Claims against the Water Department are paid out of the Water and Wastewater Funds and only secondarily out of the City's General Fund, in the event cash balances in the Water and Wastewater Funds are insufficient at the time of payment of the claim. The General Fund is then reimbursed by the Water and Wastewater Funds for any such advance. The following discussion concerning litigation and claims, which has been prepared based on information supplied by the Law Department and has been reviewed by the Law Department, relates to litigation and claims against the City chargeable to the Water Fund. A discussion of other litigation affecting the City is set forth under the caption in APPENDIX IV – "GOVERNMENT AND FINANCIAL INFORMATION OF THE CITY OF PHILADELPHIA – Litigation."

Various claims have been asserted against the Water Department and in some cases lawsuits have been initiated. The Water Department may be liable if these claims are reduced to judgment or otherwise settled in a manner requiring payment by the Water Department.

The City, from the Water Fund, paid $4.6 million in Fiscal Year 2008, $5.0 million in Fiscal Year 2009, $4.0 million in Fiscal Year 2010, $5.4 million in Fiscal Year 2011, $2.1 million in Fiscal Year 2012 and $1.3 million in Fiscal Year 2013 for claims against the Water Department. The Water Department's budget for Fiscal Year 2014 contains an appropriation for Water Department claims in the amount of $6.5 million.

TAX EXEMPTION

Federal Taxation

In the opinions of Greenberg Traurig, LLP and Gonzalez Saggio & Harlan LLP, Co-Bond Counsel, under existing law, and assuming continuing compliance with certain covenants and the accuracy of certain representations, interest on the Bonds is excludable from gross income of the holders thereof for federal income tax purposes. Interest on the Bonds is not an item of tax preference for purposes of the federal alternative minimum tax imposed on individuals and corporations; however, such interest is taken into account in determining adjusted current earnings for the purpose of computing the alternative minimum tax imposed on certain corporations.

The opinions of Co-Bond Counsel on federal tax matters will be based on and will assume the accuracy of certain representations and certifications, and continuing compliance with certain covenants of the City to be contained in the transcript of proceedings and that are intended to evidence and assure the foregoing, including that the Director of Finance of the City and any other applicable City officer are authorized to take such other action on behalf of the City with respect to the use and investment of the proceeds of the Bonds as may be necessary to effect or maintain the exclusion of interest on the Bonds from the gross income of the holders thereof for federal income tax purposes. Co-Bond Counsel will not independently verify the accuracy of those certifications and representations.

The Internal Revenue Code of 1986, as amended (the "Code") prescribes a number of qualifications and conditions for the interest on state and local government obligations to be and to remain excludable from gross income for federal income tax purposes, some of which require future or continued compliance after issuance of the obligations in order for the interest to be and to continue to be so excludable from the date of issuance. Noncompliance with these requirements by the City may cause the interest on the Bonds to be included in gross income for federal income tax purposes and thus to be subject to federal income tax retroactively to the date of issuance of the Bonds. The City has covenanted to take the actions required for the interest on the Bonds to be and to remain excludable from gross income for federal income tax purposes, and not to take any actions that would adversely affect that excludability.

Under the Code, the exclusion of interest from gross income for federal income tax purposes may have certain collateral federal income tax consequences on items of income, deduction or credit for certain

taxpayers, including financial institutions, certain insurance companies, recipients of Social Security and Railroad Retirement benefits, those that are deemed to incur or continue indebtedness to acquire or carry tax-exempt obligations, and individuals otherwise eligible for the earned income tax credit. Interest on the Bonds may be subject to a federal branch profits tax imposed on certain foreign corporations doing business in the United States and to a federal tax imposed on excess net passive income of certain S corporations. The applicability and extent of these and other tax consequences will depend upon the particular tax status or other tax items of the owner of the Bonds. Co-Bond Counsel will express no opinion regarding those consequences.

Original Issue Discount

The Bonds maturing on January 1, 2043 were offered and sold to the public at a yield that is greater than the corresponding interest rate on such Bonds ("Discount Bonds"), which results in a price that is below their stated redemption price (the principal amount) at maturity. Under the Code, the difference between the principal amount of the Discount Bonds and the initial offering price to the public, excluding bond houses and brokers, at which price a substantial amount of such Discount Bonds of the same maturity was sold constitutes original issue discount. Original issue discount represents interest which is excluded from gross income to the same extent, and subject to the same considerations discussed above, as other interest on the Bonds. Original issue discount will accrue over the term of a Discount Bond at a constant interest rate compounded actuarially. A purchaser who acquires a Discount Bond in the initial offering at a price equal to the initial offering price thereof as set forth on the inside front cover page of the Official Statement for the Bonds will be treated as receiving an amount of interest excludable from gross income equal to the original issue discount accruing during the period he holds the Discount Bond, and will increase his adjusted basis in such Discount Bond by the amount of such accruing discount for purposes of determining taxable gain or loss on the sale or other disposition of such Discount Bond. The federal income tax consequences of the purchase, ownership and redemption, sale or other disposition of Discount Bonds, which are not purchased in the initial offering at the initial offering price, may be determined according to rules which differ from those described above. Owners of Discount Bonds should consult their own tax advisors with respect to the precise determination for federal income tax purposes of interest accrued upon sale, redemption or other disposition of Discount Bonds and with respect to the state and local tax consequences of owning and disposing of Discount Bonds.

Original Issue Premium

Certain of the Bonds were offered and sold to the public at a yield that is less than the corresponding interest rate on such Bonds ("Premium Bonds"), which results in a price that is in excess of their stated redemption price (the principal amount) at maturity. That excess constitutes bond premium. For federal income tax purposes, bond premium is amortized over the period to maturity of a Premium Bond, based on the yield to maturity of that Premium Bond (or, in the case of a Premium Bond callable prior to its stated maturity, the amortization period and yield may be required to be determined on the basis of an earlier call date that results in the lowest yield on that Premium Bond), compounded semi-annually (or over a shorter permitted compounding interval selected by the owner). No portion of that bond premium is deductible by the owner of a Premium Bond. For purposes of determining the owner's gain or loss on the sale, redemption (including redemption at maturity) or other disposition of a Premium Bond, the owner's tax basis in the Premium Bond is reduced by the amount of bond premium that accrues during the period of ownership. As a result, an owner may realize taxable gain for federal income tax purposes from the sale or other disposition of a Premium Bond for an amount equal to or less than the amount paid by the owner for that Premium Bond. A purchaser of a Premium Bond in the initial public offering at the price for that Premium Bond stated on the inside front cover page of this Official Statement who holds that Premium Bond to maturity (or, in the case of a callable Premium Bond, to its earlier call date that results in the lowest yield on that Premium Bond) will realize no gain or loss upon the retirement of that Premium Bond.

Owners of Premium Bonds should consult their own tax advisers as to the determination for federal income tax purposes of the amount of bond premium properly accruable in any period with respect to the

Premium Bonds and as to other federal tax consequences and the treatment of bond premium for purposes of state and local taxes on, or based on, income.

Purchasers of the Bonds at other than their original issuance at the price indicated on the inside front cover page of this Official Statement should consult their own tax advisers regarding other tax considerations such as the consequences of market discount.

Commonwealth of Pennsylvania Taxation

Co-Bond Counsel is of the opinion that the Bonds are exempt from personal property taxes in Pennsylvania, and interest on the Bonds is exempt from Pennsylvania personal income tax and Pennsylvania corporate net income tax, under the laws of the Commonwealth of Pennsylvania as enacted and construed on the date of initial delivery of the Bonds.

Changes in Federal and State Tax Law

From time to time, there are legislative proposals suggested, debated, introduced or pending in Congress that, if enacted into law, could alter or amend one or more of the federal tax matters described above including, without limitation, the excludability from gross income of interest on the Bonds, adversely affect the market price or marketability of the Bonds, or otherwise prevent the holders from realizing the full current benefit of the status of the interest thereon. It cannot be predicted whether or in what form any such proposal may be enacted, or whether, if enacted, any such proposal would apply to the Bonds. If enacted into law, the legislative proposals could affect the market price or marketability of the Bonds. Prospective purchasers of the Bonds should consult their tax advisors as to the effects of any proposed or pending legislation.

The opinions expressed by Co-Bond Counsel are based on existing law, which is subject to change. Such opinions are further based on factual representations made to Co-Bond Counsel as of the date thereof. Co-Bond Counsel has no duty to update or supplement their respective opinions to reflect any facts or circumstances that may thereafter come to such Co-Bond Counsel's attention, or to reflect any changes in law that may thereafter occur or become effective. Moreover, no opinion rendered by Co-Bond Counsel is a guarantee of a particular result, and no such opinion is binding on the Internal Revenue Service (the "IRS") or the courts; rather, each such opinion represents the professional judgment of the Co-Bond Counsel rendering such opinion based on its review of existing law, and in reliance on the representations and covenants that it deems relevant to such opinion.

Information Reporting and Backup Withholding

Interest paid on tax-exempt bonds such as the Bonds is subject to information reporting to the IRS in a manner similar to interest paid on taxable obligations. This reporting requirement does not affect the excludability of interest on the Bonds from gross income for federal income tax purposes. However, in conjunction with that information reporting requirement, the Code subjects certain non-corporate owners of the Bonds, under certain circumstances, to "backup withholding" at the rates set forth in the Code, with respect to payments on the Bonds and proceeds from the sale of the Bonds. Any amount so withheld would be refunded or allowed as a credit against the federal income tax of such owner of the Bonds. This withholding generally applies if the owner of the Bonds (i) fails to furnish the payor such owner's social security number or other taxpayer identification number ("TIN"), (ii) furnishes the payor an incorrect TIN, (iii) fails to properly report interest, dividends, or other "reportable payments" as defined in the Code, or (iv) under certain circumstances, fails to provide the payor or such owner's securities broker with a certified statement, signed under penalty of perjury, that the TIN provided is correct and that such owner is not subject to backup withholding. Prospective purchasers of the Bonds may also wish to consult with their tax advisors with respect to the need to furnish certain taxpayer information in order to avoid backup withholding.

NEGOTIABLE INSTRUMENTS

The Act provides that bonds issued thereunder shall have all the qualities and incidents of securities under the Uniform Commercial Code of the Commonwealth of Pennsylvania and shall be negotiable instruments.

ENGINEERING REPORT

The Engineering Report of Black & Veatch Corporation, Kansas City, Missouri, is included in APPENDIX II of this Official Statement in reliance upon the authority of such firm in engineering and related financial matters. Potential purchasers of the Bonds should read the Engineering Report in its entirety. As stated in the Engineering Report, actual results may differ materially from those projected, as influenced by the conditions, events, and circumstances that actually occur that are unknown at this time and/or which are beyond the control of Black & Veatch Corporation.

UNDERWRITING

The Bonds are being purchased by the underwriters listed on the front cover page of the Official Statement (collectively, the "Underwriters"), pursuant to a Bond Purchase Agreement between the City and Morgan Stanley & Co. LLC, on behalf of itself and as representative of the other Underwriters, at a purchase price of $184,258,358.86, which equals the principal amount of the Bonds, plus net original issue premium of $14,843,898.75 and less an aggregate Underwriters' discount of $585,539.89. The Underwriters will purchase all of the Bonds if any such Bonds are purchased. The obligation of the Underwriters to purchase the Bonds is subject to certain terms and conditions set forth in the purchase contract related to the Bonds.

Morgan Stanley, parent company of Morgan Stanley & Co. LLC, one of the Underwriters, has entered into a retail distribution arrangement with Morgan Stanley Smith Barney LLC. As part of the distribution arrangement, Morgan Stanley & Co. LLC may distribute municipal securities to retail investors through the financial advisor network of Morgan Stanley Smith Barney LLC. As part of this arrangement, Morgan Stanley & Co. LLC may compensate Morgan Stanley Smith Barney LLC for its selling efforts with respect to the Bonds.

TD Securities (USA) LLC, one of the Underwriters, has entered into a negotiated dealer agreement (the "Dealer Agreement") with TD Ameritrade for the retail distribution of certain securities offerings, including the Bonds, at the original issue price. Pursuant to the Dealer Agreement, TD Ameritrade may purchase Bonds from TD Securities (USA) LLC at the original issue prices less a negotiated portion of the selling concession applicable to any of the Bonds that TD Ameritrade sells.

The initial public offering prices of the Bonds set forth on the inside front cover page hereof may be changed without notice by the Underwriters. The Underwriters may offer and sell Bonds to certain dealers (including dealers depositing Bonds into investment trusts, certain of which may be sponsored or managed by one or more of the Underwriters) and others at prices lower than the offering prices set forth on the inside front cover page hereof.

RATINGS

Moody's, S&P and Fitch Ratings have assigned underlying municipal bond ratings of "A1", "A" and "A+", respectively, to the Bonds. Certain information was supplied by the City and the Water Department to the rating agencies to be considered in evaluating the Bonds. Such ratings express only the views of the respective rating agencies and are not a recommendation to buy, sell or hold the Bonds.

Any desired explanation of the significance of such ratings should be obtained from the rating agency furnishing the same, at the following addresses: Moody's Investors Service, Inc., 7 World Trade Center, 250

Greenwich Street, New York, New York 10007; Standard & Poor's Ratings Services, a Division of the McGraw-Hill Companies, 55 Water Street, New York, New York 10041; and Fitch Ratings, One State Street Plaza, New York, New York 10004. 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 such ratings will not be revised downward or withdrawn entirely by the rating agencies, if in the judgment of such rating agencies, circumstances so warrant. Any such downward revision or withdrawal of such ratings may have an adverse effect on the market price of the Bonds.

LEGAL MATTERS

Certain legal matters incident to the authorization, issuance and sale of the Bonds will be passed upon by Greenberg Traurig, LLP and Gonzalez Saggio & Harlan LLP, of Philadelphia, Pennsylvania and New York, New York, respectively, Co-Bond Counsel. The proposed form of such legal opinion is included herein as APPENDIX VI. Certain legal matters will be passed upon for the City by the City Solicitor. Certain legal matters will be passed upon for the Underwriters by Saul Ewing LLP and The Smyler Firm, each of Philadelphia, Pennsylvania.

FINANCIAL ADVISORS

Public Financial Management, Inc. and Phoenix Capital Partners, LLP, both of Philadelphia, Pennsylvania, have been retained by the City as Co-Financial Advisors in connection with the issuance of the Bonds and, in such capacity, have assisted the City in the preparation of Bond-related documents. The Co-Financial Advisors' fee for services rendered with respect to the sale of the Bonds is contingent upon the issuance and delivery of the Bonds. Although the Co-Financial Advisors have read and participated in the preparation of this Official Statement, they have not independently verified any of the information set forth herein. The information contained in this Official Statement has been obtained primarily from the City's records and from other sources that are believed to be reliable, including financial records of the City, reports of consultants and other entities that may be subject to interpretation. No guarantee is made as to the accuracy or completeness of any such information. No person, therefore, is entitled to rely upon the participation of the Co-Financial Advisors as an implicit or explicit expression of opinion as to the completeness and accuracy of the information contained in this Official Statement.

NO LITIGATION OPINION

Upon the delivery of the Bonds, the City Solicitor will furnish an opinion, in form satisfactory to Co-Bond Counsel and the Underwriters, to the effect that, among other things, and except as disclosed in this Official Statement, there is no litigation or other legal proceeding pending, or, to the best of her knowledge after customary inquiry, threatened in writing against the City, to restrain or enjoin the issuance or delivery of the Bonds or challenging the validity of the proceedings of the City taken in connection therewith or the pledge or application of any moneys provided for the payment of the Bonds, or contesting the powers of the City with respect to any of the foregoing.

CERTAIN REFERENCES

All summaries of the provisions of the Bonds and the security therefor, the Act, the General Ordinance set forth herein and in APPENDIX III and all summaries and references to other materials not purported to be quoted in full, are only brief outlines of certain provisions thereof and do not constitute complete statements of such documents or provisions. Reference is made hereby to the complete documents relating to such matters for the complete terms and provisions thereof or for the information contained therein. All estimates, assumptions and statistical information contained herein, while taken from sources considered reliable, are not guaranteed. So far as any statements are made in this Official Statement involving matters of opinion, or projections or estimates, whether or not expressly so stated, they are made merely as such and not as representations of fact.

The attached Appendices are integral parts of this Official Statement and should be read in their entireties together with all foregoing statements in this Official Statement.

The agreement between the City and holders of Bonds is fully set forth in the Bonds and the General Ordinance. Neither this Official Statement nor any advertisement for the Bonds is to be construed as constituting an agreement with purchasers of the Bonds.

CONTINUING DISCLOSURE

In accordance with the requirements of Rule 15c2-12 (the "Rule") promulgated by the Securities and Exchange Commission, the City will enter into a Continuing Disclosure Agreement (the "Continuing Disclosure Agreement") with Digital Assurance Certification, L.L.C., which shall constitute a written undertaking for the benefit of the owners of the Bonds, to assist the Underwriters in complying with the Rule and to provide continuing disclosure to the owners of the Bonds. See APPENDIX VII – "FORM OF CONTINUING DISCLOSURE AGREEMENT" for the detailed provisions of the Continuing Disclosure Agreement.

As of the date hereof, the City has complied in all material respects with its reporting obligations under each prior agreement entered into by it as required by the Rule in connection with its prior outstanding debt obligations.

CERTAIN RELATIONSHIPS

Greenberg Traurig, LLP and Gonzalez Saggio & Harlan LLP, Co-Bond Counsel, each provide ongoing legal services to the City and the Water Department. Greenberg Traurig, LLP also represents certain of the Underwriters in connection with transactions unrelated to the issuance of the Bonds. Saul Ewing LLP and The Smyler Firm, co-counsel to the Underwriters, provide legal services to the City and the Water Department from time to time. Black & Veatch Corporation, the Consulting Engineer, provides ongoing consulting and engineering services to the Water Department and other departments of the City.

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This Official Statement has been duly executed and delivered by the following officers on behalf of the City of Philadelphia, Pennsylvania.

CITY OF PHILADELPHIA

By: /s/ Michael A. Nutter
Michael A. Nutter, Mayor

By: /s/ Alan L. Butkovitz
Alan L. Butkovitz, City Controller

By: /s/ Shelley R. Smith
Shelley R. Smith, City Solicitor

Approved:

By: /s/ Rob Dubow
Rob Dubow, Director of Finance

APPENDIX I

FINANCIAL STATEMENTS OF THE WATER FUND
FOR FISCAL YEAR ENDED JUNE 30, 2012

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Financial Statements
For Fiscal Year Ended June 30, 2012

CITY OF PHILADELPHIA WATER DEPARTMENT

2012 FINANCIAL STATEMENTS

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The City of Philadelphia Water Department
Management Discussion and Analysis

The Philadelphia Water Department is a municipal utility serving the citizens of the Philadelphia region by providing integrated water, wastewater, and stormwater services. The utility's primary mission is to plan for, operate, and maintain both the infrastructure and the organization necessary to purvey high-quality drinking water, to provide an adequate and reliable water supply for all household, commercial, and community needs, and to sustain and enhance the region's watersheds and quality of life by managing wastewater and stormwater effectively.

The Water Department was established by the City pursuant to the City's Home Rule Charter with the power and duty to operate, maintain, repair and improve the Water and Wastewater Systems. The Charter requires the Water Department to fix and regulate rates and charges for supplying water and for wastewater treatment service in accordance with standards established by City Council. Such standards must enable the City to realize from rates and charges an amount at least equal to operating expenses and debt service charges on any debt incurred or to be incurred for the Water and Wastewater Systems, and proportionate charges for all services performed for the Water Department by all officers, departments, boards or commissions of the City. The Charter also authorizes the Water Department, with the authorization of City Council, to enter into contracts for supplying water service and sewer and sewage disposal service to users outside the limits of the City.

The operations of the Water Department are accounted for in the Water Fund, which is an enterprise fund of the City. The Water Fund is an accounting convention established pursuant to the Charter for the purpose of accounting for the assets, liabilities, revenues, expenses and Rate Covenant compliance on a legally enacted basis for the Water and Wastewater Systems. The Water and Wastewater Funds are funds required by the 1993 General Water Revenue Bond Ordinance to be established and maintained with the Fiscal Agent for so long as the Revenue Bonds authorized under the ordinance are outstanding. Under the ordinance, Water Fund Bond proceeds and Project Revenues must be segregated from other funds of the City.

The Water Department, which began water system service in 1801, supplies water to the City and a portion of each of Montgomery, Delaware and Bucks Counties, Pennsylvania, and wastewater service to the City and to ten municipalities and authorities located in Montgomery, Delaware and Bucks Counties, Pennsylvania. The population served by the water system was approximately 1,738,000 as of the 2010 census, of which 1,526,000 were in the City, 155,000 were in Bucks County and approximately 57,000 in Montgomery and Delaware Counties. The population served by the wastewater system was approximately 2,283,000 as of the 2010 census, of which 1,526,000 were in the City and 757,000 were in the suburbs.

Administration

The Water Department is managed by a Commissioner appointed by the Managing Director of the City with the approval of the Mayor. The Commissioner appoints deputies with the approval of the City's Managing Director; substantially all other employees of the Water Department are appointed under the provisions of the City's Civil Service Regulations.

The City's Department of Revenue performs all functions relating to meter reading, customer accounts and collections for the Water Department through the Water Revenue Bureau. The Department of Revenue and the Water Revenue Bureau are under the direction of the Director of Finance. The Director of Finance, as the chief financial, accounting and budget officer of the City, has overall responsibility for the fiscal administration of all City departments, including the Water Department. Audits of all City departments, including the Water Department, are performed annually by the Office of the City Controller. The Law Department of the City, headed by the City Solicitor, handles all legal matters affecting the Water Department.

Water and Wastewater Systems

The water and wastewater systems of Philadelphia are owned by the City and operated by the City's Water Department. The water system provides water to the City (130 square mile service area), to Aqua Pennsylvania, Inc., formerly Philadelphia Suburban Water Company, and to the Bucks County Water and Sewer Authority. The City obtains approximately 57 percent of its water from the Delaware River and the balance from the Schuylkill River. The water system serves approximately 471,916 accounts through 3,175 miles of mains, three water treatment plants, 15 pumping stations and provides fire protection through more than 25,200 fire hydrants.

The wastewater system services a total of 360 square miles of which 130 square miles are within the City and 230 square miles are in suburban areas. The total number of accounts is approximately 548,507. The wastewater and stormwater systems contain three water pollution control plants, a biosolids processing facility, 17 pumping stations, and approximately 3,657 miles of sewers. Based on its current NPDES discharge permit, the City is required to achieve effluent limitations that are considered more stringent than those required to achieve secondary treatment levels as defined in the Federal Water Pollution Control Act, as amended.

PWD's three water treatment plants deliver approximately 250 million gallons of top quality drinking water each day. The Department performs more than 350,000 tests annually at these plants to ensure consistent, optimal treatment and a healthy water supply. In addition, thousands of samples of tap water are analyzed annually at the Department's state of the art testing laboratory. These samples are collected from City reservoirs and from more than 65 locations throughout the Philadelphia area as well as monitoring water flows and pressures at 40 locations throughout the City.

The Department also treats wastewater at its three water pollution control plants. These plants treat approximately 461 million gallons of wastewater per day that meet or exceed federal and state standards, protecting and preserving our precious waterways. The Philadelphia Water Department also operates a central laboratory facility, and a range of technical and administrative support services.

The management of the Water Department has prepared this narrative overview and analysis of the financial statements of the City of Philadelphia, Pennsylvania Water Fund for the fiscal year. The information presented here should be read in conjunction with the financial statements immediately following the discussion and analysis.

Financial Highlights

The Water Department met its bond coverage ratios for the year with a revenue bond coverage ratio of 1.20, a total debt service coverage ratio of 1.09, and a net operating revenue bond coverage ratio of 1.24 prior to the deduction of the transfer to the rate stabilization fund.

At the end of the current fiscal year, the Water Fund's net assets totaled $865.3 million resulting from an excess of its assets over its liabilities; its unrestricted net assets showed a balance of $182.2 million.

The Water Fund's net assets showed an increase of $87.3 million during the current Fiscal Year compared with $22.8 million for the prior fiscal year.

Net Assets

As noted earlier, net assets are useful indicators of a government's financial position. At the close of the current fiscal year, the Water Department's assets exceeded its liabilities by $865.3 million.

Capital assets, such as land, buildings, meters, water mains, and sewer lines, less any outstanding debt issued to acquire these assets comprise $244.0 million of the Water Department's net assets. Although these capital assets assist in providing services to our customers, they are generally not available to fund the operations of future periods.

In addition, a portion of the Department's net assets, $439.5 million is subject to external restrictions as to use. The remaining component of net assets is the unrestricted net assets, which ended the fiscal year with $182.2 million.

Bond Issuance

On November 16, 2011, PWD settled on $184,855,000 in new money and refunding revenue bonds. The bonds were issued as the City of Philadelphia, Pennsylvania-Water and Wastewater Revenue Bonds, Series 2011A and Water and Wastewater Revenue Refunding Bonds, Series 2011B.

This transaction is more fully described in the "Subsequent Events" section of the footnotes attached to the financial statements.

Authorized and Unissued Bonds:

During Fiscal Year 2011, the department received authorization for up to $450,000,000 in additional new money bonds under the 14h supplemental ordinance (no. 110375). The current capital spending plan calls for the issuance of these bonds beginning in early FY 2014. The department was also authorized to refinance up to $240,000,000 in existing Water Revenue bonds under the 13h supplemental ordinance (no. 110376).

Pennvest Loans

During fiscal years 2009, 2010 and 2011, the Water Department settled on four Pennvest (the Pennsylvania State Infrastructure Financing Authority) Loans. Drawdowns on these loans continued during FY 2012.

These loans are more fully described in the "Pennvest Loans" section of the footnotes attached to the financial statements.

Subsequent Financing Events

On November 1, 2012, PWD settled on $70,370,000 in refinancing revenue bonds. The bonds were issued as the City of Philadelphia, Pennsylvania-Water and Wastewater Revenue Bonds, Series 2012A. These bonds were used to refinance the remaining series 2001a and 2001B City of Philadelphia, Pennsylvania-Water and Wastewater Revenue Bonds and to pay costs related to the transaction. The City refunded the Series 2001 Bonds with the proceeds of the Series 2012A Bonds as further described in the forepart of the Official Statement for this transaction.

This transaction is more fully described in the "Subsequent Events" section of the footnotes attached to the financial statements.

Water and Wastewater Rates

In terms of rates, the Philadelphia Water Department continues to have some of the lowest rates in the region for water, wastewater, and storm-water services. The PWD has had great success in containing costs, increasing employee productivity, and improving services. The Department has initiated numerous measures to improve service, reduce costs, and enhance revenues over the past decade. The cost of operating the wastewater facilities has been reduced. The refinancing of more than $2 billion in revenue bonds has resulted in a cumulative net present value savings in excess of $78 million in debt service expense. A Revenue Protection Unit created in Fiscal Year 2000 has recovered more than $20 million in previously unbilled revenue to date. The Department has steadily improved the credit rating of the revenue bonds. All seven of the major plant facilities have been winning national performance awards on an annual basis.

Beginning July 1, 2011, a typical residential customer's bill increased by an additional $3.49 a month, for a total monthly bill of $62.94. This change was for bills after July 1, 2011. A typical senior citizen's monthly bill increased by an additional $2.05, or a total monthly bill of $38.96, for those seniors who qualify for the Department's 25-percent senior citizen discount. The income test to qualify for this discount was increased to $29,700 on July 1, 2010.

Unlike many neighboring communities where sewer bills are separate from water bills or assessed through an annual charge, Philadelphians receive a bill that combines water, wastewater, and storm-water charges. Unfortunately, this combined billing sometimes leads to the impression that our water rates are high. In fact, even with the most recent revisions to rates, Philadelphia's water and sewer charges continue to be among the lowest in the region.

As shown on the following table, PWD's water rates are less than half those charged by many neighboring investor-owned utilities.

2013 Regional Residential Water and Sewer Charges*

	Monthly Water Bill	**Monthly Sewer Bill**
Aqua Pennsylvania+	$59.90	N/A
Pennsylvania American Water+	$54.60	N/A
New Jersey American Water+	$37.26	N/A
North Penn Water Authority +	$23.25	N/A
North Wales Water Authority +	$20.16	N/A
Doylestown Township, PA	$29.02	$38.75
Lower Gwynedd Municipal Authority **	N/A	$29.23
Cherry Hill Township, NJ	$37.26	$34.92
Trenton, NJ	$28.11	$25.69
Philadelphia Water Department	**$27.50**	**$21.14**

Rates in effect on January 1, 2013. Storm water charges ($12.10) are excluded from sewer calculations because many jurisdictions fund such services from the general tax base or a separate utility assessment.
Calculations based on 4,488 gallons/month (600 cu.ft.)
** Sewer-only utility.
+ Water-only utility.

Source: Philadelphia Water Department Local Rate Comparison

Bond Ratings

As of the close of the current fiscal year, Moody's, Standard and Poor's, and Fitch rate the City and its enterprise fund bonds as follows:

City of Philadelphia's Bond Ratings
General Obligation and Revenue Bonds

	Moody's Investor's Service	Standard & Poors Corporation	Fitch IBCA
General Obligation Bonds	A2	BBB	A-
Water & Sewer Revenue Bonds	**A1**	**A**	**A+**
Aviation Revenue Bonds	A2	A+	A

The ratings of the Water and Wastewater Revenue Bonds are more fully described in the "Bond Ratings" section of the footnotes, attached to the financial statements.

Fund Balances

During FY 2012 the department deposited $8.5 million to its Rate Stabilization Fund, bringing the cumulative fund balance to approximately $166.0 million, all of which is available to provide necessary working capital to the department and to offset future rate increases. In addition, approximately $17.3 million was transferred to the Residual Fund. To date, the department has transferred in excess of $308.4 million to its capital fund via its annual 1% transfer and $87.4 million via additional discretionary transfers to capital from its Residual fund.

Awards and Recognition

In 2011, the Water Department's three Water Pollution Control Plants were selected to receive Awards from the National Association of Clean Water Agencies ("NACWA"). NACWA's Peak Performance Awards Program recognizes member agency facilities for excellence in wastewater treatment as measured by their compliance with NPDES permits. The Northeast and Southeast WPCPs were recognized with Platinum Awards. Platinum Awards pay special tribute to member agency facilities that have received 5 or more consecutive Gold Awards, which recognize perfect compliance for the calendar year. The Northeast and Southeast WPCPs have achieved perfect permit compliance for 7 and 12 years, respectively. The Southwest Plant received a Gold Award for perfect compliance in 2011. In February 2010, the Southwest Plant received a violation for one NPDES parameter, which qualified the plant for a Silver award. Historically high flows in February 2010 contributed to the monthly mass loading of the CBOD 20 limit being exceeded. The Southwest plant had recorded perfect compliance for the previous seven years.

While the three WPCPs have continued their high levels of performance, the costs of operating them have been contained to approximately 3% annual increase between Fiscal Years 2000 and 2012 despite wage and energy cost increases. Currently, as part of its strategy to reduce CSO frequency and volume, the Water Department is treating a greater quantity of collected stormwater in the combined sewers that at one time was discharged to tributaries, removing pollutants at little additional cost for treatment. Optimization in the dosage of treatment chemicals, electricity use, reduced staffing levels and improved maintenance management practices have all contributed to this cost containment.

The Wastewater System has effectively and significantly improved the water quality of the Delaware River, thereby fostering both public and private development of the riverfront for commercial, residential and recreational uses.

Long-Term Control Plan for Combined Sewer Overflows

The PaDEP and the Water Department signed a consent order and agreement dated as of June 1, 2011 (the "COA") that will allow the Water Department to officially embark on the implementation of its landmark strategy that uses green practices to substantially eliminate combined sewer overflow to the City's waterways as set forth in the Green City, Clean Waters Program. The City of Philadelphia has been recognized as a national leader in its approach to the management and reduction of combined sewer overflow. Its Green City, Clean Waters Program is the most innovative stormwater management program in the nation to date, markedly ambitious in its use of "green" infrastructure rather than undertaking a "grey" approach to the management of CSO. The green approach relies on the use of largely green technologies such as stormwater tree pits, vegetated bumpouts, porous asphalt, rain gardens and sidewalk planters as a means to transform manmade surfaces that repel the rain to green acres which capture rainwater runoff to infiltrate, store and manage the rain as a precious resource. By contrast, a grey approach relies on the construction of tunnels and holding tanks for storage of combined sewer overflow until it can be processed. The Green City, Clean Waters Program is by far the most cost-effective way for the City to meet the requirements of the COA, the PaDEP, the Clean Water Act and its own laudable goal of protecting its waterways. The Water Department estimates that the City's use of green infrastructure in lieu of a grey approach will save the City approximately $8.0 billion over the length of the Program, as discussed below.

The Water Department submitted the plan to the US EPA and the PaDEP in September 2009 after vetting the plan with the public. Green City, Clean Waters lays the groundwork for the Water Department to spend approximately $2.4 billion over the next 25 years ($1.2 billion in 2009 dollars) to use largely green technologies described above. The plan also includes wastewater treatment facility enhancements and pipe renewal and replacement. Green City, Clean Waters works in tandem with the Mayor's Greenworks Philadelphia vision in order to reinvent Philadelphia into a green, sustainable city of the future. The Water Department projects that utilizing a grey approach to accomplish the same goals, would cost the City approximately $10 billion.

The Water Department has softly launched the plan over the last few years to development green infrastructure designs that work best in the Philadelphia landscape. These early projects serve as public demonstrations to citizens and provide the Water Department and its many partners with early opportunities to monitor and improve the efficiencies of these practices.

The COA complies with Clean Water Act requirements by adopting the Presumption Approach to Combined Sewer Overflow (CSO) control. Under the Presumption Approach, the COA sets the ultimate water quality goal as the elimination or removal of the mass of pollutants that otherwise would be removed by the capture of 85% by volume of the combined sewage collected in the City's combined sewer system during precipitation events. To ensure this ultimate goal is met, the COA requires that interim water quality milestones at Years 5, 10, 15 and 20 of the COA. The interim milestones require the City to achieve specific targets in four categories: (1) Total Greened Acres; (2) Overflow Reduction Volume; (3) Miles of Interceptor Lined; (4) WPCP Upgrades: Design and Construction A Greened Acre is described as an acre of impervious cover connected (tributary) to a combined sewer that subsequently is reconfigured to utilize green stormwater infrastructure to manage all or a portion of the stormwater runoff from that acre. Green stormwater infrastructure manages storm water using one or more of the source control processes of infiltration, evaporation, transpiration, decentralized storage, alternative stormwater routing, reuse, and others. The COA includes financial protections in the event that the costs of complying with the COA exceed our projections. Should COA costs increase to the point where they exceed 2.27% of the Median Household Income the City may petition the PaDEP for an extension of time to complete the COA so that the financial burden does not become excessive on ratepayers. The COA also includes stipulated penalties for violations of the COA. The only significant penalties involve non-compliance with the 5-year milestone targets. Penalties start at $25,000 per month for each violation (for the first SIX months) and increase up to $100,000 per month for uncured violations of 13 months or more. COA negotiations took almost two years. The negotiations resulted in a document memorializing the ultimate goal for the program and setting interim milestones that the Water Department believes are fair, reasonable, affordable and achievable.

Requests for Information

This financial report is designed to provide a general overview of the City of Philadelphia Water Department's finances for all interested parties. Questions concerning any of the information provided in this report, or requests for additional information, should be addressed to the Philadelphia Water Department, Finance Division, Aramark Tower, 5th Floor, 1101 Market Street, Philadelphia, Pa. 19107.

CITY OF PHILADELPHIA WATER DEPARTMENT

STATEMENT OF NET ASSETS, JUNE 30, 2012 AND 2011

(amounts in thousands)

	2012	2011
ASSETS		
Current Assets:		
Cash on Deposit and on Hand	$ 30	$ 30
Equity in Treasurer's Account	80,624	60,964
Due from Other Governments	519	230
Accounts Receivable	260,095	236,642
Allowance for Doubtful Accounts	(121,212)	(105,138)
Inventories	13,456	13,192
Prepaid Insurance - Surety Bond	-	-
Total Current Assets	233,512	205,920
Noncurrent Assets:		
Restricted Assets:		
Equity in Treasurer's Account	477,997	406,402
Sinking Funds and Reserves	152,570	130,299
Grants for Capital Purposes	-	-
Deferred Outflow - Financial Instruments	12,018	12,519
Receivables	1,393	952
Total Restricted Assets	643,978	550,172
Net Pension Asset	-	-
Capital Assets:		
Land	5,919	5,919
Infrastructure	2,087,956	2,055,254
Construction in Progress	314,162	270,769
Buildings and Equipment	1,572,818	1,514,322
Accumulated Depreciation	(2,042,854)	(1,959,538)
Total Capital Assets	1,938,001	1,886,726
Total Noncurrent Assets	2,581,979	2,436,898
Total Assets	**2,815,491**	**2,642,818**
LIABILITIES		
Current Liabilities:		
Vouchers Payable	6,871	7,529
Accounts Payable	12,304	8,080
Salaries & Wages Payable	3,947	4,044
Construction Contracts Payable	25,299	23,096
Accrued Expenses	21,470	22,465
Deferred Revenue	6,626	9,764
Funds Held in Escrow	2,095	1,906
Current Portion of Long Term Obligations	121,769	109,942
Total Current Liabilities	200,381	186,826
Noncurrent Liabilities:		
Bond Payable - Net	1,698,122	1,629,237
Derivative Instrument Liability	12,018	12,519
Other Noncurrent Liabilities	27,849	35,710
Net Pension Liability	11,801	542
Total Noncurrent Liabilities	1,749,790	1,678,008
Total Liabilities	**1,950,171**	**1,864,834**
NET ASSETS		
Invested in Capital Assets, Net of Related Debt	243,997	254,798
Restricted For:		
Capital Projects	120,608	88,011
Debt Service	152,569	130,298
Rate Stabilization	165,907	157,050
Unrestricted	182,239	147,827
Total Net Assets	**$ 865,320**	**$ 777,984**

STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET ASSETS
FOR THE FISCAL YEAR ENDED JUNE 30, 2012 AND 2011

(amounts in thousands)

	2012	2011
Operating Revenues:		
Charges for Goods and Services	$ 591,571	$ 553,169
Miscellaneous Operating Revenues	6,749	5,314
Operating Grants	3,481	2,726
Total Operating Revenues	601,801	561,209
Operating Expenses:		
Personal Services	105,448	104,323
Purchase of Services	73,962	70,964
Materials and Supplies	37,050	35,147
Employee Benefits	83,706	91,046
Indemnities and Taxes	663	10,831
Depreciation and Amortization	92,113	86,924
Total Operating Expenses	392,942	399,235
Operating Income (Loss)	208,859	161,974
Nonoperating Revenues (Expenses):		
Federal, State, & Local Grants	479	2,038
Interest Income	3,334	4,659
Net Pension Obligation	(11,259)	(17,913)
Debt Service - Interest	(85,374)	(95,728)
Other Expenses	(1,243)	(7,310)
Total Nonoperating Revenues (Expenses)	(94,063)	(114,254)
Income (loss) before Transfers	114,796	47,720
Transfers Out	(27,460)	(24,930)
Capital Contributions	-	-
Change in Net Assets	87,336	22,790
Net Assets - Beginning of Period	777,984	755,194
Adjustment	-	-
Net Assets - End of Period	**$ 865,320**	**$ 777,984**

STATEMENT OF CASH FLOWS
June 30, 2012 (amounts in thousands)

	2012	2011
Cash Flows from Operating Activities		
Receipts from Customers	$ 587,703	$ 564,965
Payments to Suppliers	(108,742)	(125,583)
Payments to Employees	(194,763)	(190,006)
Claims Paid	(3,047)	(5,384)
Other Receipts (Payments)	-	-
Net Cash Provided by Operating Activities	**281,151**	**243,992**
Cash Flows from Non-Capital Financing Activities		
Operating Grants Received	3,481	2,726
Operating Subsidies and Transfers to Other Funds	(27,460)	(24,930)
Net Cash Provided by Non-Capital Financing Activities	**(23,979)**	**(22,204)**
Cash Flows from Capital & Related Financing Activities		
Proceeds from Capital Debt	238,033	268,329
Capital Contributions Received	479	2,038
Acquisition and Construction of Capital Assets	(136,123)	(174,208)
Interest Paid on Capital Debt	(82,555)	(82,753)
Principal Paid on Capital Debt	(166,429)	(102,790)
Swap Termination Payments	-	(15,015)
Other Receipts (Payments)	(13,245)	(9,022)
Net Cash Provided (Used)by Non-Capital Financing Activities	**(159,840)**	**(113,421)**
Cash Flows from Investing Activities		
Interest and Dividends	(6,077)	(1,078)
Net Cash Provided by Investing Activities	(6,077)	(1,078)
Net Increase (Decrease) in Cash & Cash Equivalents	91,255	107,289
Balances - Beginning of the Year	467,396	360,107
Balances - End of the Year	**$ 558,651**	**$ 467,396**
Reconciliation of Operating Income (Loss) to Net Cash Provided (Used) by Operating Activities:		
Operating Income (Loss)	208,859	159,248
Adjustments to Reconcile Operating Income to Net Cash Provided (Used) by Operating Activities:		
Depreciation Expense	92,113	86,924
Change in Assets and Liabilities:		
Receivables, Net	(12,028)	4,734
Inventories	(264)	(279)
Accounts and Other Payables	3,469	(18,836)
Accrued Expenses	(7,861)	10,453
Deferred Revenue	(3,137)	1,748
Net Cash Provided by operating activities	**$ 281,151**	**$ 243,992**

BUDGETARY COMPARISON SCHEDULE
Water Operating Fund
For the Fiscal Year Ended June 30, 2012

(amounts in thousands)

Revenues	Budgeted Amounts Original	Budgeted Amounts Final	Actual	Final Budget to Actual Positive (Negative)
Locally Generated Non-Tax Revenue	$ 567,080	$ 563,661	$ 560,311	$ (3,350)
Revenue from Other Governments	3,000	2,600	3,192	592
Revenue from Other Funds	70,160	57,675	28,985	(28,690)
Total Revenues	**$ 640,240**	**$ 623,936**	**$ 592,489**	**$ (31,448)**
Expenditures and Encumbrances				
Personal Services	113,259	111,292	100,907	10,385
Pension Contributions	52,672	52,809	48,613	4,196
Other Employee Benefits	43,130	42,993	38,395	4,598
Sub-Total Employee Compensation	209,061	207,094	187,915	19,178
Purchase of Services	144,339	144,339	129,135	15,204
Materials and Supplies	46,993	45,740	42,726	3,014
Equipment	5,263	6,516	3,187	3,329
Contributions, Indemnities and Taxes	6,603	6,603	3,047	3,556
Debt Service	196,177	196,177	192,423	3,754
Debt Service - Interest	-	-	-	-
Short-Term Interest	-	-	-	-
Payments to Other Funds	51,804	53,772	54,858	(1,086)
Total Expenditures and Encumbrances	660,240	660,240	613,290	46,950
Operating Surplus (Deficit) for the Year	**$ (20,000)**	**$ (36,304)**	**$ (20,802)**	**$ 15,502**
Fund Balance Available, July 1, 2011	-	-	-	-
Operations in Respect to Prior Fiscal Years				
Commitments Cancelled - Net	20,000	20,000	20,802	802
Prior Period Adjustments	-	-	-	-
Adjusted Fund Balance, July 1, 2011	20,000	20,000	20,802	802
Fund Balance Available, June 30, 2012	**$ (0)**	**$ (16,304)**	**$ (0)**	**$ 16,304**

CITY OF PHILADELPHIA WATER DEPARTMENT

BONDED DEBT FOR THE FISCAL YEAR ENDED JUNE 30, 2012

(amounts in thousands)

Series	ORIGINAL AUTHORIZATION Date	Issued	Outstanding June 30, 2012	Maturities	Interest Rates	FISCAL YEAR 2013 DEBT Service Interest	Principal Requirements	Outstanding June 30, 2013
Revenue Bonds:								
Series 1995	04/15/95	221,630	13,550	8/2007 to 8/2012	5.30 to 6.25	423	13,550	-
Series 1997 (B)	11/25/97	100,000	70,100	8/2007 to 8/2027	Variable	114	3,100	67,000
Series 1998	12/25/98	135,185	108,335	12/2011 to 12/2014	5.25	4,789	34,235	74,100
Series 2001	11/15/01	285,920	90,445	11/2011 to 11/2028	3.800 to 5.500	4,385	8,030	82,415
Series 2005 (A)	05/04/05	250,000	225,595	7/2007 to 7/2035	3.250 to 5.250	11,249	5,015	220,580
Series 2005 (B)	05/04/05	86,105	82,445	8/2007 to 8/2018	Variable	3,725	450	81,995
Series 2007 (A)	05/04/07	191,440	152,865	8/2007 to 8/2027	4.00 to 5.00	7,151	7,730	145,135
Series 2007 (B)	05/04/07	153,595	152,680	11/2007 to 11/2031	4.00 to 5.00	6,942	225	152,455
Series 2009 (A)	05/21/09	140,000	140,000	1/2017 to 1/2036	5.15 to 5.25	7,294	-	140,000
Series 2010 (A)	04/15/10	396,460	343,645	6/2010 to 6/2019	0.500 to 4.110	16,409	44,860	298,785
Series 2010 (C)	08/05/10	185,000	185,000	8/2016 to 8/2030	2.530 to 4.560	9,022	-	185,000
Series 2011 (A)	11/16/11	135,000	135,000			7,579	-	135,000
Series 2011 (B)	11/16/11	49,855	49,855			2,461	-	49,855
Pennvest - 1999	04/30/00	6,700	565	7/2007 to 4/2019	1.41 to 2.73	14	76	488
Pennvest - 2009 (B)	10/14/09	22,828	22,828	7/2013 to 6/2033	1.193 to 2.107	269	761	22,067
Pennvest - 2009 (C)	10/14/09	35,667	35,667	7/2013 to 6/2033	1.193 to 2.107	417	1,589	34,078
Pennvest - 2009 (D)	03/31/10	64,380	64,380	7/2013 to 6/2033	1.193 to 2.107	760	2,147	62,233
Pennvest - 2010 (B)		8,111	8,111			97	-	8,111
Total Revenue Bonds		**2,467,876**	**$ 1,881,066**			**83,100**	**121,769**	**$ 1,759,297**
General Obligation Bonds:								
Pennvest	06/15/93	20,000	-	07/2007 to 04/2012	1.00	-	-	-
Total Bonded Debt			**$ 1,881,066**			**83,100**	**121,769**	**$ 1,759,297**

ANNUAL BONDED DEBT SERVICE REQUIREMENT:

Fiscal Year	Interest	Principal	Total
2013	83,100	121,769	204,868
2014	76,377	129,021	205,398
2015	70,418	126,988	197,406
2016	65,640	132,152	197,792
2017	58,688	116,881	175,569

The First Series through the Thirteenth were refunded.

Capitalized Interest added to Construction in Progress in Fiscal 2012 was $5,094,561.
Interest Expense was reduced by the same amount.

SUPPLEMENTAL SCHEDULE OF RATE COVENANT COMPLIANCE FOR FISCAL YEAR ENDED JUNE 30, 2012 (Legally Enacted Basis)

(amounts in thousands)

LINE NO.		2012
1.	Total Revenue and Beginning Fund Balance	$ 613,291
2.	Net Operating Expense	(375,085)
3.	Transfer (To) From Rate Stabilization Fund	(8,526)
4.	**Net Revenues**	**229,680**
5.	Revenue Bonds Outstanding	(191,400)
6.	General Obligation Bonds Outstanding	-
7.	Pennvest Loan	(1,023)
8.	**Total Debt Service**	**(192,423)**
9.	**Net Revenue after Debt Service**	37,257
10.	Transfer to General Fund	(1,086)
11.	Transfer to Capital Fund	(18,867)
12.	Transfer to Residual Fund	(17,304)
13.	**Total Transfers**	**(37,257)**
14.	**Net Operating Balance for Current Year**	**-**

The rate covenant contained in the General Ordinance requires the City to establish rates and charges for the use of the Water and Wastewater Systems sufficient to yield Net Revenues, as defined therein , in each fiscal year at least equal to 120%(coverage A) of the Debt Service Requirements for such fiscal year (excluding debt service due on any Subordinated Bonds). In addition, Net Revenues, in each fiscal year, must equal at least 100%(coverage B) of : (i) the Debt Service Requirements (including Debt Service Requirements in respect of Subordinated Bonds) payable is such fiscal year; (ii) amounts required to be deposited of Subordinated Bonds) payable in such fiscal year; (ii) amounts required to be deposited into the Debt Reserve Account during such fiscal year; (iii)debt service on all General Obligations Bonds issued for the Water and Wastewater Systems payable is such fiscal year; (iv) debt service payable on Interim Debt in such fiscal year; and (v) the Capital Account Deposit Amount for such fiscal year, less amounts transferred from the Residual Fund to the Capital Account during such fiscal year. To insure compliance with the rate covenant, the General Ordinance requires that the City review its rates, rents, fees, and charges at least annually.

Additional Rate Covenant. As long as the Insured Bonds are outstanding, the City covenants to establish rates and charges for the use of the System sufficient to yield Net Revenues (excluding amounts transferred from the Rate Stabilization Fund into the Revenue Fund during, or as of the end of, such fiscal year) at least equal to 90% (coverage C) of the Debt Service Requirements (excluding debt service on any Subordinated Bonds) in such fiscal year.

COVERAGE A:	
Line 4	**$229,680**
/ Line 5	**$191,400**
= COVERAGE A:	**1.20**

COVERAGE B:	
Line 4	**$229,680**
/ Line 8 + Line 11	**$211,290**
= COVERAGE B:	**1.09**

COVERAGE C:	
Line 4 - Line 3	**$238,206**
/ Line 5	**$191,400**
= COVERAGE C:	**1.24**

1. THE GOVERNMENT OF PHILADELPHIA

The City of Philadelphia was founded in 1682 and was merged with the county in 1854. The City of Philadelphia, Pennsylvania (the "City" or "Philadelphia"), was incorporated in 1789 by an Act of the General Assembly of the Commonwealth of Pennsylvania (the "Commonwealth") (predecessors of the City under charters granted by William Penn in his capacity as proprietor of the colony of Pennsylvania may date to as early as 1684). In 1854, the General Assembly of the Commonwealth, by an act commonly referred to as the Consolidation Act, made the City's boundaries coterminous with the boundaries of Philadelphia County (the same boundaries that exist today) (the "County"), abolished all governments within these boundaries other than the City and the County and consolidated the legislative functions of the City and the County. Article 9, Section 13 of the Pennsylvania Constitution abolished all county offices in the City and provides that the City performs all functions of county government and that laws applicable to counties apply to the City.

Since 1952, the City has been governed under a Home Rule Charter authorized by the General Assembly of the Commonwealth (First Class City Home Rule Act, Act of April 21, 1949, P.L. 665, Section 17) and adopted by the voters of the City. The Home Rule Charter, as amended and supplemented to this date, provides, among other things, for the election, organization, powers and duties of the legislative branch (the "City Council"); the election, organization, powers and duties of the executive and administrative branch; and the basic rules governing the City's fiscal and budgetary matters, contracts, procurement, property and records. The Home Rule Charter, as amended, also provides for the governance of The School District of Philadelphia (the "School District") as a home rule school district. Certain other constitutional provisions and Commonwealth statutes continue to govern various aspects of the City's affairs, notwithstanding the broad grant of powers of local self-government in relation to municipal functions set forth in the First Class City Home Rule Act.

The City includes within its boundaries an area of approximately 134 square miles along the southeastern border of the Commonwealth of Pennsylvania (the "Commonwealth") and is located at the confluence of the Delaware and Schuylkill Rivers. Philadelphia is the largest city in the Commonwealth, co-terminous with the County of Philadelphia. Philadelphia is the nation's fifth largest city, with 1.536 million residents, based on 2011 U.S. Census estimates. While modest, Philadelphia's population gain from 2000 to 2010 was its first in 60 years. This continued in 2011 with the City adding 10,465 residents, as estimated by the U.S. Census Bureau.

The city's water department supplies water and provides wastewater treatment services to residents of Philadelphia and portions of Bucks, Montgomery, and Delaware Counties (G.O. rated Aa1, Aaa, and Aa2, respectively), although over 90% of those served are residents of the city and approximately 9% are from Bucks County. In 2011 the total service area population for water was 1,747,371. Reatil service provided within the City limits to an average of 473,837 accounts The suburban portions of the service area are wealthier and somewhat faster-growing than the city, but are much less significant to the system as they account for less than 10% of total customer revenues.

There are two principal governmental entities in Philadelphia: (1) the City of Philadelphia, which performs both the ordinary Municipal functions and the traditional County functions; and (2) the School District of Philadelphia, which is part of the Public Education System of the Commonwealth of Pennsylvania. In addition to the School District of Philadelphia, there are a number of other governmental and quasi-governmental entities operating within the City. The financial statements as set forth herein present only the operations of the City of Philadelphia Water Fund.

The City is governed largely under the 1951 Philadelphia Home Rule Charter. In some matters, including the issuance of short and long-term debt, the City is governed by the laws of the Commonwealth of Pennsylvania.

The City Government is responsible for establishing and the Water Department is responsible for maintaining internal controls designed to protect the assets of Water Department from loss, theft or misuse and to ensure that adequate accounting data are compiled to allow for the preparation of Financial Statements in conformity with **G**enerally **A**ccepted **A**ccounting **P**rinciples. These internal controls are subject to periodic evaluation by management and the City Controller's Office in order to determine their adequacy.

The Philadelphia Water Department serves the Greater Philadelphia region by providing an integrated water, wastewater, and storm water system. The utility's primary mission is to plan for, operate, and maintain both the infrastructure and the organization necessary to purvey high quality drinking water, to provide an adequate and reliable water supply for all household, commercial, and community needs, and to sustain and enhance the region's watersheds and quality of life by managing wastewater and storm water effectively. In fulfilling its mission, the utility seeks to be customer-focused, delivering services in a fair, equitable, and cost-effective manner, with a commitment to public involvement. Having already served the City and region for nearly two centuries, the utility's commitment for the future includes an active role in the economic development of Greater Philadelphia and a legacy of environmental stewardship.

The Water Revenue Bureau of the Department of Revenue of the City gathers and processes meter readings of the Water Department customers, issues the invoices for the services provided by the Water Department, processes the revenue collected for these services, thus maintaining the Accounts Receivable of the Water Department. The Director of Finance performs general fiscal accounting and has overall responsibility for the fiscal administration of all City departments, including the Water Department. The audit requirements for the City, including the Water Department, are the responsibility of the Office of the City Controller. Legal matters affecting the Water Department are the responsibility of the Office of the City Solicitor.

In order to accomplish its mission and pursuant to the Philadelphia Home Rule Charter, the Water Department has the power and duty to operate, maintain, repair and improve the City's Water and Wastewater Systems. The Water Department is managed by a Commissioner who is appointed by the City's Managing Director with the approval of the Mayor. The Commissioner appoints his deputies with the approval of the City's Managing Director and substantially all other employees are appointed under the provisions of the City's Civil Service Regulations. The executive offices of the Water Department are located at Aramark Tower, 1101 Market Street, Philadelphia, Pennsylvania 19107-2994.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

The financial statements of the Philadelphia Water Department have been prepared in accordance with Generally Accepted Accounting Principles (GAAP) as they apply to governmental units. The Governmental Accounting Standards Board (GASB) of the American Institute of Certified Public Accountants is the accepted standard setting body for establishing governmental accounting and financial reporting principles. The more significant of the City's accounting policies are described below.

A. Basis of Accounting

For purposes of rate setting, calculating rate covenant compliance, debt service coverage and budgeting, the Water Fund accounts are maintained on the modified accrual basis of accounting also referred to as the "Legally Enacted Basis." Under this basis, revenues are recognized in the accounting period in which they are received. Investment earnings are recorded when earned, as they are measurable and available. Expenditures are recorded in the accounting period in which the fund liability is incurred, if measurable, except expenditures for debt service, prepaid expenditures, and other long-term obligations, which are recognized when paid. Expenditures for claims and judgments, compensated absences and other long-term obligations are accrued if expected to be liquidated with available resources.

At fiscal year-end the Water Fund accounts are adjusted to the full accrual basis of accounting required by GAAP. The Water Fund is accounted for on a flow of economic resources measurement focus. With this measurement focus, all assets and all liabilities associated with the operation are included on the Statement of Net Assets. Fund equity (i.e., net total assets) is segregated into contributed capital and retained earnings components. In accrual basis accounting, revenues are recognized in the accounting period in which they are earned and expenses are recognized at the time the liabilities are incurred. Under GASB Statement No. 20, Accounting and Financial Reporting for Proprietary Activities, the Water Fund will continue to follow Financial Accounting Standards Board (FASB) pronouncements issued on or before November 30, 1989 unless those pronouncements conflict with or contradict GASB pronouncements and will follow FASB standards issued after that date which do not conflict with GASB standards.

Water revenues, net of uncollected accounts, are recognized as billed on the basis of scheduled meter readings. Revenues are accrued for unpaid bills at June 30 and for services provided but not yet billed at June 30.

B. Legal Compliance

The City's budgetary process accounts for certain transactions on a basis other than GAAP.

In accordance with the Philadelphia Home Rule Charter, the City has formally established budgetary accounting control for its operating and capital improvement funds.

The operating funds of the City-consisting of the General Fund, five Special Revenue Funds (County Liquid Fuels Tax, Special Gasoline Tax, Hotel Room Rental Tax, Grants Revenue and Community Development Funds) and two Enterprise Funds (Water and Aviation Funds) – are subject to annual operating budgets adopted by City Council. These budgets appropriate funds for all City departments, boards and commissions by major class of expenditure within each department. Major classes are defined as: personal services; purchase of services; materials and supplies; equipment; contributions; indemnities and taxes; debt service; payments to other funds; and miscellaneous. The appropriation amounts for each fund are supported by revenue estimates and take into account the elimination of accumulated deficits and the re-appropriation of accumulated surpluses to the extent necessary. All transfers between major classes (except for materials and supplies and equipment, which are appropriated together) must have Council approval. Appropriations not expended or encumbered at year-end are lapsed. Departmental comparisons of budget to actual activity are located in the City's Supplemental Report of Revenues and Obligations.

The City Capital Improvement Fund budget is adopted annually by the City Council. The Capital Improvement budget is appropriated by project for each department. Due to the nature

of the projects, it is not always possible to complete all bidding, contracts, etc. within a twelve-month period. All transfers between projects exceeding twenty percent for each project's original appropriation must be approved by City Council.

As part of the appropriation process, budget estimates of City related revenues are adjusted and submitted to City Council for review. Changes in revenue estimates do not need City Council approval, but are submitted in support of testimony with regard to the appropriation adjustments.

The following schedule reconciles the differences between the Legally Enacted Basis and GAAP Basis:

Water Fund		
Fund Balance-Legal Basis 6/30/12	$	-
Assets omitted from the legal basis:		
(1) Receivables from Other Governments or Funds	$	35,544
(2) Fixed Assets-Net of Depreciation		1,938,002
(3) Restricted Assets		643,747
(4) Proprietary Portion of Net Pension Obligation		(11,801)
	$	2,605,492
Liabilities omitted from the legal basis:		
(5) Construction Contracts Payable	$	(25,299)
(6) Other Current Liabilities		(150,311)
(7) Bonds Payable and Other Long-Term Debt		(1,737,989)
	$	(1,913,599)
Fund Balance accounts included in the legal basis:		
(8) Reserve for Collectible Receivables	$	103,858
(9) Reserve for Inventories		13,456
(10) Reserve for Purchase Commitments		56,113
	$	173,427
Equity accounts omitted from the legal basis:		
(11) Invested in Capital Assets, Net of Related Debt		(243,997)
(12) Restricted for Capital Projects		(120,608)
(13) Restricted for Debt Service		(152,569)
(14) Restricted for Rate Stabilization		(165,907)
	$	(683,081)
Unrestricted Net Assets – GAAP Basis – 6/30/2012	$	182,239

C. Water Account

The City has established a City of Philadelphia Water Account to be held exclusively for Water Department purposes, separate and apart from all other funds and accounts of the City, and not to be commingled with the City's Consolidated Cash Account or any other fund or account of the City not held exclusively for Water Department purposes.

The City has covenanted that it will not make temporary loans or advances of Bond proceeds or Project Revenues (even while temporarily held in the City's Consolidated Cash Account) from the Water Account, the Water Sinking Fund, the Water Sinking Fund Reserve or the Water Rate Stabilization Fund to any City account not held exclusively for Water Department purposes. The City has established subaccounts within the Water Account into which deposits and from which disbursements shall be made for operating and capital purposes.

D. Pledge of Revenues

Section 4.02 and 4.04 of the Water bond ordinance of 1989, as amended in 1993, which authorized the issuance of Water and Sewer Revenue Bonds, pledges and assigns to the Fiscal Agent for the security and payment of all Bonds, a lien on and security interest in all Project Revenues and amounts on deposit in or standing to the credit of the: 1) Revenue Fund; 2) Sinking Fund et.al.; 3) Subordinated Bond Fund: 4) Rate Stabilization Fund; 5) Residual Fund; and 6) Construction Fund etal. The Fiscal Agent shall hold and apply the security interest granted in trust for the Holders of Bonds listed above without preference, priority, or distinction; provided however, that the pledge of this ordinance may also be for the benefit of a Credit Facility and Qualified Swap, or any other person who undertakes to provide moneys for the account of the City for the payment of principal or redemption price and interest on any Series of Bonds (other than Subordinated Bonds), on an equal and ratable basis with Bonds, to the extent provided by any Supplemental Ordinance or Determination.

E. Grants from Other Governments

Grants from Federal, State, and other governments are recognized as revenue when grant expenditures have been recorded. Grants are recorded as non-operating revenues.

F. Property, Plant and Equipment

Property, plant and equipment are stated at cost. Where cost could not be developed from the records available, estimated historical cost was used to record the value of the assets. Upon sale or retirement, the cost of the assets and the related accumulated depreciation are removed from the accounts. Maintenance and repair costs are charged to operations.

Capital assets are defined by the City as assets with an initial individual cost of more than $5,000 and an estimated useful life in excess of three years.

G. Depreciation

Depreciation on fixed assets is provided on the straight-line method over their estimated useful lives as follows:

Computer equipment	3 years
Automotive	5 years
Leasehold Improvements	8 years
General and monitoring equipment	10-20 years
Buildings	40 years
Reconstructed transmission and distribution lines	40 years
New transmission and distribution lines	50 years

H. Construction in Progress

Cost of construction includes all direct contract costs plus overhead charges. Overhead costs include direct and indirect engineering costs and interest incurred during the construction period on projects financed with Revenue Bond proceeds. Interest is capitalized by applying the average financing rate during the year to construction costs incurred. Interest earnings on bond proceeds reduce the amount capitalized. Capitalization of interest during construction for Fiscal Year 2012 was $5,094,561.

I. Amortization of Bond Discount

Bond discounts and issuance costs are deferred and amortized by the bonds outstanding method.

J. Inventories

The materials and supplies inventory is priced using the "moving average cost" method.

K. Revenues

All billings rendered to general customers through June 30, 2012 are included in accounts receivable. In addition an amount for services rendered through June 30, 2012, but not billed, has been accrued. Historically, billings and collections for general customers remain relatively constant except for periods when there has been a rate change.

L. Rates

Under the Charter, the Water Department is empowered and required to establish rates for water and wastewater service, in accordance with standards ordained by City Council, but without further authorization required by the City Council, at levels which provide sufficient revenue to meet operating expenses of the water and wastewater systems, including interdepartmental charges for services provided to the Water Department, and debt service requirements on all obligations issued for the Water Department, as well as other specific covenants of the General Ordinance.

The City has covenanted in the General Ordinance that it has authorized the imposition of rates and charges by the Water Department sufficient to comply with the Rate Covenant and that it will not repeal or materially adversely dilute or impair such authorization.

The Philadelphia Code requires the Water Department to give written notice to City Council at least 30 days in advance of the filing of notice of any proposed change in water or sewer rates or charges and to submit with such written notice financial, engineering and other data upon which the proposed changes are based. After the filing of the proposed regulations providing for changes in rates or charges with the City's Department of Records, the Department of Records is required to give public notice that the regulations have been filed and that any person affected by the proposed regulations may request a public hearing before the Water Department and the City Solicitor. Revised rates and charges become effective ten days after filing of a decision by the Water Commissioner at the conclusion of hearings or at any time thereafter, at his discretion.

The Water Department filed a notice of request for new rates for the period Fiscal Year 2013 through Fiscal Year 2016 with City Council on February 3, 2012. The rate request was filed with the Department of Records on March 6, 2012. In accordance with the regulations, a hearing examiner and public advocate were appointed. Public hearings were held during the period from July 9 to July 31 and technical hearings were held during the week of August 7, 2012. The Department also proposed to change the way it charges customers for certain

stormwater management services; this part of the case was concluded with the Water Commissioner's decision of December 21, 2012, and new stormwater rates and charges were effective on January 1, 2013.

The new rates will allow the Water Department to meet rapidly escalating costs of fuel, chemicals, employee benefits, regulatory demands, and debt service, and to continue a variety of initiatives that are critical to protecting Philadelphia's drinking water quality, preserving its waterways, and improving stormwater management programs. The continuing demographic changes in the City are causing the Department's fixed costs (to maintain water mains, sewer mains, pumping stations, treatment plants, sewer inlets, etc.) to be spread over fewer customers.

The legality of the 2008 Rate Determination had also been challenged in a civil action commenced on December 17, 2009 upon the filing of a Complaint in Equity (the "Complaint") with the Court of Common Pleas. The Complaint contained seven counts that purport to state claims seeking declaratory relief under the Declaratory Judgments Act, 42 Pa. C.S. 7531, et seq., challenging the legality of parts of the Rate Determination and related regulations (Sections 300, et seq.) issued by the Water Commissioner, effective November 1, 2009 (the "Rate Determination Regulations"), to the extent that the Rate Determination Regulations establish three successive increases in water and sewer rates implemented or to be implemented during the period including Fiscal Years 2010 through 2012. As part of the 2013 rate case, the parties to this litigation agreed to settle this case and in a letter dated November 2, 2012 the plaintiffs filed a request to remove the trial list.

Historical Rates

The table below shows historical monthly water and sewer rates, based, in each case, on a typical general service customer with a 5/8 inch meter using 600 cubic feet or 4,488 gallons per month. Sewer charges include stormwater costs.

Philadelphia Water Department
Monthly Water and Sewer Rate Charges
July 1, 1993 to July 1, 2014

	Effective Date	Water	Sewer *	Total	% Increase
5/8" Meter Residential	07/01/93	$9.46	$ 22.33	$ 31.79	-
600 Cu. Ft. monthly	07/01/94	9.68	22.85	32.53	2.3
	07/01/95	9.98	23.55	33.53	3.1
	09/04/01	10.82	23.49	34.31	2.3
	07/01/02	12.23	23.11	35.34	3.0
	07/01/03	13.40	22.17	35.57	0.7
	02/01/05	15.68	24.36	40.04	12.6
	08/01/05	16.07	24.72	40.79	1.9
	07/01/06	17.29	26.24	43.53	6.7
	07/01/07	18.18	27.22	45.40	4.3
	11/01/08	19.84	28.58	48.42	6.7
	07/01/09	21.84	29.63	51.47	6.3
	07/01/10	23.85	30.47	54.32	5.5
	07/01/11	26.08	31.35	57.43	5.7
	01/01/13	27.50	33.24	60.74	5.8**
	07/01/13	28.71	35.52	64.23	5.7 **
	07/01/14	29.89	37.54	67.43	5.0**
5/8" Meter Residential	07/01/93	$6.23	$15.87	$ 22.10	-

500 Cu. Ft. monthly	07/01/94	6.37	16.23	22.60	2.3
Senior Citizen	07/01/95	6.57	16.73	23.30	3.1
(25% Discount)	09/04/01	7.11	16.67	23.78	2.1
	07/01/02	8.04	16.31	24.35	2.4
	07/01/03	8.81	15.55	24.36	0.0
	02/01/05	10.31	17.08	27.39	12.4
	08/01/05	10.56	17.34	27.91	1.9
	07/01/06	11.39	18.40	29.79	6.7
	07/01/07	12.00	19.09	31.09	4.4
	11/01/08	13.05	19.96	33.01	6.2
	07/01/09	14.35	20.68	35.03	6.1
	07/01/10	15.65	21.26	36.91	5.4
	07/01/11	17.10	21.86	38.96	5.6
	01/01/13	17.95	23.08	41.03	5.3 **
	07/01/13	18.75	24.68	43.43	5.8**
	07/01/14	19.49	26.05	45.54	4.9**

* Sewer charges include stormwater costs.
** Pending finalization of Joint Petition for Settlement.

Proposed Revision to the Water Department's Rate Process

In April 2012, City Council introduced Ordinance #12770 and Resolution #12808 that would require a ballot referendum that will appear on the November ballot, which would amend the Charter to allow City Council to establish an independent ratemaking body to be responsible for fixing and regulating rates and charges for water and sewer services; and establish open and transparent processes and procedures for fixing and regulating said rates and charges. This Ordinance was enacted and the Resolution was adopted in June 2012, and the referendum question was included on the ballot for consideration by the voters in November 2012. The amendment of the Charter was approved by referendum and City Council is now authorized to adopt an ordinance to implement a new ratemaking agency. Prospective rates established by a new ratemaking agency would be subject to the Act and the covenants and requirements of the General Ordinance, including the Rate Covenant. Any revisions to the rate process are planned for future rate proceedings applicable to Fiscal Year 2016 and future years.

M. Advance Service Charge

The City's Water Fund Regulations provide for the assessment of an "Advance Service Charge" (ASC) at the time a property is initially connected to the system. The initial charge is calculated to be the equivalent of three (3) monthly service charges. This long-standing practice of assessing an initial charge equivalent to the average of three monthly service charges has been consistent whether the billing period was semi-annually (through 1979), quarterly (1979-1994) or monthly (1994-2012). The Fund includes these charges in current revenues at the time they are received. Fund regulations also provide for a refund of any advance service charges upon payment of a $100 fee and permanent disconnection from the system. During FY 2012 353 disconnection permits were issued resulting in a refund or final credit of approximately $201,674 and 2,530 new connection permits were issued resulting in additional advance service charges of approximately $894,865. As part of the 2013 rate case, the Department agreed to freeze advanced service charges at their then current levels starting on January 1, 2013

N. Insurance

The City, except for the Gas Works, the Airport, and certain other properties, is self-insured for most fire and casualty losses to its structures and equipment and provides statutory worker's compensation, unemployment benefits, and health and welfare to its employees through a self-insured plan. Construction contractors are required to carry protective general liability insurance indemnifying the City and the Contractor. A reserve for payment of reported worker's compensation claims and incurred but unreported claims has been recorded in the accompanying financial statements as Other Long-Term Obligations.

O. Investments

All highly liquid investments (except for Repurchase Agreements) with a maturity of three months or less when purchased are considered to be cash equivalents.

The investments of the City are reported at fair value. Short-term investments are reported at cost, which approximates fair value. Securities traded on national or international exchanges are valued at the last reported sales price. The fair value of real estate investments is based on independent appraisals. Investments, which do not have an established market, are reported at estimated fair value.

P. Deferred Revenues

Deferred revenues represent funds received in advance of being earned. In the Water Fund, deferred revenues relate principally to overpaid Water and Sewer bills.

Q. Interfund Charges

In accordance with an agreement between the Finance Director and the Water Department, the Finance Director may transfer to the General Fund up to a limit of $4,994,000 in any fiscal year in "excess interest earnings" as defined by the Rate Covenants under the Ordinance. In fiscal 2012, excess interest earnings of $1,086,165 were transferred to the General Fund of the City.

3. ACCOUNTS RECEIVABLE

Balances consisted of the following:

FISCAL YEAR ENDED JUNE 30, 2012

Accounts Receivable:		
Billed in the Last Twelve Months	$	122,652,831
Billed in 15-year Cycle Billing		83,047,649
Penalties on Receivables		30,241,330
Other Receivables		24,153,089
Total	$	260,094,899
Bad Debts Written Off	$	8,974,475
Allowance for Doubtful Accounts:		
Billed in the Last Twelve Months	$	-
Billed in 15-year Cycle Billing		79,557,703
Penalties on Receivables		26,783,653
Other Receivables		14,870,645
Total	$	121,212,001

FISCAL YEAR ENDED JUNE 30, 2011

Accounts Receivable:		
Billed in the Last Twelve Months	$	117,632,542
Billed in 15-year Cycle Billing		72,712,071
Penalties on Receivables		24,767,472
Other Receivables		21,529,683
Total	$	236,641,768
Bad Debts Written Off	$	7,339,557
Allowance for Doubtful Accounts:		
Billed in the Last Twelve Months	$	-
Billed in 15-year Cycle Billing		48,584,676
Penalties on Receivables		31,730,041
Other Receivables		24,822,886
Total	$	105,137,603

3. THE TEN LARGEST RETAIL CUSTOMERS OF THE PHILADELPHIA WATER DEPARTMENT DURING FISCAL YEAR 2012

Customer	Billings (Millions)	% of total Billings	Consumption (MGD)	% of Total Consumption
City of Philadelphia	**$ 33.707**	**6.02%**	**4.66**	**6.23%**
Philadelphia Housing Authority	**11.730**	**2.10%**	**1.78**	**2.38%**
Philadelphia School District	**6.248**	**1.12%**	**0.57**	**0.76%**
Veolia Energy Phildelphia	**4.208**	**0.75%**	**0.99**	**1.32%**
University of Penna.	**3.786**	**0.68%**	**0.70**	**0.94%**
Federal Government	**3.523**	**0.63%**	**0.43**	**0.57%**
Temple University	**2.740**	**0.49%**	**0.55**	**0.73%**
SEPTA	**2.244**	**0.40%**	**0.20**	**0.26%**
Paperworks Industries Inc.	**2.183**	**0.39%**	**1.39**	**1.86%**
UPHS	**1.919**	**0.34%**	**0.41**	**0.54%**
Total Top Ten	**$ 72.288**	**12.92%**	**11.66**	**15.59%**
Total Retail Billings	**$ 559.689**		**74.82**	

5. WHOLESALE CUSTOMERS OF THE PHILADELPHIA WATER DEPARTMENT DURING FISCAL YEAR 2012

The department is permitted, via ordinance, to provide wholesale water and sewer service to jurisdictions outside of the City's borders. This "wholesale" service is provided via agreement. Service is limited to delivery of water or acceptance of wastewater at the City border.

Wastewater Customer	Revenues
Delcora	$ 8,440,530
Bucks County Water & Sewer Authority	7,820,704
Cheltenham Township	4,278,091
Upper Darby Township	3,451,100
Lower Merion Township	2,804,665
Lower Southampton Township	2,200,955
Springfield Township - Erdenheim	1,685,156
Springfield Township - Wyndmoor	232,623
Bucks (for Bensalem) *	1,797,944
Abington Township	1,433,486
Lower Moreland Township	797,524
Total	$ 34,942,778

Water Customer	Revenues
Bucks County Water & Sewer Authority	7,203,094
Aqua - PA	3,797,974
Total	$ 11,001,068
Total Wholesale Revenues	$ 45,943,846

6. PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment at June 30, 2012 and 2011 consisted of the following:

Fiscal Years Ended	June 30, 2012	June 30, 2011
Land	$ 5,919,160	$ 5,919,160
Buildings and related improvements	1,502,631,912	1,446,222,750
Meters and other improvements	98,531,871	96,866,875
Equipment	70,186,352	68,098,745
Transmission and distribution lines	1,989,424,359	1,958,386,850
Construction in progress	314,162,257	270,769,067
Total	$ 3,980,855,911	$ 3,846,263,447
Less: Accumulated Depreciation	(2,042,853,872)	(1,959,538,121)
Total	$ 1,938,002,039	$ 1,886,725,326

7. IMPAIRED ASSETS

Government Accounting Standards Board (GASB) Statement 42 requires the disclosure of the impairment of any major capital assets. Over the years there have been a number of PWD assets that were either damaged or destroyed, were abandoned or became functionally obsolete.

In the past, as these assets were removed from service their cost was removed from Utility Plant in service. Assets that were removed from service include the first Mixing & Receiving building at our Biosolids Recycling center which was destroyed by fire in the early 1990's, the grit, scum and screenings incinerators and related handling equipment at our waste water plants which were abandoned due to clean air permit considerations, the chlorine facilities at our water and wastewater plants that were replaced due to safety and clean air act considerations and the high pressure fire system which was removed from service in January 2005 when it was determined to be functionally obsolete.

One additional facility remains in service, which has become “functionally obsolescent” - the portion of our Biosolids Recycling Center which performs composting. Composting of our sludge products was stopped in approximately March of 2007 as an interim solution to the air management problems that have occurred at this site. A permanent solution for sludge processing that does not involve composting is still in the development. PWD’s engineering division estimates the value of the compost facilities that are “functionally obsolescent” (which were built in conjunction with the remaining BRC facilities which will remain in service such as the mixing/receiving building, administrative offices and the dewatering facility) to be in the area of $20 million, including the value of any land acquisition and site preparation costs.

In the summer of 2003, the Water Department began a process to move to an entirely Class A biosolids process, and one that could operate in Philadelphia without odors. It entered into a contract with the engineering consultant firm Camp, Dresser & McKee to assist with procurement of facilities and services for Philadelphia to operate for 20 years the dewatering station, and to construct new facilities to produce Class A biosolids products. Alternative processes identified for this procurement process included fully-enclosed composting systems and heat drying technologies. The Request for Qualifications was released in August 2003, and, in response, the City received qualification statements from four teams, of which two were found qualified and invited to receive a Request for Proposals. One team, Philadelphia Biosolids

Services, LLC ("PBS") submitted a proposal on November 24, 2004. This team offered to build a pair of sludge dryers. The Water Department has negotiated a long term contract with PBS for improvements to the Biosolids Recycling Center. The contract includes a provision for interim operation of up to five years, during which PBS will take over operation of the existing Biosolids Recycling Center. Within the first three to five years, PBS will finance, design, build, own, and operate a thermal drying facility that will handle all of the sludge processed by the Water Department and make a Class A product in the form of pellets that can be used as fertilizer and has potential as a fuel. PBS will be responsible for the disposition of the Class A pellets, thus relieving the Water Department of this burden. The Class A period of operation will last twenty years with a five year renewal at the option of the Water Department. The project is estimated to result in a savings of approximately $200 million over the contract life. On June 19, 2008, City Council passed enabling legislation to allow the proposed contract to proceed. Mayor Nutter approved the contract with PBS in October 2008 and PBS has been operating the facility since October 13, 2008. Since Fiscal Year 2009, payments consisted of the following:

FISCAL YEAR	AMOUNT
2009	12,609,352
2010	22,828,657
2011	21,418,021
2012	19,185,830
	$ 76,041,860

The Fiscal Year 2013 proposed budget includes $21,350,000 for payments to PBS.

As a result of the transfer of operations and the discontinuance of composting operations, a total of $40.5 million of equipment and facilities were retired. The balance of the equipment and facilities being utilized by the contractor remains on the balance sheet.

No additional asset impairments occurred during FY 2012

8. VACATION

Employees are credited with vacation at rates which vary according to length of service. Vacation may be taken or accumulated up to certain limits until paid upon retirement or termination. Employees' vacation time accrued in Fiscal Year 2012 was $9,537,297 and in 2011 was $9,413,414. The expense for vacation pay is recognized in the year earned.

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9. SICK LEAVE

Employees are credited with varying amounts of sick leave per year according to type of employee and/or length of service. Employees may accumulate unused sick leave to 200 days and union represented employees may convert up to 20 sick days per year to vacation days at a ratio of 2 for 1. Non-uniformed employees (upon retirement only) are paid 30% of unused sick time, not to exceed predetermined amounts. Employees, who separate for any reason other than indicated above, forfeit their entire sick leave. The City budgets for and charges the cost of sick leave as it is taken.

10. CAPTALIZED LEASES

Leases consist of $1,540,722 in photocopier and computer equipment in Fiscal 2012. Capital leases are defined by the Financial Accounting Standard Board in Statement 13, Accounting for Leases.

11. RATE STABILIZATION FUND

The Rate Stabilization Fund was created with the sale of the Series 1993 Revenue Bonds on August 20, 1993. The purpose of the Fund is to maintain assets to be drawn down to offset future deficits (and corresponding rate increase requirements) in the Water Department Operating Fund.

During Fiscal 2012 the fund had the following activity:

Balance at July 1, 2011	$ 157,050,374
Deposit from Operating Fund	8,525,507
Interest Earnings	438,097
Interest Transferred to Water Operating Fund	-
Balance at June 30, 2012	**$ 166,013,978**

12. RESIDUAL FUND

The Residual Fund was created with the sale of the Series 1993 Revenue Bonds on August 20, 1993. The purpose of the Fund is to maintain the remaining assets after payment of all operating expenses, payment of all debt service obligations including payments under a swap agreement, scheduled transfers to the Rate Stabilization fund, and required deposits to the Capital Account of the Construction Fund.

During Fiscal 2011 the fund had the following activity:

Balance at July 1, 2011	$ 53,515,938
Interest Income	186,110
Deposit from Operating Fund	18,390,190
Capital Payments for New River City Project	(3,801,347)
Transfer to General Fund	(1,086,165)
Transfer to Sinking Fund Reserve	(7,696,056)
Balance at June 30, 2012	**$ 59,508,670**

Note: Currently $14,801,594 is reserved for prior year encumbrances. (New River City Project)

13. DEBT RESERVE ACCOUNT

The General Ordinance establishes within the Sinking Fund a Debt Reserve Account which shall be funded from the proceeds of each series of Water and Wastewater Revenue Bonds; provided,

however, that if the Supplemental Ordinance authorizing a series of Water and Wastewater Revenue Bonds shall so authorize, the deposit to the Debt Reserve Account in respect of such Water and Wastewater Revenue Bonds may be accumulated from Project Revenues over a period of not more than three Fiscal Years after the issuance and delivery of such Water and Wastewater Revenue Bonds. The moneys and investments in the Debt Reserve Account shall be held and maintained in an amount equal at all times to the Debt Reserve Requirement. If at any time the moneys in the Debt Service Account of the Sinking Fund shall be insufficient to pay as and when due the principal of (and premium, if any) or interest on any Water and Wastewater Revenue Bonds or other obligations payable from the Debt Service Account (including obligations arising in connection with Qualified Swap Agreements and Credit Facilities), the Fiscal Agent is required to pay over from the Debt Reserve Account the amount of such deficiency for deposit in the Debt Service Account. With respect to any issue of Water and Wastewater Revenue Bonds, in lieu of the required deposit into the Debt Reserve Account, the City may cause to be deposited into the Debt Reserve Account a surety bond, an insurance policy or an irrevocable letter of credit meeting the requirements of the General Ordinance and the Bond Committee Determination relating to such issue.

The Debt Reserve Account Amendment authorizes (i) the Director of Finance to apply moneys currently on deposit in the Debt Reserve Account to purchase a surety bond or insurance policy complying with the terms of the General Ordinance (described below), (ii) the transfer of the resulting excess moneys in the Debt Reserve Fund to the Revenue Fund and from there, upon compliance with the provisions of the General Ordinance to a new account in the Residual Fund called the Special Water Infrastructure Account and (iii) the application of the moneys deposited in the Special Water Infrastructure Account to the cost of renewals, replacements and improvements to the Water and Wastewater Systems.

Under the terms of the General Ordinance, any surety bond, insurance policy or letter of credit provided by the City in lieu of required deposits within the Debt Reserve Account would have to meet the credit quality requirements of the General Ordinance. The insurer providing a surety bond or insurance policy is required to be an insurer whose municipal bond insurance policies insuring the payment of bond issues results in such issues being rated not lower than the second highest rating category (without regard to ratings subcategories) by either Moody's Investors Service Inc. ("Moody's") or Standard & Poor's Ratings Service ("S&P"). The letter of credit issuer providing a letter of credit is required to be a bank or trust company which is rated not lower than the second highest rating category (without regard to ratings subcategories). See APPENDIX III - "SUMMARIES OF CERTAIN AUTHORIZATIONS FOR THE BONDS - The Restated General Water and Wastewater Revenue Bond Ordinance of 1989 – Debt Reserve Account."

On November 26, 2007, the City deposited a surety policy issued by AGM in a principal amount of $67 million dollars to replace a portion of the cash and investments then existing in the Debt Reserve Account. The balance of the Debt Reserve Account as of September 30, 2011, in the amount of $130,182,797.74 was funded with Water and Wastewater Revenue Bond proceeds and earnings on the investment thereof. Transfers of $7,696,056 from the water residual fund to the water debt service reserve fund were made during fy 2012 to cover additional reserve requirements related to the Water Department's Pennvest loans.

On March 5, 2010, Moody's affirmed the Aa3 insurance financial strength rating of AGM, with a negative outlook. On September 27, 2011, S&P placed its AA+ counterparty credit and

financial strength ratings on AGM on credit watch with negative implications. On November 30, 2011, Standard & Poor's Ratings Services ("S&P") lowered its counterparty credit and financial strength ratings on Assured Guaranty Municipal Corp. ("AGM") to "AA-" from "AA+". In addition, on November 30, 2011, S&P removed the ratings on AGM from credit watch, where they had been placed on September 27, 2011, with negative implications, and stated the outlook as stable. S&P's rating of AGM reflects only the view of S&P; and any desired explanation of the significance of such rating should be obtained from S&P.

An explanation of the significance of any rating action should be obtained from the rating agency furnishing same. AGM currently meets the credit rating requirements prescribed by the General Ordinance with respect to eligible providers of surety policies for deposit in the Debt Reserve Account. The City and the Water Department are monitoring the financial condition and ratings of AGM in relation to such credit quality requirement. There can be no assurance as to any further ratings action that Moody's or S&P may take with respect to AGM.

The City filed an updated disclosure regarding the S&P AGM downgrade on December 8, 2011 as required by the continuing disclosure agreement.

14. ACCOUNTING FOR THE NEW RIVER CITY PROJECT FUNDS – WATER SINKING FUND RESERVE SUBSTITUTION

Pursuant to the Water Department's General Bond Ordinance, the Sinking Fund Reserve provides a reserve against default of the payment of principal and interest on Water Revenue Bonds when due.
The New River City Ordinance dated 1/23/07 (Bill No 060005) authorized the purchase and deposit of a surety bond that meets the requirements of the General Ordinance to replace $67,000,000 of the Sinking Fund reserve Balance. The $67,000,000 will be used as follows:

$2,010,000	Cost of the surety bond
290,000	legal and financial services
375,000	Management fees
64,325,000	Costs of certain water and sewer infrastructure components of the New River City Program

The prepaid surety bond was recorded as an asset in the Sinking Fund Reserve and amortized over the lives of the outstanding bonds.

In connection with the New River City Program, the Water Department executed a program agreement with Philadelphia Authority for Industrial Development ("PAID") to provide program management and oversight for the program. To date, twelve projects totaling $83,697,833 have been executed (actual disbursements will be limited to the $64,325,000 currently available in the Special Water Infrastructure Account and may be supplemented with other grants and/or loans). Eight of the twelve projects are completed. As of June 30, 2012, $14,801,594 of the project funds remain undisbursed for approved projects currently under construction and expected to be completed before June 30, 2013. As subsequently described, the transfer of the water and sewer utilities at Philadelphia Naval Business Center from PAID to the Water Department, including the projects outlined above, and occurred in November, 2009.

15. DEFERRED COMPENSATION PLAN

The City offers its employees a deferred compensation plan in accordance with Internal Revenue Code section 457. As required by the Internal Revenue Code and Pennsylvania laws in effect at June 30, 2007, the assets of the plan are held in trust for the exclusive benefit of the participants and their beneficiaries. In accordance with GASB Statement No. 32, *Accounting and Financial Reporting for Internal Revenue Code Section 457 Deferred Compensation Plans*, the City does not include the assets or activity of the plan in its financial statements.

16. ARBITRAGE REBATE

The City has issued Water Revenue Bonds subject to federal arbitrage requirements. Federal tax legislation requires the accumulated net excess of interest income on the proceeds of these issues over interest expense paid on the bonds be paid to the federal government at the end of a five-year period. The arbitrage liability for the three most recent years are as follows:

FISCAL YEAR	AMOUNT
2010	72,158
2011	76,295
2012	53,952

17. DEBT PAYABLE

Defeased Debt

In prior years, the Water Fund defeased certain bonds by placing the proceeds of new bonds in irrevocable trusts to provide for all future debt service payments on old bonds. Accordingly, the trust account assets and the liability for the defeased bonds are not included in the Water Fund's financial statements. As of June 30, 2012, $200.0 million of bonds outstanding was considered defeased, however, subsequent to that date, approximately $182.5 million of the above total has been redeemed.

Financings

On August 23, 2011, the outstanding balance of $70,100,000 of Water and Wastewater Revenue Bonds, Variable Rate Series 1997B was remarketed under an irrevocable direct-pay letter of credit from TD Bank. The LOC will constitute both a credit facility and liquidity facility from TD Bank, N.A. The Bonds continue to have a weekly interest rate reset and mature in 2027.

On October 1, 2011, the City and Water Department agreed to an extension of the existing Letter of Credit from Bank of America, N.A., supporting the Water and Wastewater Revenue Refunding Bonds, Series 2005B. The Bonds were not remarketed, nor was the existing amortization changed. The Bonds continue to have a weekly interest rate reset and mature in 2018.

On November 9, 2011, PWD settled on $184,855,000 of new money and refinancing bonds, the City of Philadelphia Water and Wastewater Revenue Bonds, Series 2011A and Water and Wastewater Revenue Refunding Bonds, Series 2011B. Net proceeds of the $135,000,000 Series A bonds will be used to fund a portion of the Water Department's Capital Budget and to pay

costs of issuance. Net proceeds of the $49,855,000 Series 2011B were used to refinance certain outstanding Water and Wastewater Revenue Bonds, to capitalize interest, and to pay costs of issuance. The bonds were issued at a true interest cost of 4.556%. The final bond matures in 2041 at a yield of 4.60%.

Pennvest Loans

On April 20, 2009, the Water Department received notice that Pennvest (the Pennsylvania State Infrastructure Financing Authority) had approved three traditional water and sewer applications, totaling $184.893 million. These applications were approved for funding through low interest loans of 1.193% during the construction period and for the first five years of amortization (interest only payments are due during the construction period, up to three years) and 2.107% for the remaining fifteen years. In addition, a $30,000,000 "green infrastructure" application was also approved for funding through a low interest loan on the same terms. Debt service for these loans has been included in the Department's Fiscal Year 2011 and 2012 budget, the Department's five year plan projections and the Engineering Report. These loans are being provided on an "interest only" basis during the construction period of up to three years, after which they are amortized on a 20 year basis at 1.193% for the first five years and 2.107% for the next fifteen years. A supplemental ordinance to the Restated General Ordinance authorizing $350,000,000 in new borrowing (the Twelfth Supplemental Water Bond Ordinance No. 090321) was introduced and approved by City council in May, 2009. The City and Pennvest finalized loan documents on the three traditional loans described above during FY 2010.

During fiscal year 2012 Pennvest drawdowns totaled $43.7 million, which represents an increase in bond issuances. Individual loan information is as follows:

DATE	SERIES	MAX LOAN AMOUNT	ESTIMATED PROJECT COSTS	AMT REQUESTED THRU 6/30/12	AMT REC'D YES/NO
OCTOBER 2009	2009B	42,886,030	42,339,199	22,827,986	Y
OCTOBER 2009	2009C	57,268,193	56,264,382	35,666,542	Y
MARCH 2010	2009D	84,759,263	84,404,754	64,380,070	Y
JULY 2010	2010B	30,000,000	31,376,846	8,111,482	Y
		214,913,486	**214,385,181**	**130,986,081**	

Additional debt service for these loans was included in the Department's Fiscal Year 2013 budget, the Department's five year plan projections and the Engineering Report. These loans are being provided on an "interest only" basis during the construction period of up to three years, after which they are amortized on a 20 year basis at 1.193% for the first five years and 2.107% for the next 15 years. The Pennvest loans were authorized through a supplemental ordinance to the Restated General Ordinance (the Twelfth Supplemental Water Bond Ordinance No. 090321

Subsequent Events

On November 1, 2012, PWD settled on $70,370,000 in refinancing revenue bonds. The bonds were issued as the City of Philadelphia, Pennsylvania-Water and Wastewater Revenue Bonds, Series 2012A. These bonds were used to refinance the remaining series 2001a and 2001B City of Philadelphia, Pennsylvania-Water and Wastewater Revenue Bonds and to pay costs related to the transaction. The City refunded the Series 2001 Bonds with the proceeds of the Series 2012A Bonds as further described in the forepart of the Official Statement for this transaction.

The bonds were issued at total average interest cost of 3.369232%. The final bond maturity in FY 2029 was not changed. Debt service savings of $13,184,062.50 ($12,665,864.14 NPV) were realized and were used to reduce debt service in FY 2013, FY 2014 and FY 2015. The 2012A issue included only uninsured bonds. The department received confirmation of its existing bond ratings from each of the three major bond rating agencies. (MOODY'S: A1 Stable S&P: A Stable FITCH: A+ Stable)

Future Financings

Approximately 80% of the costs of the Capital Improvement Program are expected to be funded with the proceeds of debt during the FY2013-2018 Capital Improvement Program. The City expects most of such debt to be in the form of Water and Wastewater Revenue Bonds issued under the Act and the General Ordinance. A portion of the debt may be evidenced by loans to the City from Pennvest, established by the Commonwealth to provide low interest cost financing for water and wastewater projects within the Commonwealth. Such loans are expected to be evidenced by water and wastewater revenue bonds. Any additional loans received by the Water Department from Pennvest will reduce the amount of future Water and Wastewater Revenue Bonds to be issued.

In addition to the $215 million of Pennvest Loans described earlier, the emphasis of the Capital Improvement Program is on the renewal and replacement of the water conveyance and sewage collection systems along with improvements to the water and wastewater treatment plants. Additional Revenue bond issues are anticipated during or after Fiscal Year 2013 as necessary to fund the approved capital program. See APPENDIX II – "ENGINEERING REPORT." Black & Veatch Corporation has made certain assumptions in its Engineering Report with respect to inflation which are not reflected in the formal Capital Improvement Plan of the Water Department.

Currently, a $200 million issue is planned for Fiscal 2013 - 2014 and a $160 million issue is planned for 2015, both issues were authorized under ordinance #110376 in 2011.

City of Philadelphia Water & Sewer Swap Interest Rates

City Entity:	Water
Related Bond Series	2005 Refunding
Initial Notional Amount	$86,105,000
Current Notional Amount	$82,445,000
Termination Date	8/1/2018
Product	Fixed Payer Swap (1)
Rate Paid by Dealer	Bond Rate / 68.5% of 1-mo Libor
Rate Paid by City Entity	4.53%
Dealer	Citigroup Financial Products, Inc.
Dealer Rating	Baa2/A- (Citigroup, Inc.)
Fair Value (2)	($12,018,430)

Notes:

(1) The City received an upfront payment of $4,000,000 for the related swaption. Citigroup exercised its option to enter into the swap on 5/4/2005. Under the swap, the City receives the bond rate or 68.5% of 1-month LIBOR in the event of an Alternative Floating Rate Date. An Alternative Floating Rate Date has been triggered and the City is currently receiving the LIBOR-based rate.

(2) Fair values are shown from the City's perspective and include accrued interest

City of Philadelphia, 2005 Water & Sewer Swap

Objective: In December, 2002, the City entered into a swaption that provided the City with an up-front payment of $4.0 million. As a synthetic refunding of all or a portion of its 1995 Bonds, this payment approximated the present value savings, as of December 2002, of a refunding on May 4, 2005. The swaption gave Citigroup (formerly of Salomon Brothers Holding Company, Inc), the option to enter into an interest rate swap to receive fixed amounts and pay variable amounts.

Terms: Citigroup exercised its option to enter into a swap May 4, 2005, and the swap commenced on that date. Under the terms of the swap, the City pays a fixed rate of 4.53% and receives a variable payment computed as the actual bond rate or alternatively, 68.5% of one month LIBOR, in the event the average rate on the Bonds as a percentage of the average of one month LIBOR has exceeded 68.5% for a period of more than 180 days. Citigroup exercised its option during this fiscal year to pay 68.5% of one month LIBOR under the swap. The payments are based on an amortizing notional schedule (with an initial notional amount of $86.1 million), and when added to an assumption for remarketing, liquidity costs and cost of issuance were expected to approximate the debt service of the refunded bonds at the time the swaption was entered into.

As of June 30, 2012, the swap had a notional amount of $82.4 million and the associated variable-rate bond had an $82.4 million principal amount. The bonds' variable-rate coupons are not based on an index but on remarketing performance. The bonds mature on August 1, 2018 and the related swap agreement terminates on August 1, 2018.

Fair value: As of June 30, 2012, the swap had a negative fair value of ($ 12.0 million). This means that the Water Department would have to pay this amount if the swap terminated.

Risk: As of June 30, 2012 the City is not exposed to credit risk because the swap had a negative fair value. Should interest rates change and the fair value of the swap become positive, the City would be exposed to credit risk in the amount of the swap's fair value. Since the City is now receiving 68.5% of one month LIBOR, the City is exposed to (i) basis risk, as reflected by the relationship between the variable-rate bond coupon payments and 68.5% of one month LIBOR received on the swap, and (ii) tax risk, a form of basis risk, where the City is exposed to a potential additional interest cost in the event that changes in the federal tax system or in marginal tax rates cause the rate paid on the outstanding bonds to be greater than the 68.5% of LIBOR received on the swap. The swap includes an additional termination event based on credit ratings. The swap may be terminated by the City if the ratings of Citigroup or its Credit Support Provider fall below A3 and A-, or by Citigroup if the rating of the City's water and wastewater revenue bonds falls below A3 or A-. There are 30-day cure periods to these termination events. However, because the City's swap payments are insured by Assured Guaranty Municipal Corporation (formerly FSA), no termination event based on the City's water and wastewater revenue bond ratings can occur as long as Assured is rated at least A or A2.

As of June 30, 2012, rates were as follows:

Terms	Rates	
Interest Rate Swap		
Fixed payment to Citi under swap	Fixed	4.53000 %
Variable rate payment from Citi under swap	68.5% of 1 - month Libor	(0.16834) %
Net interest rate swap payments		4.36166 %
Variable rate bond coupons payments	Weekly resets	0.22000 %
Synthetic interest rate on bonds		4.58166 %

Swap payments and associated debt: As of June 30, 2012, debt service requirements of the variable-rate debt and net swap payments for their term, assuming current interest rates remain the same, were as follows:

Fiscal Year Ending	Variable Rate Bonds		Interest Rate	
June 30	Principal	Interest	Swaps Net	Total Interest
2013	450,000	181,379	3,595,972	3,777,351
2014	14,820,000	180,389	3,576,344	3,756,733
2015	15,535,000	147,785	2,929,946	3,077,731
2016	16,315,000	113,608	2,252,362	2,365,970
2017	17,145,000	77,715	1,540,757	1,618,472
2018-2019	18,180,000	40,359	800,147	840,506
Total	**82,445,000**	**741,235**	**14,695,528**	**15,436,763**

18. BOND RATINGS, AS OF JUNE 2011:

As of June 30, 2012, the City's Water and Wastewater Revenue Bonds had underlying ratings of "A1" from Moody's Investor's Service, "A" from Standard & Poor's Rating Services, and "A+" from Fitch Ratings.

Subsequent Events

In November 2012, pursuant to the sale of the City's Water and Wastewater Revenue Bonds, Series 2012, all three rating agencies affirmed the above ratings, with stable outlooks.

Moody's listed the following strengths and challenges of the Water Revenue credit:

"STRENGTHS

- Large system a serving a stable, diverse population of 1.7 million
- Legal authority to raise rates without city or council approval
- Strong reserve position

CHALLENGES

- Moderately weak legal structure that allows for use of reserves to meet coverage
- Typically below average coverage ratios
- Above average debt profile with significant additional debt planned"

Pursuant to the sale of the Bonds, Standard & Poor's Rating Services affirmed the underlying "A" rating and stable outlook. In the report, S&P commented that:

"The 'A' long-term rating and SPUR are based on the following characteristics:

- A broad service area that covers the city of Philadelphia and several suburbs, but with an overall weak economic
- profile when comparing income levels and unemployment rates with state and national averages;
- Rates we consider competitive, even with the weaker economic profile, along with management's historical
- willingness to raise rates annually;

- Stable financial performance, albeit with ongoing reliance on its rate stabilization fund to support operations; and
- A sizable capital improvement plan (CIP) combined with an already high system ratio of debt to capital, in our opinion."

Pursuant to the sale of the Bonds, Fitch Ratings affirmed the underlying "A+" rating and stable outlook. In their report, Fitch mentions the following:

"KEY RATING DRIVERS

- Essential Service: The city's combined water and wastewater system (the system) provides an essential service to a large and diverse service area.
- Ample Capacity: Water supply and overall system treatment capacity are sufficient for the foreseeable future.
- Sound Management and Stable Operations: Consistent operating results, sound liquidity, and the ability of management to establish rates independent of city council approval offsets narrow debt service coverage levels.
- Below-Average Economic Characteristics: The service area exhibits weak income levels and above-average unemployment, which contributes to chronically poor collection rates.
- Elevated Debt Levels: The system has above-average debt levels with sizeable additional borrowing plans expected over the medium term.
- Large Capital Plan: The capital program remains sizeable, although required projects stemming from a consent order do not appear onerous."

CITY OF PHILDELPHIA'S BOND RATINGS			
YEAR	MOODY'S INVESTOR'S SERVICE	STANDARD & POORS CORP.	FITCH IBCA
2012	A1	A	A+
2011	A1	A	A+
2010	A1**	A	A+**
2009	A3	A	A-
2008	A3	A	A-
2007	A3	A-	A-
2006	A3	A-	A-
2005	A3	A-	A-
2004	A3	A-	A-
2003	A3	A-	A-
2002	A3	A-	A-
2001	A3	A-	A-
2000	Baa1	BBB+	A-
1998	Baa1	BBB+	BBB+
1997	Baa1	BBB	BBB+
1995	Baa	BBB	BBB+
1993	Baa	BBB-	BBB
1991	B	BBB	BBB
1990	Baa	BBB	
1974	A	A	

** these ratings reflect the changes due to the global "recalibration" of municipal debt

19. PENSION PLAN

The City, via the Municipal Pension Plan, maintains the following employee retirement system:

(1) City Plan

(a) Plan Description

The Philadelphia Home Rule charter (the Charter) mandates that the City maintain an actuarially sound pension and retirement system. To satisfy that mandate, the City's Board of Pensions and Retirement maintains the single-employer Municipal Pension Plan (the Plan). The Plan covers all officers and employees of the City and officers and employees of five other governmental and quasi-governmental organizations. By authority of two Ordinances and related amendments passed by City Council, the Plan provides retirement benefits as well as death and disability benefits. Benefits vary by the class of employee. The Plan has two major classes of members – those covered under the 1967 Plan and those covered under the 1987 Plan. Each of these two plans has multiple divisions. In fiscal 2011 a third plan was recently enacted that features a defined benefit and a defined contribution component.

Retirement Benefits

An employee who meets the age and service requirements of the particular division in which he participates is entitled to an annual benefit, payable monthly for life, equal to the employee's average final compensation multiplied by a percentage that is determined by the employee's years of credited service. The formula for determining the percentage is different for each division. If fund earnings exceed the actuarial assumed rate by a sufficient amount, an enhanced benefit distribution to retirees, their beneficiaries, and their survivors shall be considered. A deferred vested benefit is available to an employee who has 10 years of credited service, has not withdrawn contributions to the system and has attained the appropriate service retirement age. Members of both plans may opt for early retirement with a reduced benefit. The **Deferred Retirement Option Plan** (DROP) was initiated on October 1, 1999. Under this plan, employees that reach retirement age may accumulate their monthly service retirement benefit in an interest bearing account at the Board of Pensions for up to four (4) years and continue to be employed by the City of Philadelphia.

Death Benefits

If an employee dies from the performance of duties, his/her spouse, children, or dependent parents may be eligible for an annual benefit ranging from 15% to 80% of the employees final average compensation. Depending on age and years of service, the beneficiary of an employee who dies other than from the performance of duties will be eligible for either a lump sum benefit only or a choice between a lump sum or an annual pension.

Disability Benefits

Employees disabled during the performance of duties are eligible for an immediate benefit equal to contributions plus a yearly benefit. If the employee subsequently becomes employed, the benefit is reduced by a percentage of the amount earned. Certain employees who are disabled other than during the performance of duties are eligible for an ordinary disability payment if they apply for the benefit within one year of termination. If the employee subsequently becomes employed, the benefit is reduced by a percentage of the amount earned.

Membership

Membership in the plan as of July 1, 2011 was as follows:

Retirees and beneficiaries currently receiving benefits	34,966
Terminated members entitled to benefits but not yet receving them	2,712
Active Members	26,671
Total Members	64,349

The Municipal Pension fund issues a separate annual financial report. To obtain a copy, contact the Director of Finance of the City of Philadelphia.

(b) Funding Policy

Employee contributions are required by City Ordinance. For Plan 67 members, employees contribute 3.75% of their total compensation that is subject to Social Security Tax and 6% of compensation not subject to Social Security Tax. Plan 87 contribution rates are defined for the membership as a whole by Council ordinance. Rates for individuals are then determined annually by the actuary so that total individual contributions satisfy the overall rate set by Council.

The City is required to contribute the remaining amounts necessary to fund the Plan, using an acceptable actuarial basis as specified by the Home Rule Charter, City Ordinance and State Statute. Court decisions require that the City's annual employer contributions are sufficient to fund:

- The accrued actuarially determined normal costs;
- Amortization in level dollar payments of the changes to the July 1, 1985 liability due to the following causes over the stated period:
    - Non-active member's benefit modifications (10 years)
    - Experience gains and losses (15 years)
    - Changes in actuarial assumptions (20 years)
    - Active members' benefit modifications (20 years)

Under the City's current funding policy, the total required employer contribution for the current year amounted to $706.3 million or 50.9% of covered payroll of $1,387.1 million. The City's actual contribution was $539.5 million. The City's contribution did not meet the Minimum Municipal Obligation (MMO) as required by the Commonwealth of Pennsylvania's Acts 205 and 189.

In Fiscal Year 2011 the City made several changes to the pension plan based on Act 44, which provided a new method of determining municipal distress levels and alternative funding relief in response to the 2008/2009 market decline. The City adopted fresh start amortization, alternating to 30 years and lowered the assumed rate of interest from 8.15% to 8.10% assuming a partial deferral of the pension payments in fiscal years 2010 and 2011 of $150 million and $80 million respectively, which must be repaid by fiscal year 2014. The change in amortization period and the partial deferral were approved by the Commonwealth of Pennsylvania General Assembly's Act 44. Act 44 also allowed the City to temporarily impose an additional local sales tax of 1.0% to fund future MMO Payments.

The Annual Pension Cost and related percentage contributed for the three most recent fiscal years are as follows:

(Millions of USD)

Fiscal Year Ended June 30	Annual Pension Cost	Percentage Contributed	Net Pension Obligation
2010	597.0	81.47%	(456.0)
2011	721.7	52.36%	(171.6)
2012	719.6	65.14%	80.0

The actuarial valuation to compute the current year's required contribution was performed as of July 1, 2011. Methods and assumptions used for that valuation include:

- The individual entry age actuarial cost method
- A ten-year smoothed market value method for valuing investments

- A level percentage closed method for amortizing the unfunded liability
- An annual investment rate of return of 8.10%
- Projected annual salary increases based on new age based scale
- Payroll growth rate is 3.5%
- No post-retirement benefit increases

Administrative costs of the Plan are paid out of the Plan's assets.

(c) Annual Pension Cost and Net Pension Obligation

The City and other employers' annual pension cost and net pension obligation (NPO) for the Municipal Pension Plan for the current year were as follows:

(Thousands of USD)

Annual Required Contribution (ARC)	722,491
Interest on Net Pension Obligation (NPO)	6,521
Adjustment to ARC	(9,435)
Annual Pension Cost	719,577
Contributions Made	(555,690)
Increase in NPO	163,887
NPO at Beginning of Year*	80,011
NPO at End of Year	243,898
Interest Rate	8.15%
15 Year Amortization Factor (EOY)	8.48%

(d) Summary of Significant Accounting Policies

Financial statements of the Plan are prepared using the accrual basis of accounting. Contributions are recognized as revenues when due, pursuant to formal commitments, as well as statutory or contractual requirements. Benefits and refunds paid are recognized when due and payable in accordance with the terms of the plan.

20. OTHER POST EMPLOYMENT BENEFITS (OPEB)

Primary Government

Plan description: The City of Philadelphia self-administers a single employer, defined benefit plan and provides health care for five years subsequent to separation for eligible retirees. Certain union represented employees may defer their coverage until a later date but the amount that the City pays for their health care is limited to the amount that the City would have paid at the date of their retirement. The City also provides lifetime insurance coverage for all eligible retirees. Firefighters are entitled to $7,500 coverage and all other employees receive $6,000 in coverage. The plan does not issue stand alone financial statements, and the accounting for the plan is reported within the financial statements of the City of Philadelphia.

Funding Policy: The City funds its retiree benefits on a pay-as-you-go basis. To provide health care coverage, the City pays a negotiated monthly premium for retirees covered by union contracts and is self insured for non unionized employees. For fiscal year 2012, the City paid $76.3 million for retiree healthcare.

Annual OPEB Cost and Net OPEB Obligation: The City's annual other post employment benefit (OPEB) expense is calculated based on the annual required contribution of the employer (ARC), an amount actuarially determined in accordance with the parameters of GASB statement 45. The ARC represents a level of funding, which 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 (30) years. The following table shows the components of the City's annual OPEB cost for the year, the amount actually contributed to the plan and changes in the net OPEB obligation (dollar amount in thousands)

	(Amounts in Thousands)
Annual Required Contribution	105,369
Interest on Net OPEB Obligation	3,577
Adjustment to ARC	(3,064)
Annual OPEB Cost	105,882
Payments Made	(76,344)
Increase/(Decrease) in net OPEB Obligation	29,538
Net OPEB Obligation - Beginning of Year	79,481
Net OPEB Obligation - End of Year	109,019

Funded Status and Funding Progress: As of July 1, 2011, the most recent actuarial valuation date, the City is funding OPEB on a pay as you go basis and accordingly, the unfunded actuarial accrued liability for benefits was $1.2 billion. The covered annual payroll was $ 1.469 billion and the ratio of the UAAL to the covered payroll was 82.5 percent.

Actuarial Methods and Assumptions: Costs were determined according to the individual entry age actuarial cost method with the attribution period ending at each decrement age. This is consistent with the cost method used for the City of Philadelphia Municipal Retirement System. Unfunded liabilities are funded over a 30 year period as a level percentage of payroll, which is assumed to increase at a compound annual rate of 4% per year. The actuarial assumption included a 5.0% compound annual interest rate on the City's general investments.

21. CLAIMS, LITIGATION AND CONTINGENCIES

Generally, claims against the City are payable out of the General Fund, except claims against the City Water Department, City Aviation Division, or Component Units which are paid out of their respective funds and only secondarily out of the General Fund which is then reimbursed for the expenditure. Unless specifically noted otherwise, all claims hereinafter discussed are payable out of the Water Fund. The Act of October 5, 1980, P.L. 693, No. 142, known as the "Political Subdivision Tort Claims Act," established a $500,000 aggregate limitation on damages arising from the same cause of action or transaction or occurrence or series of causes of action, transactions or occurrences with respect to governmental units in the Commonwealth such as the

City. The constitutionality of that aggregate limitation has been upheld by the United States Supreme Court. There is no such limitation under federal law.

Various claims have been asserted against the Water Department and in some cases lawsuits have been instituted. Many of these claims are reduced to judgment or otherwise settled in a manner requiring payment by the Water Department. At year-end, the aggregate estimate of loss deemed to be **probable** is $6.4 million.

In addition to the above, there are other lawsuits against the Water Department in which some amount of loss is reasonably **possible**. The aggregate estimate of the loss, which could result if unfavorable legal determinations were rendered against the Water Department with respect to these lawsuits, is $3.0 million.

22. LONG TERM AGREEMENTS

The Department has entered into several long term agreements with third parties through the Philadelphia Municipal Authority as follows:

Automatic Meter Reading

In September 1997, the Water Department and the Water Revenue Bureau began the implementation of the Automatic Meter Reading Program (the "AMR Program") involving the replacement of all residential water meters with new meters equipped with radio transmitter meter reading devices ("ERT"). The AMR Program is the largest and most significant municipal water automatic meter reading endeavor to be implemented in the country. Installation commenced on schedule on September 11, 1997. By June 30, 2012, more than 482,841 new meters had been installed. This program has greatly improved the accuracy of billing and has resulted in fewer billing disputes, which has had a positive effect on customer service and collections. In addition to the increased revenue that results from such billing program improvements, the AMR Program significantly reduced the costs of meter reading and related support. As of June 30, 2012, more than 99.5% of the Water Department's customers have AMR meters, drastically improving the Water Department's ability to initiate and enforce collection of delinquent accounts. The Water Department's AMR vendor ITRON has also begun the process of a wholesale battery replacement. The Water Department is also working on the purchase and installation of upgraded AMR devices for all commercial customers that have ERTs. The AMR Program agreement term ends in 2017. The Department has two one-year renewal options. Under the agreement Itron is paid a fixed amount for each monthly meter reading actually obtained.

Biosolids Treatment and Utilization

The City is required by federal and Commonwealth law, administered by the EPA and the PaDEP, respectively, to treat and dispose of biosolids captured during wastewater treatment at the City's WPCPs. Biosolids from the three WPCPs are treated at the Biosolids Recycling Center (the "BRC"). The BRC had historically produced two grades of biosolids, as defined by state and federal regulations. These were Class A biosolids compost and Class B dewatered biosolids cake. Class B biosolids were used on farmlands and at mine reclamation sites and co-disposed with trash at municipal solid waste landfills. Class A compost, which was produced at

the BRC until October 2007, was put to a variety of local and regional uses, including garden and horticultural applications and recreation sites.

Biosolids processing and distribution is governed at the national level by EPA regulations published at 40 CFR Part 503 regulations in February 1993 (the "Part 503 Regulations"). The Part 503 Regulations require, among other things, certain record keeping and monitoring procedures and compliance with technical standards for pathogen reduction, vector attraction reduction and pollutant limits. These regulations are self-implementing and directly enforceable, in that the EPA can initiate enforcement actions for non-compliance even in the absence of the EPA's issuance of permits under the NPDES permitting program. The Water Department is in full compliance with the technical standards in the Part 503 Regulations.

While the Water Department has administered a successful Class A and B biosolids program over the last 25 years, the nation has witnessed continuing health and environmental concerns raised by the public with Class B biosolids recycling. As such, in the summer of 2003, the Water Department began a process to move to an entirely Class A biosolids process, which could operate in Philadelphia without odors. It entered into a contract with the engineering consultant firm Camp, Dresser & McKee to assist with the procurement of facilities and services for Philadelphia, to operate the dewatering station for 20 years and to construct new facilities to produce Class A biosolids products. Alternative processes identified for this procurement process included fully-enclosed composting systems and heat drying technologies. The Request for Qualifications was released in August 2003, and, in response, the City received qualification statements from four teams, two of which were found qualified and invited to receive a Request for Proposals.

One team, Philadelphia Biosolids Services, LLC ("PBS") submitted a proposal on November 24, 2004. This team offered to build a pair of sludge dryers to produce Class A pellets. On June 19, 2008, City Council passed enabling legislation to allow the proposed contract with PBS to proceed. Mayor Nutter approved the contract with PBS in October 2008 and PBS has been operating the facility since October 13, 2008. The Water Department entered into a contract and lease with the Philadelphia Municipal Authority ("PMA") to operate the Water Department's existing BRC, including a dewatering station, and to construct new thermal drying facilities to produce Class A biosolids pellets. The contract term is up to 25 years, including a five-year renewal option. PMA has contracted with PBS for these services.

The contract included a provision for an interim period of up to five years, during which PBS took over operation of the existing Biosolids Recycling Center. Within the first four years, PBS financed $68,275,000 through the Pennsylvania Economic Development Finance Authority, designed, built and now owns and operates a thermal drying facility that handles all of the sludge processed by the Water Department and makes a Class A product in the form of pellets that is used as fertilizer and has potential as a fuel. PBS is responsible for the disposition of the Class A pellets, thus relieving the Water Department of this burden. The Class A period of operation will last 20 years with a five-year renewal at the option of the Water Department. The project is estimated and remains on track to result in savings of approximately $200,000,000 over the contract life.

When the contract was executed, the Water Department transferred the remaining 60 employees at this facility to other assignments. Subsequently, the Water Department has also transferred to other units, certain vehicles and equipment that had been part of the existing BRC operation but

were no longer needed by the contractor. At this time, most of the fixed assets associated with the facility, except for those related to the discontinued composting operations remain in service.

Fiscal Year 2009 payments to PBS totaled $16,387,368.08 for nine months. Fiscal Year 2010 payments totaled $20,792,641 for this contract. Fiscal Year 2011 payments were $22,493,502, including a one time payment of $1,009,000 to Philadelphia Gas Works for an upgrade to the Texas Eastern natural gas pipeline that will serve the BRC. Fiscal Year 2012 payments totaled $21,835,872, which included partial year operation of the new Class A pellet facility. The upcoming year of operation will be full operation of the Class A facility with an estimated budget of $26,425,440.

Northeast Water Pollution Control Plant Digester Gas Cogeneration Facility

On December 23, 2011, the Department entered into a contract for the construction and leaseback of a 5.6 MegaWatt digester gas (biomethane which is a renewable energy source) cogeneration facility at the Water Department's Northeast Water Pollution Control Plant ("WPCP"). Once operational, this project is expected to produce over 40 million kWh per year, which is approximately 15% of the Water Department's current annual electricity usage. To date, no payments have been made by the Department for this facility.

The parties to the agreement were the Philadelphia Water Department (City), Ameresco Energy and Bank of America finalized an agreement that will bring green power to the Northeast Water Pollution Control Plant. Ameresco (the Developer) will build the biogas combined heat and power system that runs on methane gas produced on site and incorporates a small amount of natural gas to optimize engine performance. Bank of America (the facility owner and lessor) has formed a special purpose entity "BAL Biogas 1" and the City pays a monthly fee through PMA (lessee). The Philadelphia Water Department will operate the facility. Under a separate but related agreement AMERESCO will maintain the equipment. The structure of the deal allows for Bank of America to apply for the IRS code section 1603 grant in lieu of tax credit under the ARRA and ITC rules that amount to 30% of the qualified cost. The facility lease payments are anticipated to be approximately $254,000 per month for 16 years and are anticipated to start in FY14. Maintenance fees vary per year based on the amount of work required and are paid separately. The Northeast Biogas Co-Gen project is the largest green energy project in the City

23. COMBINED SEWER OVERFLOW PROGRAM

The fundamental goal of the Water Department's Long Term Combined Sewer Overflow Program referred to as the "Green City, Clean Waters Program," is to improve and preserve the water environment in the Philadelphia area and to fulfill the Water Department's obligations under the Clean Water Act and the Pennsylvania Clean Streams Law by implementing technically viable, cost-effective improvements and operational changes and utilizing numerous green alternatives.

The present NPDES permits require the Water Department to implement a combined sewer overflow program. In older sections of the City, both wastewater and stormwater are conveyed in one pipe to the sewage treatment plant. This is known as a combined system. Combined systems were designed so that during dry weather all wastewater is conveyed to the sewage treatment plant. However, during certain rain events, additional stormwater exceeds the capacity of the collection system and/or wastewater treatment plant. During these rain events, the

combined system was designed to discharge, or overflow, the excess stormwater/wastewater mix directly to local waterways. The Water Department has 164 CSO points in its collection system.

In 1997, the Water Department submitted its Combined Sewer Overflow Long Term Control Plan ("CSOLTCP") to the PaDEP. This Plan required that the Water Department continue implementation of the Nine Minimum Controls ("NMCs"), which are industry accepted best practices to efficiently operate and maintain the sewer system, and identify $48,000,000 (1997 dollars) of capital improvement projects that would ensure localized capture and storage of wet weather flows within the existing sewer collection system. These two efforts successfully reduced overflow volume by five to ten percent or roughly two billion gallons per year. Initial efforts were focused on detecting and eliminating overflows during dry weather, obtaining the most storage possible in the sewer system, and stepping up inspections and monitoring at sites where overflows occur. The final component of the CSOLTCP embraced the development of regional watershed partnerships and comprehensive watershed based planning and analyses that would identify additional, priority actions to further improve water quality in Philadelphia area water bodies. The Water Department committed to the development of Integrated Watershed Management Plans ("IWMPs"), which are guided by a 20-year vision to restore the region's waterways to fishable, swimmable and beautiful rivers and streams that are life sustaining and are an amenity to nearby communities.

Included within the NPDES permit issued by the PADEP on August 15, 2007, the Philadelphia Water Department was the requirement to update the original CSOLTCP by September 1, 2009. This CSOLTCP Update ("LTCPU"), or what is also referred to as the Green City, Clean Waters Program, can best be described by listing the basic underlying principles:

- Utilizing rainwater as a resource by recycling, re-using and recharging long neglected groundwater supplies,
- Maintaining and upgrading one of the nation's oldest water infrastructure systems,
- Transforming rivers and streams into recreation destinations and green open space for visitors and citizens,
- Preserving and restoring habitat for aquatic species within urban stream corridors,
- Collaboration to revitalize the City with an emphasis on sustainability, and
- Energizing citizens, partnerships, public and regulatory partners to adopt and join in this watershed-based strategy.

The PaDEP and the Water Department signed a consent order and agreement dated as of June 1, 2011 (the "COA") that will allow the Water Department to officially embark on the implementation of its landmark strategy that uses green practices to substantially eliminate combined sewer overflow to the City's waterways as set forth in the Green City, Clean Waters Program. The City of Philadelphia has been recognized as a national leader in its approach to the management and reduction of combined sewer overflow. Its Green City, Clean Waters Program is the most innovative stormwater management program in the nation to date, markedly ambitious in its use of "green" infrastructure rather than undertaking a "grey" approach to the management of CSO. The green approach relies on the use of largely green technologies such as stormwater tree pits, vegetated bumpouts, porous asphalt, rain gardens and sidewalk planters as a means to transform manmade surfaces that repel the rain to green acres which capture rainwater

runoff to infiltrate, store and manage the rain as a precious resource. By contrast, a grey approach relies on the construction of tunnels and holding tanks for storage of combined sewer overflow until it can be processed. The Green City, Clean Waters Program is by far the most cost-effective way for the City to meet the requirements of the COA, the PaDEP, the Clean Water Act and its own laudable goal of protecting its waterways. The Water Department estimates that the City's use of green infrastructure in lieu of a grey approach will save the City approximately $8.0 billion over the length of the Program, as discussed below.

The Water Department submitted the plan to the US EPA and the PaDEP in September 2009 after vetting the plan with the public. Green City, Clean Waters lays the groundwork for the Water Department to spend approximately $2.4 billion over the next 25 years ($1.2 billion in 2009 dollars) to use largely green technologies described above. The plan also includes wastewater treatment facility enhancements and pipe renewal and replacement. Green City, Clean Waters works in tandem with the Mayor's Greenworks Philadelphia vision in order to reinvent Philadelphia into a green, sustainable city of the future. The Water Department projects that utilizing a grey approach to accomplish the same goals would cost the City approximately $10 billion.

The Water Department has softly launched the plan over the last few years to development green infrastructure designs that work best in the Philadelphia landscape. These early projects serve as public demonstrations to citizens and provide the Water Department and its many partners with early opportunities to monitor and improve the efficiencies of these practices.

The COA complies with Clean Water Act requirements by adopting the Presumption Approach to Combined Sewer Overflow (CSO) control. Under the Presumption Approach, the COA sets the ultimate water quality goal as the elimination or removal of the mass of pollutants that otherwise would be removed by the capture of 85% by volume of the combined sewage collected in the City's combined sewer system during precipitation events. To ensure this ultimate goal is met, the COA requires that interim water quality milestones at Years 5, 10, 15 and 20 of the COA. The interim milestones require the City to achieve specific targets in four categories: (1) Total Greened Acres; (2) Overflow Reduction Volume; (3) Miles of Interceptor Lined; (4) WPCP Upgrades: Design and Construction A Greened Acre is described as an acre of impervious cover connected (tributary) to a combined sewer that subsequently is reconfigured to utilize green stormwater infrastructure to manage all or a portion of the stormwater runoff from that acre. Green stormwater infrastructure manages storm water using one or more of the source control processes of infiltration, evaporation, transpiration, decentralized storage, alternative stormwater routing, reuse, and others. The COA includes financial protections in the event that the costs of complying with the COA exceed our projections. Should COA costs increase to the point where they exceed 2.27% of the Median Household Income the City may petition the PaDEP for an extension of time to complete the COA so that the financial burden does not become excessive on ratepayers. The COA also includes stipulated penalties for violations of the COA. The only significant penalties involve non-compliance with the 5-year milestone targets. Penalties start at $25,000 per month for each violation (for the first SIX months) and increase up to $100,000 per month for uncured violations of 13 months or more. COA negotiations took almost two years. The negotiations resulted in a document memorializing the ultimate goal for the program and setting interim milestones that the Water Department believes are fair, reasonable, affordable and achievable.

The EPA participated in negotiations of the COA and is fully informed on its status. The EPA has delegated authority over the COA to the PaDEP but has reserved the right to take future action if it deems so necessary. On September 27, 2012, EPA Region 3 and the Water

Department agreed to an "ADMINISTRATIVE ORDER FOR COMPLIANCE ON CONSENT" which incorporates the Water Department's COA with DEP.

Information about Green City, Clean Waters can be found at the Water Department's website: http://www.phillywatersheds.org.

APPENDIX II

ENGINEERING REPORT

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ENGINEERING REPORT

Water and Wastewater Revenue Bonds Series 2013A

B&V PROJECT NO. 174505

PREPARED FOR

Philadelphia Water Department

28 JUNE 2013

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28 June 2013

Mr. Rob Dubow
Director of Finance
City of Philadelphia
1300 Municipal Services Building
1401 J.F. Kennedy Boulevard, 13th Floor
Philadelphia, PA 19102

Dear Mr. Dubow:

In accordance with the requirements of The First Class City Revenue Bond Act (the Act), the Restated General Water and Wastewater Revenue Bond Ordinance of 1989, and the amendments and supplements thereto as set forth in the First, Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth, Ninth, Tenth, Eleventh, Twelfth, Thirteenth, Fourteenth, Fifteenth, and Sixteenth Supplemental Ordinances (together the General Ordinance), we are submitting herewith our Engineering Report prepared in connection with the issuance of Water and Wastewater Revenue Bonds, Series 2013A (the "2013A Bonds"). This report summarizes findings of engineering and financial studies related to the Water and Wastewater Systems of the City. We have made such investigation and review of the books, records, capital improvement programs, and water and wastewater facilities of the Water Department and such other investigations as we deemed necessary. Unless otherwise indicated, capitalized terms used but not defined herein shall have the same meanings assigned to such terms in the General Ordinance.

Projections of revenues and revenue requirements for the Water Department for the seven-year period of fiscal years 2013 through 2019 are shown in this report. In the preparation of this report, we conducted on-site inspections of the major water and wastewater facilities in March and April 2013, and personal interviews with key Water Department operating, engineering, and financial staff during the months of March, April, May, and June 2013. The general physical condition of the Water and Wastewater Systems has been evaluated using three rating categories – good, adequate, and poor – as described below.

- *Good:* The facility is in condition to provide reliable operation in accordance with design parameters and requires only routine maintenance or minor improvements.
- *Adequate:* The facility is operating at or near design levels, however, non-routine renovation, upgrading, and repairs are needed to ensure continued reliable operation.
- *Poor:* The facility is not being operated within design parameters. Major renovations are required to restore the facility and assure reliable operation. Major expenditures for these improvements may be required.

Subject to the limitations set forth herein, this report was prepared for the City of Philadelphia by Black & Veatch Corporation (Black & Veatch) and is based on information not within the control of Black & Veatch. Black & Veatch has not been requested to make an independent

analysis, to verify the information provided to it, or to render an independent judgment of the validity of the information provided by others. As such, Black & Veatch cannot, and does not, guarantee the accuracy thereof.

In conducting our analyses and in forming an opinion of the projection of future operations summarized in this report, Black & Veatch has made certain assumptions with respect to conditions, events, and circumstances that may occur in the future. The methodology utilized by Black & Veatch in performing the analysis follows generally accepted practices for such projections. While Black & Veatch believes the assumptions are reasonable and appropriate, and the projection methodology valid, actual results may differ materially from those projected, as influenced by the conditions, events, and circumstances that actually occur that are unknown at this time and/or which are beyond the control of Black & Veatch.

The City may only distribute the complete report to third parties, including the above statements and not parts thereof. Any distribution of this report or any excerpt thereof to third parties shall be at the City's sole risk. The City's duty to distribute only the complete report, including the above statements, shall not apply to internal City documents derived from the report, that come within the scope of applicable records laws and are requested under such laws by interested citizens.

Based on these studies we offer the following statements and conclusions to indicate the City's conformance with specific requirements which must be met for the issuance of the Bonds, as stipulated in the Act and the General Ordinance:

1. Based on onsite physical inspections and investigations of major system facilities, conducted in March and April 2013, combined with discussions with key Water Department staff at that time, it is our opinion that the Water and Wastewater Systems are in good operating condition or adequate steps are being taken to return them to good operating condition. The capital improvement budget for fiscal year 2013 and the approved six-year capital program for fiscal years 2014 through 2019 should provide adequate funds to sustain the systems in good operating condition.

2. Proceeds from the 2013A Bonds are to be applied to: (i) finance major portions of the Water Department's capital improvement program for fiscal years 2014 through 2019, (ii) make a deposit to the Debt Reserve Account, and (iii) pay the issuance costs of the 2013A Bonds.

3. Project Revenues pledged to secure the Bonds are to be derived from the following sources: all rents, rates, fees, and charges imposed or charged for the connection to, or use or product of or services generated by the Water and Wastewater Systems to the ultimate users or customers thereof, all payments under bulk contracts with municipalities, governmental instrumentalities or other bulk users, all subsidies or payments payable by Federal, State or local governments or governmental agencies on account of the cost of operation of, or the payment of the principal of or interest on moneys borrowed to finance costs chargeable to the Water and Wastewater Systems, all grants, payments, and contributions made in aid or on account of the Water and Wastewater Systems exclusive of

grants and similar payments and contributions solely in aid of construction and all accounts, contract rights, and general intangibles representing the foregoing.

4. Based on actual and estimated future annual financial operations of the Water and Wastewater Systems, it is our opinion that the Water and Wastewater Systems will yield pledged Project Revenues (including projected revenue increases indicated in this report) over the amortization period of the Bonds sufficient to meet the payment or deposit requirements of:

   a. All expenses of operation, maintenance, repair and replacement of the Water and Wastewater Systems;

   b. All reserve funds required to be established out of such Project Revenues;

   c. The principal or redemption price of and interest on all Existing Bonds and all Bonds issued under the General Ordinance, as the same become due and payable, for which such Project Revenues are pledged; and

   d. The Rate Covenant set forth in Section 5.01 of the General Ordinance.

   The Project Revenues forming the basis for this projection comply with the requirements of the definition of "Project Revenues" contained in Section 2 of the Act.

5. The Net Revenues are currently sufficient to comply with the Rate Covenant and are projected to be sufficient (including projected revenue increases indicated in the report) to comply with the Rate Covenant for each of two fiscal years following the fiscal year in which the Bonds are issued.

6. In our opinion, water and wastewater rents, rates and charges, including projected increases are within generally acceptable ranges for such services and are collectible.

In accordance with the Water Department's agreements with Assured Guaranty Municipal Corporation (AGM), it is our opinion the rates and charges for use by the Water & Wastewater Systems should be sufficient to yield Net Revenues (excluding amounts transferred from the Rate Stabilization Fund into the Revenue Fund during, or as of the end of, such fiscal year) at least 90 percent of the Debt Service Requirements (excluding debt service due on Subordinated Bonds) in such fiscal year. Further, any calculation by a consulting engineer of projected rate covenant compliance in connection with the proposed issuance of additional Bonds for each fiscal year ending on or after June 30, 2000, must state that Net Revenues (excluding amounts transferred from the Rate Stabilization Fund into the Revenue Fund during, or as of the end of, such fiscal year) in each fiscal year included in the projection period covering fiscal years 2013 to 2019 are projected to be at least 90 percent of the Debt Service Requirements (excluding debt service due on Subordinated Bonds) in each fiscal year. The levels of additional service revenue projected for the study period are anticipated to provide for the debt service coverage and requirements of the AGM agreement.

Very truly yours,
BLACK & VEATCH CORPORATION

John R. Kersten
Associate Vice President

William B. Zieburtz, Jr.
Director

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I. Introduction

A. PURPOSE

The purpose of this report is to summarize findings of engineering studies performed by Black & Veatch Corporation (Black & Veatch) related to the water and wastewater systems of the Philadelphia Water Department (Water Department), a self-supporting, enterprise fund utility that is a department within the City of Philadelphia (City). The Restated General Water and Wastewater Revenue Bond Ordinance of 1989 and the amendments and supplements thereto as set forth in the First, Second, Third, Fourth, Fifth, Sixth, Seventh, Eighth, Ninth, Tenth, Eleventh, Twelfth, Thirteenth, Fourteenth, Fifteenth and Sixteenth Supplemental Ordinances (together the General Ordinance) require the preparation and submission of such an Engineering Report as a condition to be met prior to the issuance of bonds under the General Ordinance.

In the preparation of this report, we performed site visits of major water and wastewater facilities during the months of March and April 2013 and conducted personal interviews with key Water Department operating, engineering, and financial staff during the months of March, April, May and June 2013. Financial projections summarized in the report encompass the seven-year period of fiscal years 2013 through 2019.

Subject to the limitations set forth herein, this report was prepared for the City by Black & Veatch and is based on information not within the control of Black & Veatch. Black & Veatch has not been requested to make an independent analysis, to verify the information provided to it, or to render any independent judgment of the validity of the information provided by others. As such Black & Veatch cannot, and does not, guarantee the accuracy thereof.

In conducting our analysis and in forming an opinion of the projection of future operations summarized in this report, Black & Veatch has made certain assumptions with respect to conditions, events, and circumstances that may occur in the future. The methodology utilized by Black & Veatch in performing the analysis follows generally accepted practices for such projections. While Black & Veatch believes the assumptions are reasonable and appropriate, and the projection methodology valid, actual results may differ materially from those projected, as influenced by the conditions, events, and circumstances that actually occur that are unknown at this time and/or which are beyond the control of Black & Veatch.

The City may only distribute the complete report to third parties, including the above statements and not parts thereof. Any distribution of this report, or any excerpt thereof, to third parties shall be at the City's sole risk. The City's duty to distribute only the complete report, including the above statements, shall not apply to internal City documents derived from the report, that come within the scope of applicable records laws and are requested under such laws by interested citizens.

B. SCOPE

This report addresses the organization and management, physical condition, adequacy of system capacity, operation and maintenance practices, and staffing levels of the water and wastewater systems. It provides a review of the proposed Capital Improvement Program (CIP) of the Water Department. The report also includes the results of studies regarding the financial requirements of

the water and wastewater systems, which are based on a review of the Water Department's books, records, and other information.

This report has been prepared in conjunction with the issuance of Water and Wastewater Revenue Bonds, Series 2013A (the "Series 2013A Bonds"). The purpose of the Series 2013A Bonds is to fund a portion of the fiscal year 2014 to fiscal year 2019 six-year CIP, a deposit to the Debt Reserve Account, and issuance costs of the 2013A Bonds.

C. BLACK & VEATCH QUALIFICATIONS

Black & Veatch is one of the largest and most experienced engineering, construction and consulting firms in the United States specializing in utility engineering. Experience includes the planning, design, operational analysis, and construction of water, wastewater, and energy generation and transmission systems. In addition, the firm has extensive experience in assisting utilities with management and financial aspects of their operations. The firm has been engaged in more than 40,000 projects for over 7,000 clients, including utilities owned by municipalities ranging in size from small villages to large metropolitan regions, investor-owned utilities, industrial and commercial businesses, and agencies of the United States and international government agencies.

The physical evaluation of the Water Department's water and wastewater systems has included experienced personnel of the firm's Water Sector Business which provides study, design, and construction services in all facets of the water and wastewater fields. Water system engineering experience of this business unit includes the design of a broad variety of facilities such as source of supply, pumping stations, treatment plants, and transmission and distribution systems. Wastewater system engineering experience includes design of collection, interceptor, and trunk sewers; pumping stations; treatment systems; and sludge disposal facilities. The Water Sector Business also has extensive experience in operator training, plant management studies, and preparation of operation and maintenance manuals for both water and wastewater systems.

In performing our engineering assessment of the Water Department, Black & Veatch reviewed the current condition and operation and maintenance of the water and wastewater systems. We conducted inspections of the Water Department's major water and wastewater facilities in March and April 2013, including the three wastewater treatment plants and the three water treatment plants. As a result of our facility inspections, we find the overall condition of these facilities to be good. This indicates that the facilities are in a condition to provide reliable operation in accordance with design parameters and require only routine maintenance or minor capital improvements. We also met with key Water Department staff during this period to discuss other facilities, regulatory compliance, staffing, and the overall mission of the Water Department. Staff interviewed during our studies included representatives from the following six of the seven divisions within the Water Department: Finance; Operations; Engineering and Construction; Public Affairs; Human Resources; and Planning and Environmental Services.

The financial feasibility review has been performed by professionals from Black & Veatch's Management Consulting Division (MCD) which provides services in such areas as utility rate studies, property valuation, depreciation rate studies, financial analysis and planning, non-audit accounting, management and operations analysis, and the preparation of consulting engineering reports for official statements. Having performed various financial studies for the City of

Philadelphia Water Department continuously since 1972, including the preparation of engineering reports for the Water and Sewer Revenue Bonds, issued under both the General Water and Sewer Revenue Bond Ordinance of 1974, as amended and supplemented, and the Water and Wastewater Revenue Bonds, Series 1993, 1995, 1997A, 1997B, 1998, 1999, 2001, 2003, 2005, 2007, 2009, 2010A, 2010B, 2010C, 2010D, 2011A, 2011B, and 2012 issued under the General Ordinance, personnel of the MCD are quite familiar with the Water Department's financial affairs as they relate to revenues, expenses, rates, and other financing matters. Professionals from MCD were also involved in the water and wastewater rate hearings for the first phase, related to the overall level of increases for fiscal years 2013 through 2015, which was completed in December 2012, and the second phase, related to stormwater rate revisions, which was also completed in December 2012. As a result of these rate hearings, schedules of water and wastewater rates for retail service have been approved for fiscal years 2013 through 2015, and are in place. Rates applicable to wholesale water and wastewater rates are also adopted for this same three-year period.

II. Organization and Management

A. ORGANIZATION AND STRUCTURE

The water and wastewater systems serving the City of Philadelphia (City) are owned by the City and are operated as a self-supporting enterprise fund utility. The Water Department was established by the Philadelphia Home Rule Charter, approved April 17, 1951 as one of the City's ten operating departments. The Water Department is responsible for the planning, construction, operation, and maintenance of the water and wastewater systems; for rate setting; budgeting and detailed cost accounting; and preparation of financial statements for the systems. The Water Revenue Bureau (WRB) is responsible for customer meter reading, billing, collection, and customer accounting for the water and wastewater systems and is currently overseen by the City's Revenue Commissioner. The City's Finance Director has top level oversight of the WRB. The data from the Water Department's annual statements are included in the City's combined Comprehensive Annual Financial Report. The audit function for the City is the responsibility of the Office of City Controller. Other services are provided to the Water Department by other City departments. Legal matters affecting the Water Department are the responsibility of the City Solicitor's office, although the Water Department does have a Divisional Deputy City Solicitor assigned directly to the Water Department under the direction of the City Solicitor's office.

The Water Department's primary mission focuses on providing a reliable supply of high quality drinking water for residential and community needs, as well as the effective management of wastewater and stormwater to enhance and sustain the region's watersheds and quality of life. Accordingly, there are several key challenges and initiatives that the organization as a whole will be confronting over the next several years as described below:

- *Green City, Clean Waters Program*. In June of 2011 the Water Department signed a Consent Order and Agreement (COA) with the Pennsylvania Department of Environmental Protection (PaDEP) that provides the basis for reducing the impact of combined sewer overflows (CSOs) to the region's streams and rivers. The COA requires the Water Department to implement its Long Term Control Plan Update (LTCPU) also known as the Green City, Clean Waters (GCCW) program. This program commits the City to spending approximately $2.4 billion ($1.2 billion in non-inflated 2009 dollars) over 25 years to reduce the impact of CSOs. In September 2012, U.S. Environmental Protection Agency (EPA) Region 3 and the Water Department agreed to an Administrative Order for Compliance on Consent, which incorporates the Water Department's COA with PaDEP. More information on the scope, objectives, and financial impact of GCCW is found in Sections IV, V, and VI of this report.
- *Strategic Plan Implementation*. In February 2011, the Water Department initiated the process of updating its strategic plan with the goal of identifying and implementing strategic initiatives to make the Water Department the model 21st Century Urban Water Utility. The Water Department finalized this plan in February 2013. The Plan emphasizes workforce development, capital and strategic planning, sustainability and customer service, along with infrastructure maintenance and core service delivery. It redefines the Water Department's mission and identifies eight (8) goals designed to enable the Water Department to achieve its vision of a 21st Century Urban Water Utility.

- *Succession Planning.* The Water Department senior management positions are staffed with highly qualified and trained personnel. This high level of experience exists despite the number of retirements that have occurred over the past seven years as a result of the Deferred Retirement Option Plan (DROP) created by the City in 1999 and through normal retirements and other staff turnover. Through the DROP program, approximately 511 Water Department staff have retired during fiscal years 2004 to 2012. To date, these positions have been primarily filled from within the ranks of the Water Department's staff, thus maintaining a high level of institutional knowledge and dedication to the City.
- *Energy Management.* In preparation for the deregulation of the power industry in Pennsylvania, which occurred in January 2011, the Water Department adopted a Utility Wide Energy Plan in 2010. The plan included projections of energy rates, conservation management strategies, and preliminary evaluations of renewable energy sources. The Water Department continues to implement the Utility Wide Energy Plan at all levels of the organization to reduce energy consumption while simultaneously realizing financial and environmental benefits. A key renewable energy project, the Northeast Water Pollution Control Plant Co-generation Facility, is nearing completion and should be operational in calendar year 2013.
- *Security*. The Water Department continues to implement security improvements to key facilities in accordance with its Vulnerability Assessment that was completed in 2002 and as needed to enhance security. These improvements focus on preventing, monitoring, or detecting access to key facilities, as well as maintaining critical operations during potential emergency situations. In 2013, the Water Department completed the implementation of the Contamination Warning System (CWS) which will facilitate early detection and efficient response to a water quality contamination occurrence in the distribution system.
- *Enhanced Planning Services*. The Water Department has multiple planning and asset management initiatives underway or recently completed including: enhanced Capital Program Planning; implementation of CapPlan™ Sewer for prioritization of water main repairs and replacements; completion of two of three phases of the Cityworks® work order management system for street side assets; facilities planning for the three water pollution control plants; and a long-term water supply plan. Over the next several years, these tools will assist the Water Department in identifying, justifying, and prioritizing capital improvements.

The Water Department is headed by the Water Commissioner who is appointed by the City's Managing Director with approval of the Mayor. In February 2011, Howard Neukrug was appointed Water Commissioner after the retirement of former Water Commissioner Bernard Brunwasser. Prior to his appointment as Commissioner, Mr. Neukrug served in multiple positions during his 32 years at the Water Department, including Deputy Commissioner of Environmental Services, Director of Office of Watersheds, and Director of Planning and Technical Services. The Commissioner is assisted in management of the Water Department by six Deputy Water Commissioners, including the Deputy Commissioner of Finance; Deputy Commissioner of Operations; Deputy Commissioner of Planning and Environmental Services; the Deputy Commissioner of Compliance: Deputy Commissioner of Strategic Planning; and Deputy Commissioner of Administration and Human Resources. The Water Department is currently organized into seven major divisions: (1) Operations; (2) Engineering and Construction,

(3) Finance, (4) Human Resources, (5) Public Affairs, (6) Planning and Environmental Services, and (7) Information Technology. There is also an Office of Compliance. Each division is divided into units and subunits responsible for carrying out specific functions. Senior management is actively involved in industry associations such as the American Water Works Association (AWWA), Water Environment Federation (WEF), and National Association of Clean Water Agencies (NACWA), with several staff members contributing to manuals that document best practices in the field of water and wastewater management. An Organization Chart of the Water Department is shown on Figure II-1.

With the appointment of a new Water Commissioner in 2011, the Water Department initiated the process of updating their Strategic Plan with the vision of becoming America's model urban water utility for the 21st Century. The Water Department finalized this plan in February 2013, well ahead of its goal of finalizing the plan sometime in the first half of calendar year 2013. The plan identifies eight (8) goals designed to enable the Water Department to achieve its vision and support the following five (5) key elements of the Water Department's mission:

- Provide the Greater Philadelphia region with integrated water, wastewater and stormwater services.
- Protect public health.
- Protect our environment.
- Support the sustainable growth of the City.
- Continue to be America's most innovative utility.

The Water Department's goals focus on maintaining the utilities' financial health; increasing effectiveness of core service delivery; reinvesting in infrastructure; improving customer relations; increasing work force strength; conducting long-term facility and system planning; achieving sustainable operations; and supporting the Philadelphia business community. A key element of implementing the plan involves evaluating the skills and staffing needed to meet the Water Department's current and future needs. Additionally, each division will be assessing its responsibilities with respect to achieving the Water Department's vision. Therefore, it is possible that the Water Department's current organizational structure may change in the coming years as the implementation of the Strategic Plan moves forward.

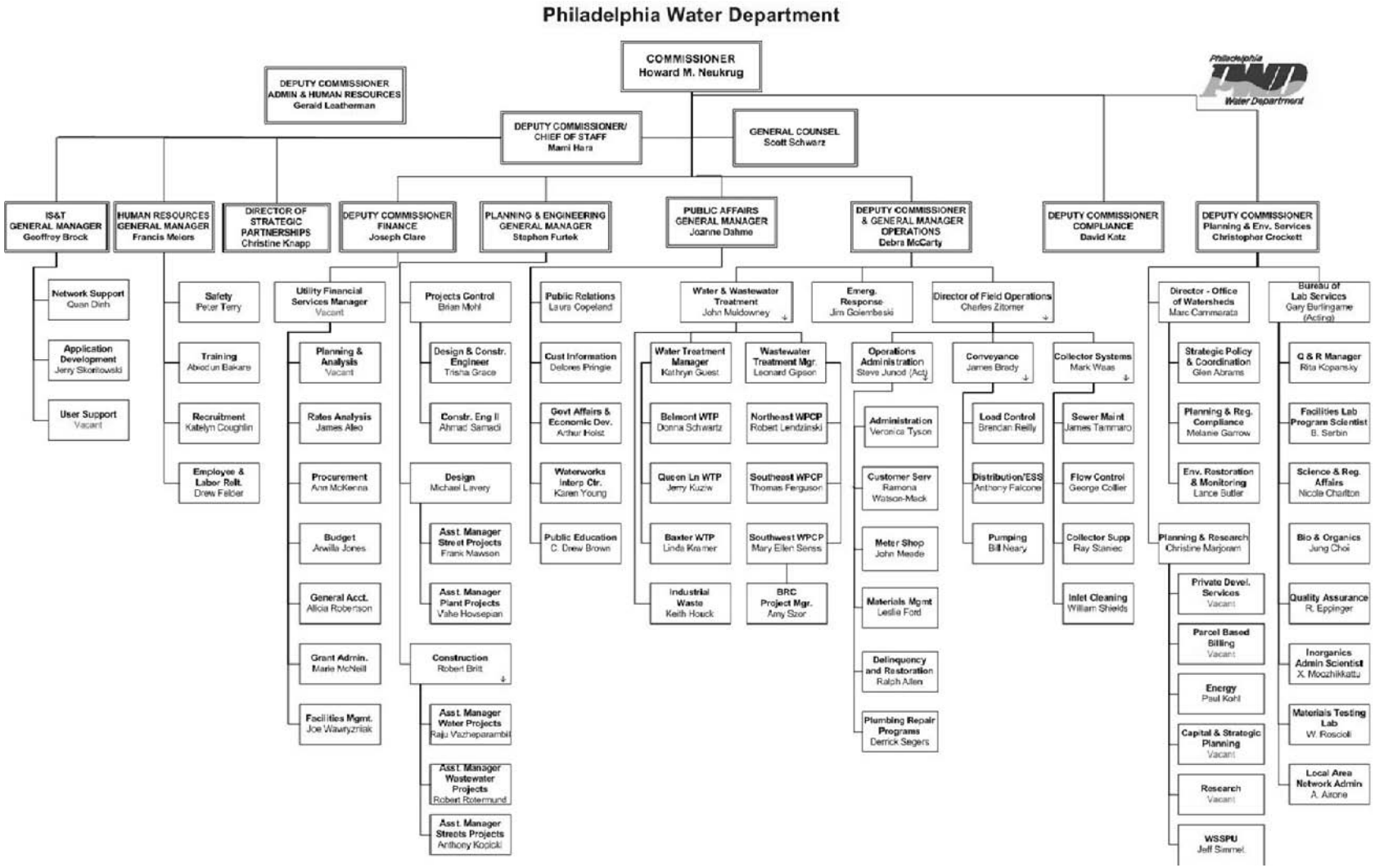


Figure II-1 Organization Chart

As of March 2013, the Water Department had a total of approximately 1,945 employees. Of these, approximately 1,437 are represented by District Council 33, and 290 are represented by District Council 47 of the American Federation of State, County, and Municipal Employees Union. The Water Department's 218 upper management, supervisory, senior engineering, and part time personnel are not eligible for union membership. Additionally, there are approximately 242 employees in the WRB whose positions are funded by the Water Department. Present labor agreements are an extension to the previous contract which expired June 30, 2008. The extension agreements expired on June 30, 2009 but the parties have continued to operate under the expired contract terms. In recent months, contract negotiations have come to an impasse. On February 1, 2013, Mayor Michael Nutter filed an action in the Court of Common Pleas requesting a declaration that the City has the right to implement the "Final Offer" contract that was proposed to District Council 33 on January 16, 2013 and which was rejected. On February 5, 2013, the Mayor filed a petition with the Pennsylvania Supreme Court asking that they claim immediate jurisdiction over the case, in anticipation of an appeal and in an effort to expedite the legal process. These legal actions do not include the District Council 47 contract, which remains under negotiation. The following sections provide an overview of the Water Department's key divisions and the WRB.

1. Operations Division

Over the years, the Philadelphia water and wastewater systems have grown and today are among the most complex, large municipal systems of their kind in the country. Operation and maintenance of these systems requires continuous attention for the following reasons:

- The public drinking water must be safe and comply with both the Safe Drinking Water Act (SDWA) regulations of the EPA and state requirements by the PaDEP.
- The effluent from the wastewater treatment plants discharged to the Delaware River must meet the limits set forth in the plants' National Pollutant Discharge Elimination System (NPDES) permits.
- The water and wastewater treatment plants, the sewerage and water conveyance systems, and the pumping facilities must be maintained and operated in an acceptable manner that assures cost-effective and continuous performance with minimal adverse impacts to the public and the environment.
- Sewage sludge and other residuals must be properly treated, disposed of, and distributed in accordance with Water Department policy and governing federal and state regulations.

Additionally, the Water Department must provide sufficient forward-looking engineering and planning to ascertain future operating requirements likely to emerge from upcoming drinking water and environmental regulations. Because of the many new regulations that have been and continue to be promulgated, prudent advanced planning and engineering is essential in order to comply with strict timetables and to minimize costly expenditures that result from these regulations. Due to the continued need for future regulatory compliance, the Operations Division interacts and works closely with the Planning and Environmental Services Division, the Engineering and Construction Division, and the Office of Compliance in planning for the future potential regulations

The Operations Division's current organizational structure includes a Deputy Commissioner of Operations, who reports to the Water Commissioner. This Division includes the following key operating units:

- Water Treatment
- Wastewater Treatment
- Water Conveyance
- Wastewater and Stormwater Collection
- Operations Administration
- Industrial Waste

In October 2008, the Water Department privatized the operation of its Biosolids Recycling Center (BRC) by leasing the BRC to a joint venture led by Synagro Technologies, Inc. (Synagro) through the Philadelphia Biosolids Services (PBS) company for a 20-year period. Discussion of this change in operations is further discussed in Section IV (Wastewater System) of this report.

The Operations Division is responsible for the day-to-day operations and maintenance of the water and wastewater systems and relies on the support of the other six divisions to accomplish its mission. It maintains an especially close relationship with the Planning and Environmental Services and Engineering and Construction Divisions in the following areas:

- Undertaking long-range planning and engineering.
- Coordinating regulatory agency requirements.
- Producing analytical results required to demonstrate permit and regulatory compliance.
- Preparing construction documents and coordinating design consultants.
- Coordinating construction projects.
- Establishing capital budgets and maintaining the current CIP.

Based upon our interviews and investigations, we believe that the organization of the Operations Division is well suited to respond to issues affecting operations and maintenance. The structure provides for a smooth flow of communication to and from the division level and section levels. Management places great emphasis on holding regularly scheduled meetings with superintendents and technical group leaders to communicate plans and receive important feedback.

Based upon our observations and discussions with key staff, we find that the Operations Division coordinates effectively with the Planning and Environmental Services and Engineering and Construction Divisions. Operations related planning and design projects are typically identified by the Operations or Planning and Environmental Services Division and then developed by the Engineering and Construction Division. The Engineering and Construction Division is also responsible for including these projects in the Capital Improvement Program (CIP).

To provide for more efficient decision making, the Operations Division has implemented procedures focused on identifying all capital improvements and replacement/rehabilitation project needs at each of its major facilities. The projects are identified on a master list by facility and projected for a six-year capital planning period. This plant focused process will feed into the Water Department's new Capital Planning Program, as discussed in more detail in the Planning and Environmental Services Division and Engineering and Construction Division discussions below.

The managers of the Operations, Planning and Environmental Services, and Engineering and Construction Divisions have responded capably to the needs of the water and wastewater systems and are well positioned to meet projected needs in the coming years. They maintain qualifications and experience commensurate with their responsibilities which enable them to deliver reliable, cost-effective water and wastewater services to the Water Department's customers.

The Operations Division has attracted a strong technical staff to supervise its operations and maintenance program. In our opinion the Operations Division is adequately staffed to meet current system requirements.

2. Planning and Environmental Services Division

The Planning and Environmental Services Division is organized into three specialty related units designed to support the needs of the Water Department. This division had 207 budgeted positions with 10 vacancies as of April 2013. Descriptions of the units are provided below:

a) Planning and Research Unit - This Unit represents a consolidation of the strategic planning activities associated with: source water, water and wastewater infrastructure improvements and the private sector side of GCCW. The primary mission is to direct and coordinate strategic planning for each of the Water Department's program areas as well as for capital projects. It is also responsible for the development of traditional research and technical service activities to identify and implement innovative ways to improve the Water Department's current assets, performance, and resources.

   Within Planning and Research, a recent reorganization has resulted in five (5) individual program units including: Strategic and Capital Planning, Private Development Services, Parcel Based Billing, Research, and Energy Planning.

   Strategic and Capital Planning: The function of this program unit is to conduct planning on a 25 to 50 year horizon to position the Water Department to meet long-term infrastructure needs, to be prepared to address future challenges, and to be positioned to take advantage of potential opportunities that arise. This is done through the following key functions:

      Capital Planning has developed and is implementing a new capital planning process that focuses on consistent initiation, documentation, justification, alternatives analyses and tracking for all large capital projects. All capital planning will evolve out of this sub-unit, with project identification by operations or planning activities feeding to the Capital Planning program. An International Water Association (IWA) asset management study performed several years ago is serving as a foundation for business case evaluations of capital projects, resulting in a very clear 5-year plan that matches-up with utility needs. This initiative is moving towards a 25-year capital plan for all major facilities.

      Asset Management supports the Water Department's infrastructure condition assessment, prioritization, and replacement programs. This group supported the implementation of the largest application of the CapPlan™ Sewer model in the world and continues to implement the Water Department's Sewer Assessment Program (SAP). CapPlan™ will facilitate predicting water main breaks before they occur and focusing preventative maintenance, repair or replacement activities on the highest priority mains. The software uses physical

criteria such as pipe age and material along with risk associated with proximity to nearby buildings and infrastructure to identify priority projects. Planning and Research is in the process of validating the model by assessing the justification of the highly ranked projects. In the future the Water Department intends to develop a similar model to prioritize sewer repairs and replacement.

Water Supply Strategic Planning leads the Water Department's efforts to ensure a sustainable drinking water supply for future generations. This Unit is leading the 2050 Water Supply Plan, a long-term approach to define the Water Department's water system of the future. Other water supply related activities include: compilation of the Annual Water Audit; conducting hydraulic reservoir and water quality modeling; evaluating potential climate change impacts; leading the Water Department's Iodine-131 track-down and monitoring efforts; and evaluating potential impacts from Marcellus Shale drilling. This group also continues to lead Source Water Protection initiatives, including the Watershed Control Program for the Queen Lane Water Treatment Plant, and the administration of the Delaware Valley Early Warning System, which provides early warning communications and notification for water suppliers on the Delaware and Schuylkill Rivers.

The Wastewater facility master planning program has been established to provide a strategic planning effort surrounding each of the three water pollution control plants. It establishes processes and plans to ensure long term capital and operational needs are fully supported. Recently, this program unit was responsible for the preparation of each Facility Concept Plan by June 1, 2013 as required by the LTCPU. This program unit will continue work on wet weather facility plans in support of future LTCPU commitments. Long term goals will produce comprehensive facility master plans for each plant extending a minimum of 25 years into the future. It is the responsibility of the program to provide a holistic and total water approach to the facility planning efforts which includes the identification of emerging technologies in light of future regulations and operational challenges.

Private Development Services: This program unit interacts with the development community and is responsible for implementing the City's stormwater regulations, through plan review and ongoing inspections. It is responsible for reviewing and approving the stormwater plans for proposed development greater than 15,000 square feet. Private Development Services verifies ongoing compliance with the stormwater regulations by conducting regular inspections of stormwater infrastructure on private lands to ensure proper operations and maintenance after installation. The GCCW program relies heavily on changes in the way stormwater is managed in the private sector. Since 2006, the Water Department's Stormwater Team reviewed over 1,750 conceptual plans for stormwater zoning permits, over 1,375 final technical plans for stormwater building permits, over 550 coordinated reviews with the State Department of Environmental Protection, and over 530 erosion and sediment control site inspections. Plans reviewed cover approximately 3.2 square miles of earth disturbance, in which the first one inch of rainfall is required to be captured or infiltrated.

Parcel Based Billing: This program unit supports the development of the stormwater rate structure and reviews all applications for credits or appeals under the parcel based billing program which was initiated in a four year phase-in beginning in fiscal year 2011. Stormwater

billing provides an opportunity to encourage stormwater management through owner credits for managing stormwater. This program unit is currently supporting planning for modifications to the existing stormwater rate structure.

Research: The Water Department employs a variety of processes and equipment at their facilities and strives to continually evaluate and improve performance to meet the ever changing and more stringent standards of tomorrow. This program unit is responsible for identifying new processes and approaches, and conducting research for development and application of new technologies in the Water Department's business and operations. These are tactical initiatives that inform strategic planning efforts. In practice, this is similar to the traditional research and development program the Water Department has historically maintained. This program unit is currently providing technical and research support for water treatment planning, distribution system evaluations, and wastewater treatment plant process enhancements and expansions.

Energy Planning: This program unit is responsible for the implementation of the Utility Wide Strategic Energy Plan including development of new energy initiatives, conceptual design, and implementation. This initiative is discussed in more detail in Section IV.F.

b) Office of Watersheds–The Office of Watersheds (OOW) is responsible for planning and implementation associated with the traditionally separate, but inherently related, Combined Sewer Overflow (CSO) and Stormwater Management programs. The objective is to maximize the effectiveness of resources allocated to these programs and to ensure the comprehensive achievement of both programs' goals and regulatory requirements.

OOW developed and is now charged with implementing the Water Department's CSO LTCPU in accordance with the COA. This program presents an innovative source control-based approach to managing wet weather, specifically combined sewer overflows, and its impact on receiving waters. The GCCW program focuses on using green stormwater infrastructure (GSI) and the restoration of the natural hydrologic cycle in the urban environment to intercept urban runoff before it reaches the sewer system. OOW recently supported the development and submittal of a draft Municipal Separate Storm Sewer System (MS4) permit. In fiscal year 2014, OOW will work with the Office of Compliance to negotiate the details of their renewed permit.

With the signing of the COA, OOW has transitioned from conducting planning and small scale demonstration studies, to City-wide implementation of GSI and associated compliance tracking and reporting. To facilitate this transition, OOW completed a Program Quality Management exercise to define each Unit's core mission, establish success factors and metrics, and develop staffing and work plans for fiscal years 2012 and 2013. Through this process OOW prioritized activities to ensure compliance with the deliverables of the COA. Each Unit within OOW submits monthly reports to the Deputy Commissioner of Planning and Environmental Services to document progress toward meeting defined goals and regulatory requirements.

OOW is comprised of five Units: Strategic Policy and Coordination, Capital Planning and Regulatory Compliance, Green Stormwater Infrastructure Implementation, Surface Water Investigation and Modeling, and Ecological Restoration, Operation, and Maintenance. Each unit is described briefly below.

The Strategic Policy and Coordination Unit is responsible for interagency coordination, policy initiatives, funding development and watershed information development. Key activities conducted by this unit include coordination between various City agencies and private organizations (i.e. Licenses & Inspections, Department of Streets, the Fairmount Park Commission, watershed groups and non-profit organizations) to facilitate the implementation of green infrastructure and the development of policies to support these activities. This Unit also seeks and pursues grants and other funding sources to supplement the Water Department's overall budget.

The Capital Planning and Regulatory Compliance Unit is responsible for planning traditional infrastructure improvements and tracking progress toward meeting permit requirements. The Unit develops and runs the hydrologic and hydraulic models of the watersheds and sewer system, upon which the GCCW program is built and by which the Water Department will measure compliance with the mass load pollutant reductions required under the COA. The Unit also conducts hydraulic modeling to identify solutions for storm flow-related basement flooding which has occurred in certain areas of the City in recent years. Finally, this Unit holds the permits, tracks progress toward meeting permit requirements, coordinates drafting and submittal of annual reports and ultimately ensures that the Water Department is in compliance with the COA and MS4 permit.

The Green Stormwater Infrastructure Implementation Unit is responsible for planning, design and implementation of GSI projects city-wide. This Unit conducts planning to identify potential projects; manages planning and design contracts, and oversees construction of GSI projects.

The Surface Water Investigation and Modeling Unit is primarily focused on field-based monitoring activities such as monitoring of GSI performance and water quality monitoring in the streams. They are also developing tributary and tidal waters water quality models which will be used to evaluate the effectiveness of the GCCW initiatives in the future.

The Ecological Restoration, Operation, and Maintenance Unit is responsible for implementing watershed restoration projects; planning for the operations and maintenance of all GSI; and management of related maintenance contracts.

c) Bureau of Laboratory Services (BLS)–BLS is the Water Department's environmental laboratory responsible for providing analytical services to meet water and wastewater regulatory requirements and to support various Water Department research initiatives. As the Water Department and regulations evolve, BLS strives to stay positioned to support the Water Department through sampling and analytical support at the levels required for modeling and regulatory development. To this end, BLS continues to expand its analytical capabilities and participates in cutting edge research initiatives. It recently received accreditation for cyanide analysis, and is developing Polymerase Chain Reaction (PCR) capabilities to track microbial contaminants. Additionally, it has acquired a liquid chromatography-mass spectrometer (LCMS) that will enhance its ability to monitor emerging chemical contaminants.

BLS operates a state-of-the-art laboratory facility and is comprised of the following groups: (1) Administrative Branch, (2) Inorganic Laboratory, (3) Materials Engineering Laboratory,

(4) Organic Laboratory, (5) Aquatic Biology Laboratory, (6) Scientific and Regulatory Affairs, (7) Quality Assurance and (8) Research. Its work is critical to maintaining high water quality standards, meeting regulatory reporting requirements, and assisting with the quality construction of the Water Department's capital improvements. BLS is an accredited laboratory with the Commonwealth of Pennsylvania under Act 25, Chapter 252 for the analysis of environmental samples.

BLS is responsible for managing compliance with the water quality monitoring requirements under both the federal SDWA and state regulations. Approximately 1,000 drinking water samples are collected each month from the water treatment plants, storage reservoirs, and distribution system. These samples are tested for chemical and bacteriological parameters to assure product quality. BLS conducts drinking water quality surveillance and investigations in the water distribution system. In addition to collecting water samples from approximately 85 standard locations throughout the city, BLS operates approximately 30 online, real-time, water quality monitoring instrument panels that are placed at strategic locations within the system. This system serves as the foundation of the Water Department's Contaminant Warning System. BLS administered the EPA grant and led the overall development of this program. The CWS is discussed in more detail in Section III.C.

BLS also collects and analyzes water samples related to customer complaints and targeted water quality investigations and research. BLS developed and is responsible for enforcing the City's Cross Connection Control Program in collaboration with the Department of Licenses & Inspections and the Department of Public Health. The Cross Connection Control group maintains records for more than 20,000 backflow prevention assemblies installed on City water mains and conducts over 100 facility inspections on average every month.

BLS is involved in monitoring the water quality in Philadelphia's urban streams. In this capacity, BLS maintains a staff of scientists focused on stream water quality monitoring and aquatic life assessments. These scientists work closely with the Office of Watersheds data collection that is required for the annual reports required under the MS4 and CSO program permits. The Watershed Sciences group is currently assisting the EPA, Delaware River Basin Commission (DRBC) and the US Geological Survey (USGS) with the collection of Delaware River samples for various research efforts to evaluate and ultimately enhance the water quality of the Delaware River.

The Materials Engineering Laboratory (MEL) is responsible for testing products used by the Water Department and other city agencies. While its focus is on testing products used in construction of the Water Department's infrastructure, it also tests items such as tools, fasteners, and paint for adherence to specifications and performance. The MEL uses a Quality Certification Program (QCP) to obtain quality materials for the Water Department's construction projects. The objective of the QCP is to protect the quality of major infrastructure materials and products by requiring adherence to accepted principles of quality control at the point of manufacture. In order to be eligible for supplying listed products to the Water Department, the supplier must achieve certification by BLS-MEL. Qualifications include an approved QC manual and evidence that it is consistently followed. Periodic on-site audits of manufacturing facilities are performed by MEL staff.

3. Engineering and Construction Division

The primary responsibility of the Engineering and Construction Division is to implement the Water Department's CIP. To accomplish this task, the division is comprised of the Design, Projects Control, and Construction units.

a) Design Unit - This group performs all engineering functions associated with design and construction of the Water Department's CIP. Generally, projects are identified by the Operations Division and submitted to the Design Section where they are assigned a project number and logged into the Water Department's Capital Program Integrated Tracking (CAPIT) system. Projects are designed and submitted to Operations for approval, and then passed on to the Projects Control Unit for public bidding. The Water Department has embarked on facilities planning and capital program planning initiatives within the Planning and Environmental Services Division in order to provide additional vision for its capital budgeting process. The result will likely be a new workflow for large capital projects in which these projects go through additional planning steps prior to being designed and incorporated into the CIP. In addition, updates to the CAPIT are being reviewed to incorporate the increase in project volume due to the GCCW initiative and to improve reporting capabilities.

   The Design Unit has two large groups (Plant Design and Water and Sewer Design). The Unit maintains its service levels by employing outside consultants to supplement the in-house staff, as necessary. A representative list of the group's activities follows:

   - Evaluates and designs new and rehabilitation projects.
   - Provides input into maintenance, renovation, and reconstruction issues.
   - Reviews and coordinates designs prepared by consultants.
   - Reviews shop drawings and reviews requests by contractors for deviations from plans and specifications.
   - Maintains record plans.
   - Provides engineering assistance to Operations Division during disruptions in water and wastewater service.
   - Coordinates with other agencies such as the Pennsylvania Department of Transportation (PADOT), Philadelphia Streets Department and Redevelopment Authority, SEPTA and private utilities.
   - Assists in public education of various issues associated with the water and wastewater systems.
   - Reviews plans prepared by private developers for adherence to Water Department standards.

b) Projects Control Unit - This group is currently responsible for developing, maintaining, tracking, and coordinating the CIP. Projects are developed by the facility manager, approved by the section manager and Deputy Commissioner of Operations then submitted to Projects Control where they are prioritized and placed in a timeline to allow budget development for a six-year horizon. Longer-term projects are placed in a year 2050 file for incorporation into future

budgets. The Water Department began preparation of its capital budget for fiscal year 2014 though 2019 in October 2012, when all divisions were supplied with documentation to complete and return to the Projects Control Unit reflecting their budgetary requests for the next fiscal year. The Water Department has developed and installed a computerized budgeting system to enable each division to prepare budget requests based on historical and current experience. The Water Commissioner reviewed all budget proposals with the assistance of the Projects Control's staff and submitted the Water Department's proposed fiscal year 2014 budget to the City's Planning Commission in December 2012. The Mayor approved the Water Department's Capital Budget and included it as part of his proposed budget to the City Council in February, 2013 and it was approved by Council on June 20, 2013.

The role and responsibilities of this group is evolving as the new Capital Planning Program is being developed and implemented. Large capital projects will now go through a comprehensive planning process which includes standardized documentation, justification and alternatives analysis prior to prioritization and inclusion in the CIP.

c) Construction Unit - This group assumes responsibility for projects upon issuance of the construction notice-to-proceed. Responsibilities include assurance of contractor compliance with design contract documents, processing change orders if necessary, responding to requests for information and handling payment requests from contractors. The Construction Unit also provides surveying services to assist contractors with construction site stake out and compliance with surveying procedures.

4. Finance Division

The Finance Division is responsible for the development of water and wastewater revenue requirements and rates, the preparation and control of the operating budgets, the management of capital financing programs, the monitoring of customer revenue and rate programs, and the general accounting of operating and capital funds. In addition, the division handles the maintenance of the inventory control, functionalized cost, fixed asset accounting systems, procurement, and preparation and follow-up on documentation of federal and state grants. Further, the division provides support services in the areas of office and facilities management. The Finance Division also oversees the Water Department's Facilities Management, Machine Shop and Security units.

In accomplishing the responsibilities identified above, the Finance Division's major objectives include compliance with all legal reporting requirements, securing goods and services needed to continue operations from vendors, determining a fair and equitable water and wastewater rate structure to provide sufficient funds for both operating and capital programs, monitoring of all budgetary expenditures, promoting performance management measurement and reporting, and developing special accounting systems.

The Finance Division organizational structure includes a Deputy Commissioner, who reports directly to the Water Commissioner. The division has seven units (Procurement, Grant Administration, Planning and Analysis, Rates Analysis, General Accounting, Budget, and Facilities Management). The authorized staffing level for the division is 181. As of March 2013, 152 of the 181 positions were filled. The majority of these vacancies are in the Facilities Management unit.

a) Core financial services are provided by the Planning and Analysis, Rate Analysis, Procurement, Budget, General Accounting, and Grants Administration units.

b) The Facilities Management unit is responsible for all building maintenance work (concrete, electrical, HVAC) for all Water Department structures except the three water and three wastewater facilities. The Security unit and the Machine Shop unit both report directly to the head of the Facilities Management unit.

Key management positions within the Finance Division are staffed with highly capable individuals, most of whom are long-term Water Department employees. The Finance Division has experienced some retirements of key staff positions and there are a few additional staff members that are eligible for retirement in the next few years. The Water Department has initiated some succession planning, recruiting, and training efforts to address these retirements. In our opinion, the Finance Division is organized to efficiently respond to financial needs from other divisions of the Water Department as well as with other City of Philadelphia departments and other entities outside of the City government, as necessary.

5. Human Resources Division

The Human Resources Division provides administrative and human resources planning services to the various divisions and their respective units. Some of the key objectives of this division include:

- Coordinating traditional personnel functions with initiatives in manpower and management training.
- Ensuring that personnel recruitment, placement, training, career development and safety programs are consistent with the Water Department's long-term human resources needs and affirmative action goals.
- Initiating policy development related to administration and human resources management.
- Ensuring the effective communication of policies and procedures generated by management throughout the Water Department.
- Coordinating labor management initiatives and employee relations programs with the Water Department's long range operational plans.

The four units in this division are Safety, Training, Recruitment, and Employee and Labor Relations. Authorized staff for the Human Resources Division is 25, and there are currently five vacancies.

The Training Unit led the development of the Water Department's Apprentice Program, which started in 2006. Under this program the Water Department seeks out motivated high school students interested in applicable trades (e.g., science, electrical, and mechanical) and hires these students as apprentices. The students work part-time as an apprentice until they graduate, and are then hired full-time under the apprentice program. Once they complete the required training, they will be hired as full-time civil service employees. Managers and mentors working with apprentices and graduates of the program speak highly of the program. The Water Department continues to fine tune this program and is looking to improve the quality of candidates selected in the future.

The Safety Unit utilizes an industrial hygienist to build training programs and support Water Department safety committees in their goal to assure a safe work environment. As noted in

Table II-1, long term efforts have shown a general downward trend to leveling off of paid days lost. A particularly serious vehicle accident involving an employee in the Survey Unit resulted in an increase in the number of paid days lost for the period of fiscal years 2010 through 2013. As of April 2013, the employee associated with this accident is no longer an employee of the City and the Water Department anticipates that this injury will not negatively impact its paid days lost record beyond fiscal year 2013.

Table II-1 Safety Record

FISCAL YEAR	PAID DAYS LOST
1993	4,821
1994	3,884
1995	2,278
1996	1,499
1997	982
1998	1,053
1999	1,155
2000	772
2001	1,217
2002	1,028
2003	959
2004	1,163
2005	1,452
2006	1,873
2007	1,430
2008	1,757
2009	1,737
2010	2,616
2011	3,099
2012	3,010

6. Public Affairs Division

The Public Affairs Division supports and enhances the services performed by the Water Department's six other divisions to provide better service to the public. The Public Affairs Division consists of five units. These units, together with their primary areas of focus, are presented below.

a) Public Education Unit - As its name implies, this Unit is responsible for carrying out the Water Department's public education outreach programs, particularly programs that bring information and educational materials about the Water Department's initiatives to schools, neighborhood groups, community events, and the individual water customer. The Public Education Unit has

been responsible for the Water Department's strong publications and extended outreach programs that are geared toward providing a better understanding of urban watersheds, and the part each citizen and industry plays in protecting these valuable resources.

b) Waterworks Interpretive Center - Among the many projects developed and being implemented by the Public Affairs Division is the Fairmount Water Works Interpretive Center (Center), which was opened in October 2003. The Center traces the history of the Schuylkill River and illustrates the complicated relationship between human civilization and the river. The Center is staffed by four environmental educators, and features interactive exhibits on the urban watershed; a Water Laboratory; a classroom/media center; and interpretive displays. The Center has attracted approximately 40,000 visitors per year during the last two fiscal years consisting of school children, adult groups, professional groups and the general public. The Center has formed strategic partnerships with partners such as the School District of Philadelphia, the Partnership for the Delaware Estuary, the University of Pennsylvania Institute for Environmental Studies, the Academy of Natural Sciences, and others. The Center is also in the final stages of developing a capital campaign for expanding into the unused space of its complex. This expansion will facilitate the formation of the Water Department's Urban Waters Institute.

c) Public Relations Unit - This Unit ensures that the Water Department's communications with the press are effectively delivered. The Water Department takes a proactive approach to informing the press about its mission. Topical press kits are routinely sent to the media to address subjects such as illegal use of fire hydrants, drought, and seasonal variations in the frequency of water main breaks.

The Public Relations Unit is currently developing a strategy for providing better communication to the press and Water Department customers. The strategy will be looking at six key areas where communication will be critical in the coming years, including:

- Green City, Clean Waters
- Drinking Water Quality
- Customer Service
- Flooding
- Stormwater Pollution/Prevention and Fees
- Infrastructure Replacement

For each of these areas, the Public Relations Unit will be focusing on identifying its target audience and determining how to best reach out to that audience. Engagement strategies will include all forms of social media.

d) Government Affairs Unit - This Unit ensures that the Water Department interfaces on a continual basis with City Council, the Mayor's Office, and the State Capital. Legislation, at all levels of government, is monitored and routed to the appropriate Water Department staff for their review.

Another function of the Government Affairs Unit is to provide customer assistance for commercial customers that have stormwater fee inquiries. These inquiries are typically more detailed in nature and require more effort to address, as opposed to routine stormwater billing customer inquiries which are handled by the Customer Information Unit.

e) Customer Information Unit–The Water Department is very customer service oriented. Although water and sewer billing complaints are primarily handled by the WRB, the Customer Information Unit handles all calls related to the Water Department's stormwater fee. As mentioned above, the Government Affairs Unit assists with inquiries from commercial customers. All operational complaints are handled by the Water Department Call Center. Operational complaints are tracked using a computer system.

During fiscal year 2012 the Unit received 200,000 calls, with an average wait time of only 30 seconds. A great deal of emphasis is placed on obtaining input from customers and using their input to continuously improve service.

In November 2012, the Water Department and WRB Call Centers were virtually connected through the implementation of a cloud technology. The Water Department Call Center currently handles billing inquiries that overflow from the WRB Call Center. The new technology provides a host of new tools including IVR, call backs, and robust reporting. The two centers are still working on fine-tuning metrics and performance measurements.

The Public Affairs Division is currently developing strategic plans in the following areas to support the implementation of the Water Department's new strategic plan:

- Communications Inventory
- Media Strategic Planning
- Construction and Water/Sewer Emergency Customer Communications
- Social Media
- Public Education

The Public Affairs Division utilizes a Water Quality Council (WQC) comprised of approximately 30 representatives from various civic, environmental, industrial, and academic organizations, including Water Department staff. The WQC meets quarterly to discuss policy and strategy for public education, and provides advice and support for the Water Department's public education programs.

7. The Office of Compliance

The Office of Compliance (formerly known as the Office of Environmental Policy and Planning) was created in June 2001 and is responsible for proactively managing and addressing the various environmental issues applicable to the operation of the Water and Wastewater System. These responsibilities include:

- Negotiating and challenging, as necessary, all permits including NPDES, Stormwater, Clean Air Act, Total Maximum Daily Loads (TMDLs), etc.

- Developing an overall strategy for the Water Department for the handling of new and emerging regulatory challenges, such as the TMDLs for Volatile Organic Compounds (VOCs), Polychlorinated Biphenyls (PCBs) and sediment loads, CSO implementation, Sanitary Sewer Overflow (SSO) implementation, etc.
- Reviewing, commenting on, and challenging, as necessary, any new laws and regulations affecting the Water Department.
- Testifying before applicable government agencies and commissions to advance and advocate the Water Department's position.
- Responding effectively to any potential environmental problems or issues should they arise.
- Developing environmental policies that guide decision-making on operating and capital budget issues.
- Ensuring that all environmental reporting to governmental agencies is timely and accurate.
- Negotiating and resolving any environmental violations alleged by any regulatory agency.
- Negotiating and entering into contracts with the Water Department's suburban customers related to the Water Department's environmental initiatives or the customer's violations of the terms of its contract.
- Responding to both formal and informal requests for information as requested by any regulatory agency.

8. Information Science & Technology

Prior to fiscal year 2011, the Water Department maintained an Information Science and Technology (IS&T) Division that coordinated all of the software and hardware technology needs for Water Department personnel. In 2010, the City consolidated all departmental Information Technology divisions into the Department of Technology (DOT). Therefore, approximately 51 positions were shifted from the Water Department to DOT, since renamed Office of Innovation and Technology (OIT). The day to day responsibilities of these personnel remain centered on serving the technology needs of the Water Department, and they continue to reside in the Water Department's offices. Except for some minor administrative processes, there has been no change in the mission or performance of IS&T as a result of this organizational change.

Personnel that are focused on critical operational tasks such as monitoring and maintaining the treatment plants' supervisory control and data acquisition (SCADA) and distributed control systems (DCS) were not impacted by the organizational change.

Water IS&T recently re-organized and is in the process of implementing a newly created Organizational Development Plan. IS&T is composed of four Units:

1) Infrastructure Unit: Responsible for operations, maintenance and planning activities associated with the physical environment, database management and new technologies.
2) Geographic Information Systems (GIS): Responsible for operating and maintaining the City's comprehensive GIS database.

3) Business Unit: A new unit that will focus on Water Department client interface and the development of standard processes and procedures for conducting requirements analysis and requirements documentation. This unit will also manage the IS&T portfolio.
4) Applications Unit: Responsible for applications development in support of various Water Department programs and initiatives.

Water IS&T has adopted and is implementing Information Technology Infrastructure Library (ITIL) best practices. This includes ITIL training for managers and supervisors. The goal of this initiative is to better align and integrate the IS&T units and their service offerings with the Water Department's Strategic Plan and general needs.

Another major initiative in the coming years is the complete overhaul of the Water Department's data center and replacement of dated technologies. This will include the development of requirements documents, interim operations plans, and policies and procedures for the new data center.

9. Water Revenue Bureau

Established under the City Charter, the WRB reports to the Revenue Commissioner and ultimately to the Office of the Director of Finance. The WRB has the responsibility for meter reading, billing, and collection of water and wastewater revenue for services provided by the Water Department. WRB responsibilities also include enforcement of payments and customer relations. 242 of the 270 budgeted positions are currently filled.

Since 1992, the WRB and the Water Department have increased their level of coordination with respect to billing and collection of the Water Department's revenue. In accordance with a 1992 agreement, both the Office of the Director of Finance and the Water Commissioner monitor collection of water and wastewater revenues. The cooperation between these two City agencies has improved reporting on revenue collections, implementation of monthly billing, collection of aged receivables by private collection agencies, and enforcement actions. Monthly meetings with the WRB and the Water Department executive staffs, and meetings between the Office of the Director of Finance, Water Commissioner, and other key personnel, serve to maintain communications and enable prompt and direct response to issues involving both the WRB and the Water Department.

In September of 1997, the Water Department and the WRB began the implementation of the Automatic Meter Reading (AMR) Program (AMR Program) involving the replacement of all water meters with new meters equipped with radio transmitter meter reading devices. Installation commenced on September 11, 1997, and as of March 2013 this effort is complete. This program has greatly improved the accuracy of billing, which has resulted in fewer billing disputes and has had a positive effect on customer service and collections. In addition to the increased revenue that typically results from such billing program improvements, the AMR Program significantly reduced the costs of meter reading and related support.

The Water Department collaborated with the WRB in the implementation of a new billing system. The Basis2© Customer Billing System was implemented in fiscal year 2008 and replaced the twenty-five (25) year old application previously supporting WRB. The Water Department and WRB continue to work together to develop, enhance, and validate several applications and reports related to the billing system. The Water Department has noticed some variability in metered

consumption reflected by Basis2© when compared to the old billing system. To date the variability has not significantly impacted revenue, but the Water Department and WRB are continuing to integrate the new billing system while monitoring its performance.

B. CONCLUSIONS

It is our opinion that the Water Department is organized in a manner which provides for efficient system operations and maintenance, and that the divisional and sub-divisional structure provides for delegation of management authority and responsibility through various levels and work units. A good working internal relationship exists among divisions to facilitate execution of all phases of the Water Department's responsibilities.

Despite the fact that a number of senior level staff are retiring, senior management positions are staffed with highly qualified and trained personnel. Recent senior staff retirements have been filled with experienced Water Department professionals and succession planning for future retirements is in progress. Senior management professionals that oversee critical operating, engineering, financial, planning, and support functions have worked at the Water Department for an average of almost 24 years. This institutional experience provides stability as the Water Department moves forward with key initiatives.

III. Water System

A. INTRODUCTION

The Philadelphia Water Department began service in 1801 with the dedication of two pumping stations that raised water from the Schuylkill River to two elevated tanks located where City Hall now stands. From there the water flowed to the homes of early Philadelphia through wooden pipes. The Water Department has continued to serve the City's growing needs without interruption since this beginning, through continual adaptation of the latest technological advancements in water service.

Today, the major elements of the water system include three river supply intakes, three treatment plants, storage facilities and a conveyance network. The water system service areas and major facilities are shown in Figure III-1 on the following page.

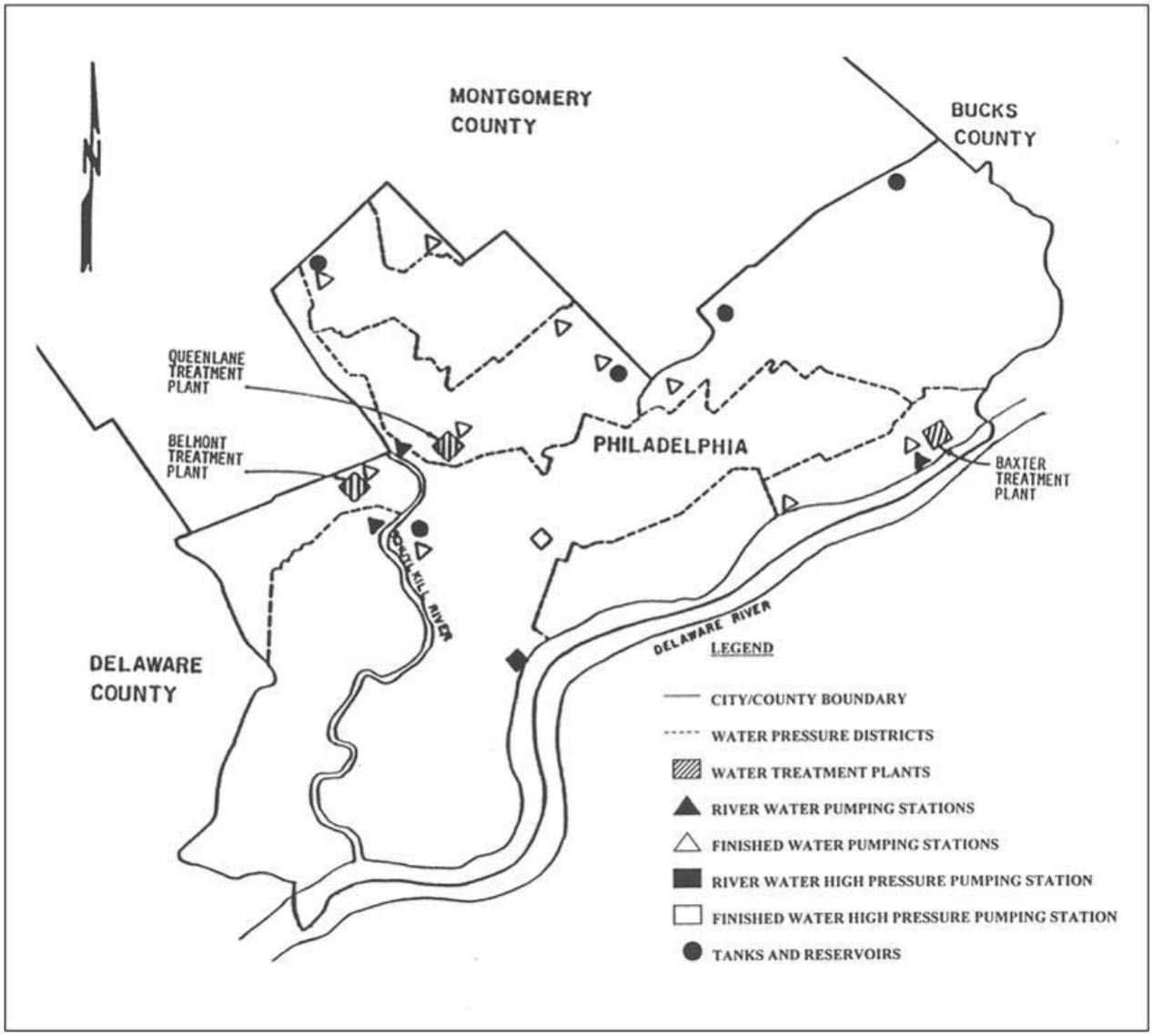
B. WATER SUPPLY

The Water Department presently supplies water to Philadelphia and portions of Bucks County, Montgomery County, and Delaware County. The service to Bucks County is provided under a wholesale contract with the Bucks County Water and Sewer Authority (BCWSA). This contract provides for the sale of treated water to Bucks County at a maximum rate of up to 35 million gallons per day (mgd). The Water Department and BCWSA recently negotiated and executed a new six-year contract that allows BCWSA to decrease its 35 mgd reserved capacity with prior notice 90 days in advance of the fiscal year. BCWSA has requested and received a 4.0 mgd reduction in their reserved contract capacity to reflect reduced sales for portions of Bucks County served by Aqua Pennsylvania. The Water Department projects that BCWSA will reduce and eventually eliminate their consumption under this contract in favor of another regional supplier by fiscal year 2019. Potential impacts to revenue are discussed in Section VI (Financial Requirements) of this report. The service to Montgomery and Delaware Counties is provided under an agreement signed in fiscal year 2000 with Aqua Pennsylvania, a subsidiary of Aqua America (formerly known as Philadelphia Suburban Water Company), which provides for the sale of treated water at a rate of up to 9.5 mgd.

The Water Department obtains approximately 58 percent of the water supply from the Delaware River and 42 percent from the Schuylkill River. These withdrawals are authorized under water entitlements granted to the City of Philadelphia by the Pennsylvania Department of Environmental Protection (PaDEP) and the Delaware River Basin Commission (DRBC). The DRBC is an interstate agency responsible for regulation of water resources in the Delaware River Basin. It is accountable to the states of Delaware, New Jersey, New York and Pennsylvania, and to the federal government.

The Water Department participates with the DRBC on drought and flow management planning and is adequately prepared to address future drought conditions should they occur. A 1984 Agreement among the states dependent on the Delaware River established patterns of division for the Basin's resources during formally declared drought periods. This agreement and resulting drought management plans have been used to effectively manage drought emergencies declared in the past and are expected to adequately address future drought emergencies. The Water Department participated in flow management planning with the DRBC as an advisor to Pennsylvania on the Supreme Court Consent Decree Parties Flow Working Group for the Delaware River. This effort led to the parties signing a Flow Management Plan that ensures adequate supplies for all users and

provides protection against salt line migration, which is a significant concern for the Water Department.



Note: In January 2005, both the River Water High Pressure Pumping Station and the Finished Water High Pressure Pumping Station were decommissioned. These facilities are those shown above and remain in place, but have been taken out of service. The standard pressure fire protection system, which has been utilized for the provision of fire protection service to Center City for many years, replaces the decommissioned non-potable water high pressure fire system.

Figure III-1 Water System Facilities

The Water Department's ability to draw water supply from both the Schuylkill and the Delaware Rivers provides flexibility and additional drought protection as it is not dependent on a single source of supply. As of June 2013 Philadelphia County, which includes the majority of the Water Department's customers, was not under a drought watch or warning as declared by PaDEP.

1. System Capacity

The Water Department delivers water through an integrated system that reflects the PaDEP and DRBC entitlements, and contains raw water intake capability, treated water capacity, and storage capacity commensurate with those entitlements. The total rated capacity of the three water treatment plants is 546 mgd. The capacities of other elements within the water supply system appear in Table III-1. Compared with these capacities, the average annual daily treated water supplied in fiscal years 2010, 2011 and 2012 was 244.5 mgd, 250 mgd and 237.1 mgd, respectively.

2. Population

The population served by the Water System is approximately 1,710,607 as per the 2012 Census data and Water Department estimates, of which 1,547,607 were located in the City, 106,000 were in Bucks County, and approximately 57,000 were in Delaware and Montgomery Counties. While this represents slight population growth within the City, growth for the service area is generally expected to be flat out to 2030, with the City declining slightly over the next few years and stabilizing, and the suburban population growing slowly and then stabilizing. Declining average customer consumption and reduced leakage in the water distribution system are accounting for lower water delivery from the treatment plants. This value stood at an all time low of 237.1 mgd for the fiscal year ending June 30, 2012. The reduction in consumption will impart both a slight reduction in water revenue and marginal operating costs. In summary, the water treatment, storage, and distribution facilities are of adequate capacity to provide for the present and foreseeable future requirements.

Table III-1 Water System Capacities

FACILITY	RAW WATER PUMPING CAPACITY	ALLOCATION, MAX DAILY WITHDRAWAL	HYDRAULIC TREATMENT CAPACITY	CAPACITY FOR PARTNERSHIP FOR SAFE WATER	WATER STORAGE CAPACITY	
					Raw Water	Treated Water
	mgd	mgd	mgd	mgd	mg	mg
Queen Lane Plant	200		150	140	207.2	85.0
Belmont Plant	170		110	86	83.3	42.1
Schuylkill Supply		258				
Baxter Plant	480		420	320	170.0	206.8
Delaware Supply		423 PaDEP 390 DRBC				
Distribution System*					---------	271.0
System Totals	**850**	**681 PaDEP 648 DRBC**	**680**	**546**	**460.5**	**604.9**

mg – million gallons
mgd – million gallons per day
* Includes treated water stored at East Park Reservoir, Roxborough Basins and Standpipes, Somerton Standpipes, Foxchase Tank, and Oak Lane Reservoir.

C. WATER SYSTEM PLANNING INITIATIVES AND COMPLIANCE

The Philadelphia Water Department has maintained continuous compliance with all drinking water regulations in effect at the time. The United States Environmental Protection Agency (EPA) promulgated two regulations in 2005 that went into full effect in 2012. The Water Department is in compliance with these new regulatory requirements as described in more detail below. This Section describes the Water Department's water quality initiatives, compliance with present regulations, and planning initiatives and actions being taken to meet anticipated future regulations, water system demands and Water Department goals.

1. Partnership for Safe Water

Since January 1996, when the Water Department signed a voluntary agreement with the EPA to participate in the Partnership for Safe Water Program (the Partnership), the Water Department has been committed to reducing turbidity, an industry standard measure of water quality and water treatment effectiveness. The purpose of the multi-phased Partnership is to provide a format for drinking water utilities around the country to survey their facilities, treatment systems, operations, maintenance, and management procedures in order to identify opportunities and implement practices that will enhance the water system's potential to prevent the entry of *Cryptosporidium, Giardia*, and other parasitic organisms into the treated water. The Water Department joined approximately 300 other water treatment utilities in evaluating and assessing their water treatment procedures against extremely stringent performance goals. The self-assessments and other reviews focused on improvements that can be made without incurring substantial capital or operating expenditures. Through these efforts, the turbidity of Philadelphia's drinking water is commonly about five times lower than required by state and federal requirements. The stringent quality standards of the Partnership result in less available capacity (546 mgd) when compared to the total hydraulic capacity (680 mgd) of the treatment plants. Recent peak demands are still well within the Partnership capacities for each treatment plant.

In 1998, Philadelphia became the first major city in the U.S. with multiple drinking water plants to receive an EPA Director's Award for meeting certain additional requirements of the Partnership for Safe Water (Phase III of the program), including completion of a self-assessment and peer review. The Water Department continues to meet or exceed all of the Phase III requirements. In 2013, the Water Department will receive the 15-year Director's Award marking fifteen consecutive years achieving Partnership for Safe Water - Phase III Goals. This represents a tremendous accomplishment and is a tribute to the Water Department's dedication to providing the best possible service to its customers. The Water Department's association with the Partnership has resulted in overall lower turbidity of its finished drinking water and enhanced public health protection. These efforts have also enabled the Water Department to meet the requirements of the Interim Enhanced Surface Water Treatment Rule and the Long Term 2 Enhanced Surface Water Treatment Rule that went into effect in April 2012.

In the spring of 2011, the Water Department extended its commitment to the protection of public health and the Partnership process by becoming a charter member of the Partnership for Safe Water's Distribution System Optimization program. This program builds upon the self-assessment and optimization pillars of the Water Treatment Program but focuses on the distribution system. Recognizing that water quality changes from the time the water leaves the plant until it reaches the customer tap, this program is designed to encourage and assist utilities in evaluating their

distribution system operations and developing strategies for improvement. The program emphasizes improving distribution system integrity, particularly in the areas of water quality, hydraulic reliability, and physical security. The cornerstone of the program is the self-assessment through which the utility identifies limiting factors that will be used to develop an improvement plan. The Water Department has completed the Phase II data collection and reporting requirements and will soon submit the results to the Partnership. In the meantime, the Water Department is working toward Phase III, which involves conducting the self assessment and developing and implementing an improvement plan.

2. Regulatory Requirements

The water operations of the Water Department are subject to the requirements of the Safe Drinking Water Act (the "SDWA") of 1974, as amended in 1986 and 1996. The 1986 Amendments extended the regulatory agenda of the EPA to include, among other things, the development of drinking water standards for 83 contaminants, criteria by which surface water supplies would be required to utilize filtration performance standards for disinfection, and the banning of lead-containing materials from distribution and home plumbing systems. The 1996 Amendments changed the emphasis of developing rules only slightly, but these latest Amendments did stress some new issues such as the protection of source waters, annual reports to consumers on the quality of their drinking water, regulation of filter backwash water within treatment facilities, and the establishment of a state revolving loan fund. Since 1998, several additional rules have been implemented.

The Interim Enhanced Surface Water Treatment Rule (ESWTR) and the Stage 1 Disinfectants and Disinfection Byproducts Rule (Stage 1 D/DBPR) were both promulgated in December 1999 and became effective in January 2002. The Filter Backwash Recycling Rule was promulgated in May 2001 and became effective in December 2003. The Radionuclides Rule was promulgated in December 2000 and also became effective in December 2003. The Arsenic Rule was promulgated in March 2001 and became effective in January 2006. The Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) and the Stage 2 Disinfectants/Disinfection Byproducts Rule (Stage 2 D/DBPR) were promulgated in January 2006 and became effective in March 2006 with full compliance required as of April 2012. The Groundwater Disinfection Rule (GWR) was promulgated in November 2006 and became effective January 2007, but is not relevant to the Water Department who relies exclusively on surface water. Several of these key regulations are discussed below. The third Unregulated Contaminant Monitoring Rule (UCMR-3) was published in May 2012 with monitoring to begin in 2013.

The Water Department has an extensive water quality monitoring program to assess the potential impacts of, and ensure compliance with, the SDWA regulations. The Water Department's Bureau of Laboratory Services (BLS) analyzes approximately 1,000 drinking water samples each month collected from the water treatment plants, storage reservoirs, and distribution system. The Water Department's Planning and Environmental Services Division tracks the development of regulations, provides input into the formulation of the regulations, and works cooperatively with the Operations Division to conduct research (laboratory, pilot, and plant scale) to ensure the Water Department is positioned to meet future regulations.

Philadelphia treated water quality meets all existing drinking water regulations, including the full requirements of the Stage 2 D/DBPR and LT2ESWTR, as required since April 2012.

a) Lead and Copper Rule

The Lead and Copper Rule was promulgated in June 1991. It addresses the control of copper and lead that may leach from home plumbing systems. Compliance with the rule is based upon treatment technique requirements that are triggered if measured lead and copper levels exceed the action levels of 0.015 mg/l for lead or 1.3 mg/l for copper at more than 10 percent of customer taps sampled.

Compliance Status: The Water Department is in full compliance with the regulation. The Water Department has taken steps to further optimize its treatment process including an aggressive public outreach effort to inform customers how they can minimize leaching of lead from home plumbing. The Water Department has a uniform treatment approach at all three water treatment plants, using optimized pH and a zinc orthophosphate corrosion inhibitor. The Water Department achieved a 90th percentile lead level of 0.006 mg/L and a 90th percentile copper level of 0.3 mg/L based on 2011 monitoring results. The next required sampling under this rule will occur in 2014. The Water Department is in compliance with the associated Optimized Corrosion Control Treatment (OCCT) guidelines, which require finished water levels of phosphate to be greater than 0.2 mg/L and finished water pH to be between 6.8 and 7.8.

The Water Department adds phosphate to water to control the rate of metal loss by corrosion in the water supply network, which includes the internal piping in residences and commercial or industrial facilities. In 2009, the Water Department optimized their corrosion control strategy based on 2008 compliance results by decreasing their zinc orthophosphate dose to 1.4 parts per million from 1.5 parts per million (ppm). This optimization was motivated by the desire to balance water quality goals and treatment chemical costs to increase treatment efficiency. In 2010, the Water Department's routine mild steel corrosion monitoring results indicated that the level of zinc was decreasing in the system resulting in more corrosion of the steel metal. As a result, the Water Department resumed dosing zinc orthophosphate at 1.5 ppm as of January 2011 and continues to dose at this level.

b) Total Coliform Rule (TCR)

The TCR was published in 1989 and became effective in 1990. It set goals and limits for the presence of total coliforms in drinking water and required water systems to monitor for total and fecal coliform at specific locations throughout their distribution systems. EPA published revisions to the TCR in February 2013. The Revised Total Coliform Rule (RTCR) goes into effect April 1, 2016.

The RTCR removes the maximum contaminant levels (MCL) for total coliform that was established under the TCR, and focuses more on using detection of total coliform as a means of identifying and addressing potential contamination issues. The rule also establishes criteria that enable systems to transition to reduced monitoring requirements. Such a system creates incentives for better system operation and has the potential to reduce monitoring burden. The RTCR maintains the MCL for *E.Coli* and the associated required actions.

Compliance Status: The Water Department is in full compliance with the TCR and its performance has been exceptional. The Water Department has not had any total coliform violations from its 80 monitoring locations in recent history. Further the Water Department is prepared to maintain compliance under the RTCR when it becomes effective in April 2016.

c) Disinfectants/Disinfection By-products Rule (D/DBPR)

This rule regulates levels of disinfectants and disinfection by-products. Stage 1 of the rule was promulgated in December 1998 and became effective on January 1, 2002. Stage 2 of this Rule was promulgated in January 2006 and became effective on March 6, 2006. These rules contain maximum residual disinfectants levels (MRDLs), MCLs for disinfection by-products and a treatment technique for total organic carbon (TOC) removal. The Stage 1 Rule reduced the MCL for total trihalomethanes (TTHM) from 100 micrograms per liter (µg/L) to 80 µg/L and established an MCL of 60 µg/L for the sum of five haloacetic acids (HAA5), another group of disinfection by-products. In addition, MRDLs were established for chlorine (4 mg/L), chloramines (4 mg/L), chlorine dioxide (0.8 mg/L), chlorite (1.0 mg/L), and bromate (0.010 mg/L).

Compliance Status with Stage 1: The Water Department is in full compliance with the Stage 1 MCLs and treatment technique. All three water treatment plants are being operated in an enhanced coagulation mode and consistently exceed the required monthly removals of TOC. The annual average level of TTHMs at the conclusion of 2012 first quarter sampling for the Water Department's three water treatment plants ranged from 37 to 42 µg/L, and from 21 to 41 ug/L for HAA5s. This represents the results of the last compliance sampling to be conducted under Stage 1. The Water Department is in compliance with the 4.0 mg/L MRDL for chloramines, with the highest individual sample measuring 2.80 mg/L.

Compliance Status with Stage 2: The Stage 2 phase of the D/DBPR was promulgated in January 2006 and became effective on March 6, 2006 with compliance monitoring required as of April 2012. This rule maintains the TTHM and HAA5 MCLs at 80 µg/L and 60 µg/L, respectively, but changes the method of calculating the system annual average from running annual averages (RAAs) to locational running annual averages (LRAAs). This regulation also requires compliance with Operation Evaluation Levels (OELs) for TTHM and HAA5. The OELs are indicators of operational performance and are designed to assist in identifying operational issues that could lead to future non-compliance. Under this regulation the Water Department completed an Initial Distribution System Evaluation (IDSE) to identify sample locations for compliance monitoring and submitted the resulting report to EPA as required. The Water Department initiated compliance monitoring in April 2012 as required and is in full compliance with LRAAs for all locations ranging from 32.8 to 45.5 µg/L for TTHMs and 21.6 to 48.3 µg/L for HAA5s. The Water Department is also in compliance with the OELs.

d) Interim Enhanced Surface Water Treatment Rule (ESWTR)

This rule was promulgated in December 1998 and became effective on January 1, 2002. This Rule lowered the turbidity treatment technique level to 0.3 NTU in 95 percent of the samples from the previous level of 0.5 NTU. It also set a maximum turbidity of 1.0 NTU in the finished water and required installation of continuous turbidity monitors on each filter. The Rule requires that operating procedures be revised and follow-up investigations be conducted if individual filters are found to exceed specific monitoring criteria.

Compliance Status: The Water Department is in full compliance with all requirements of this Rule. Through its participation in the Partnership program, the Water Department maintained filtered effluent turbidity at levels less than or equal to 0.1 NTU more than 99.9 percent of the time during fiscal years 2011 and 2012.

e) Long-Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR)

The LT2ESWTR was promulgated in January 2006 and became effective on March 6, 2006 with compliance monitoring to begin in April 2012. Regulatory requirements under the LT2ESWTR are based upon the concentration of *Cryptosporidium* or *E. coli* in the source water of individual treatment plants. The Rule required microbial monitoring (2 years of monthly *Cryptosporidium* and *E. coli* monitoring) to determine each drinking water treatment plants average source water *Cryptosporidium* level. Based on this level, the treatment plants are placed in different "bins" with varying removal and/or inactivation credit requirements, with higher influent *Cryptosporidium* levels requiring greater removal or inactivation. Utilities must meet their resulting requirements by implementing enhanced treatment practices as defined in the "microbial toolbox." The microbial toolbox defines a range of treatment, prevention or optimization options that utilities can implement to obtain the additional removal and/or inactivation credits required to meet the treatment technique of this Rule.

The Water Department, utilizing the analytical services of the BLS, completed the microbial monitoring prior to the rule becoming effective. This monitoring was accepted by the EPA as meeting the requirements of the regulation. Based on the monitoring results, the Belmont and Baxter Treatment Plants had average *Cryptosporidium* levels less than 0.075 oocysts/L and qualify for Bin 1, meaning that no additional treatment will be required. The Queen Lane Plant's average *Cryptosporidium* level exceeded 0.075 oocysts/L but was less than 1.0 oocysts/L, putting the Queen Lane Plant into Bin 2. Bin 2 plants are required to achieve 1.0 log removal/inactivation credit through implementation of microbial toolbox components. The Water Department is meeting their 1.0 log requirement by maintaining the very low levels of turbidity in the combined and individual filters effluents (CFE and IFE) required to achieve the CFE and IFE credits, and by implementing a Watershed Control Program (WCP). The Water Department submitted the WCP plan to PaDEP for approval in April 2011. PaDEP approved the WCP as a back-up credit to the Water Department's CFE and IFE credits. Thus, the WCP will provide 0.5 log back-up to ensure the Water Department will not fall out of compliance should the filter effluents exceed CFE or IFE requirements.

The Water Department is also prepared for the second round of microbial monitoring which was to begin in 2013 but has been delayed until 2015 as the PaDEP does not yet have a program or process for certification of laboratories for the required analytical method.

f) Consumer Confidence Reports Rule

The 1996 SDWA Amendments require the Water Department to issue an annual report on treated water quality to its consumers, called the Consumer Confidence Report (CCR). The Water Department has done this annually in the format required by the Rule. The Water Department's CCR goes beyond the requirements and provides educational information regarding source water protection and the water treatment process, along with information about research and public outreach initiatives.

g) Filter Backwash Recycling Rule (FBRR)

The FBRR became effective in December 2003. The recycle streams regulated by the FBRR are filter backwash water, sludge thickener supernatant, and liquids from dewatering processes. The rule requires recycled flows to pass through all processes of the treatment plant in order to maintain removal credit for *Cryptosporidium.* In the case of conventional treatment facilities like those of the Water Department, this requires the return of recycled streams prior to or concurrent with the point of primary coagulant addition. The rule also requires the Water Department to maintain records related to the wastewater streams generated at each treatment plant.

Compliance Status: The Water Department currently discharges all of its filter backwash and settling basin waste streams to the sewer system for treatment at the wastewater treatment plants, with the exception of the spent backwash water at the Baxter water treatment plant. The Baxter filter backwash water is recycled to the raw water basin, ahead of the point of coagulant addition, for reprocessing through the complete treatment process. Therefore, the Water Department is in compliance with the requirements of the FBRR.

h) Source Water Assessment Program

The 1996 SDWA Amendments required each state to develop a Source Water Assessment Program, designed to stress protection of the source water prior to treatment. The Water Department was selected by PaDEP to lead a joint effort with Aqua Pennsylvania and Pennsylvania-American Water Company to perform a source water assessment of water intakes along the Schuylkill River and its tributaries during fiscal years 2001 and 2002. A similar effort was undertaken with utilities that utilize the Delaware River as a source of supply. In all, the program involved 50 surface water intakes on the Schuylkill and Delaware Rivers.

More recently the focus of this effort has been to utilize the knowledge gained from the Assessments to develop and implement source water protection plans and programs. The Water Department completed Source Water Protection Plans for the Schuylkill and Delaware Rivers in 2006 and 2007, respectively. The Protection Plan for the Schuylkill River served as the foundation for the Watershed Control Program that was approved by PaDEP in 2012. The Water Department is utilizing a partnership approach for the implementation of these plans, thereby involving regulatory agencies, utilities, and watershed groups. The Water Department has developed an innovative and broad-based program that is expected to yield far-reaching environmental and source water protection benefits. The program has earned a number of national recognitions and awards and stands as a model for other communities to emulate.

i) Arsenic Rule

The Arsenic Rule became effective on March 3, 2001 and established an MCL of 0.01 mg/L for total arsenic. The compliance date for systems with arsenic levels that exceed the MCL is January 23, 2006.

Compliance Status: The Water Department is in compliance with the Arsenic Rule. Arsenic levels in the finished water supply are below method limits of detection.

j) Radionuclides Rule

The Radionuclides Rule became effective on December 8, 2003. It retained the MCLs for combined radium-226 and 228 (5 pCi/L) and gross alpha (15 pCi/L) and established a new MCL for uranium of 30 µg/L.

Compliance Status: The Water Department is in compliance with the Radionuclides Rule. Radium-226 and uranium levels in the finished water supply are below method detection limits. Detectable levels of Radium-228 and gross alpha have been recorded but were in all cases less than one-half of the MCL.

In April 2012, the Water Department completed a year-long monitoring program aimed at understanding the source and extent of Iodine-131 in their source and drinking waters. This effort was in response to data released by the EPA in the wake of the Fukushima nuclear incident in Japan. This data showed that the level of Iodine-131 in Philadelphia's drinking water was higher than other cities, but still below the Maximum Contaminant Level. The data was collected as part of RadNet, a voluntary surveillance that the Water Department participates in to allow for a quick response in the event of a potential threat to drinking water. The Water Department's extensive monitoring program found that the average level of Iodine-131 in the drinking water was an order of magnitude below the regulatory limit. Further results indicated the occurrence of a spike of Iodine-131 just downstream from wastewater treatment plant outfalls.

The Water Department's research into this issue revealed that industry understanding of the source and occurrence of Iodine-131 in drinking water is limited. In an effort to expand the knowledge base and discussion, the Water Department jointly hosted an expert workshop with the Water Research Foundation, Water Environment Research Federation, and the American Water Works Association in January 2013. Experts participating in the workshop represented the drinking water sector, the wastewater sector, regulatory agencies, academia, and public health organizations. The intent of the workshop was to establish the current state of knowledge of Iodine-131 and discuss next steps for the Water Department and the water industry as a whole. Workshop proceedings are currently being developed for publication through the Water Research Foundation.

k) Unregulated Contaminant Monitoring Rule (UCMR)

The EPA has used the UMCR to collect data on unregulated contaminants since 2001. UCMR-1 and UCMR-2 were conducted from 2001 to 2005 and 2007 to 2011, respectively. Each of these rules required utilities to monitor for 25 unregulated contaminants. UCMR-3 was published in 2012 and went into effect in 2013. UCMR-3 requires monitoring for 30 contaminants during 2013 to 2015.

Compliance Status: The Water Department completed UCRM-1 and 2 monitoring as required and began the monitoring required under UCMR-3 in May 2013. The results will be published in the CCR as required.

3. Water Security

The Water Department continues to implement the recommendations of the Vulnerability Assessments conducted water system wide in 2002. These recommendations included the installation of physical security measures (e.g., fencing and alarm systems), cyber security measures, emergency generators, and real-time water quality monitors at key locations in the

treatment process. Additional improvements included the conversion from gaseous chlorine to liquid sodium hypochlorite and the use of security guards at critical facilities. In the coming years the Water Department plans to spend approximately $10 million toward additional security initiatives.

In 2008 Philadelphia was one of four cities nationwide to receive an EPA Water Security Initiative Contamination Warning System (CWS) Demonstration Pilot grant. Through this program the Water Department developed a comprehensive and integrated system to detect, confirm, respond to, and remediate contamination of the distribution system. The Water Department was awarded and received grant monies totaling $9.5 million over a three year period. The Water Department provided a 25 percent match in the form of in-kind services and equipment costs. The Water Department developed the program as an extension of existing security initiatives. Among other things, it built upon an existing distribution system water quality monitoring network. This monitoring network is comprised of 30 real-time water quality monitoring stations at fixed locations in the distribution system, along with four raw water stations and two portable monitoring panels. Each distribution system station has a suite of analytical instruments that transmit real-time water quality data to the central laboratory via cellular data transmission. The network allows for continuous monitoring of the water quality in the distribution system and alarm set-points have been established to alert staff if water quality deviates from a defined range. Ten of the sites are connected to the event detection component of CWS. This software evaluates the water quality data in real-time, identifies unusual data and transmits an alarm to water quality engineers at BLS for determination of response.

The primary components of the CWS are the on-line water quality monitoring, enhanced response sampling and analysis procedures, customer complaint surveillance, enhanced security monitoring, and public health surveillance. These five core components are integrated via a GIS-based dashboard that builds upon Cityworks® and provides Water Department management access to all of the information and tools real-time and in a user friendly application. The enhanced access to all of this information enables the Water Department to more readily identify and respond to a contamination event.

The final component of the program is the Consequence Management Plan, which defines in detail how the Water Department will respond to a contamination event. This plan utilizes the National Incident Management structure and defines the roles and responsibility of management and various units in a response situation. It was developed in cooperation with city, state and federal response agencies. The Water Department conducted various training and exercises throughout the development phase, culminating in a full-scale training exercise that was conducted in October 2012. The Water Department met the grant requirements on schedule and has submitted a final report to EPA.

The program is viewed as a success by both the Water Department and EPA. The Water Department will continue to optimize the system for response scenarios. They have also found it valuable on a day-to-day basis. The real-time information allows not only BLS but other operational units within the Water Department to monitor water quality in the distribution system and to better understand how the system operates. It has also promoted and continues to promote communication both within the Water Department and with outside agencies. The Water

Department intends to continue to use the CWS for routine system monitoring and to conduct periodic full scale exercises to maintain their preparedness in the event of an emergency.

The Water Department is a founding member of the EPA Region 3 Laboratory Response Plan for Drinking Water, which was recently incorporated into the Water Laboratory Alliance (WLA) under the Environmental Laboratory Response Network (ELRN). Through the WLA, the Water Department has access to federal, state and local laboratories for analytical support during a water quality contamination event. The Plan defines the roles of various agencies that might be involved in a response, includes protocols for initiation of the laboratory network, and details sample transport, QA/QC, and data reporting requirements.

4. Water Accountability

The Water Accountability Committee of the City of Philadelphia exists to promote a high level of efficiency in the water delivery and billing processes, and perform the strategic planning necessary to implement lasting improvements in water and revenue loss reduction. The committee is a multi-functional team including personnel from the Water Department and the Water Revenue Bureau (WRB). The Water Loss Control Program strives to reduce the volume of non-revenue water. Major elements of this program are: compilation of the annual water audit, progressive leakage management, customer meter management, revenue protection, reduction of unauthorized consumption and piloting of new technologies. The first of two elements are discussed in this Section, the remaining are discussed in Section III.G. Through these programs, the Water Department has reduced non-revenue water by approximately 15 percent since fiscal year 2000.

a) Annual Water Audit

The Water Department has been very active in promoting new auditing methods through the American Water Works Association, and was the first utility in the United States to adopt the best management water audit methodology published in 2000. They have received recognition as an industry leader in this regard. The method accounts for all water as either consumption or losses (apparent or real). Apparent Losses are the paper losses due to customer meter inaccuracies, data handling error, and unauthorized consumption. These losses cause water utilities to lose a portion of the revenue to which they are entitled and understate the aggregate consumption of the customer population. Real Losses are physical losses, largely leakage. These losses inflate the marginal water production costs for water utilities. Summary results of the annual audit for fiscal years 2003 to 2012 are presented in Table III-2. The structure of the audit methodology is important in that it fixes a cost impact on the volume of both apparent and real losses. It can be seen that, despite a reduction in overall loss volumes, the overall cost impact of losses continues to increase, largely due to increased costs to supply water and the costs of uncaptured revenue due to apparent losses. Hence, enhanced water loss control is still a large priority for the Water Department. It is noted that the WRB launched the new Basis2© Customer Billing System in January 2008. This system continues to be refined and outfitted with various reporting capabilities to better analyze customer consumption trends and anomalies.

Table III-2 Water Audit Results 2003 – 2012

COMPONENT	FY2012	FY2011	FY2010	FY2009	FY2008	FY2007	FY2006	FY2005	FY2004	FY2003
Water Supplied, mgd	237.1	250.0	244.4	245.8	250.7	255.3	253.8	260.3	263.0	270.2
Billed Consumption, mgd (may include some unmetered consumption)	152.6	158.4	165.8	172.4	175.8	169.5	177.0	176.9	176.9	183.4
Non-revenue Water, mgd	84.6	91.6	78.6	73.4	74.9	85.8	76.8	83.4	86.1	86.8
Percent Non-revenue Water by volume	38.4	39.7	34.9	32.3	32.4	36.3	32.7	34.6	35.4	32.1
Percent Non-revenue Water by cost	22.2	23.2	16.3	12.5	15.1	17.5	13.0	12.4	9.0	8.3
Unbilled Authorized Consumption, mgd	3.3	2.1	2.0	2.1	2.1	2.3	2.4	2.3	2.4	3.0
Unbilled Authorized Consumption Costs ($1,000)	$1,052.0	$866.9	$779.4	$713.8	$717.2	$214.3	$191.0	$155.2	$159.7	$180.4
Apparent Losses, mgd	21.4	23.1	17.0	15.0	19.0	21.9	15.2	14.2	11.1	13.3
Apparent Losses costs, million	$43.1	$43.5	$30.0	$22.3	$27.3	$30.8	$20.3	$19.1	$10.9	$10.0
Real Losses, mgd	60.0	66.3	59.6	56.2	53.8	61.6	59.2	66.9	72.6	70.5
Real Losses costs, million	$8.3	$7.4	$5.9	$4.8	$4.9	$5.1	$4.3	$3.9	$4.1	$3.7
Infrastructure Leakage Index, dimensionless	10.2	11.5	9.9	8.9	9.0	10.3	9.9	11.0	12.1	11.9

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The Infrastructure Leakage Index (ILI) gives a measure of leakage control standing and is the ratio of the current level of leakage to the technically low limit believed achievable (unavoidable level) if leakage must be completely minimized due to scarce resource availability, shortages, etc. For systems not confronting such pressures, American Water Works Association (AWWA) recommends targeting an ILI of no more than 8.0. The Water Department's loss control activities have been effective in reducing their ILI over the past decade from a high of 12.1 in 2004 to a low of 8.9 in 2009.

The Water Department continues to hold leadership roles in AWWA and other industry organizations and is at the forefront in advancing proactive water loss control methods in the US water industry. This has included outreach to a number of state and regional water regulatory agencies to introduce the water audit methodology. During these activities, the Water Department has had opportunities to share its best practice approaches with many agencies, assist other utilities in compiling water audits and benchmark the Water Departments performance with national and international water providers. Benchmarking activities provide beneficial information regarding realistic goals for water losses. In aggregate, all of these activities contribute to the

development of better performance indicators and benchmarks and lead to greater improvement in the area of water loss.

b) Leakage Management

The Water Department manages leakage via a combination of traditional leak detection and repair activities (find and fix approach) and by advanced technologies such as pressure management (predict and prevent approach). The Leak Detection Survey program has operated successfully within the Water Conveyance Section for over thirty years. Leak detection crews use state-of-the-art technology (leak correlator and correlating leak loggers) to proactively survey the water distribution system for hidden leaks. In fiscal year 2012, 1,137 miles of small diameter mains were surveyed, with corrective measures abating approximately 26.2 mgd of leakage. Summary results of this proactive program are presented in Table III-3.

Table III-3 Leak Survey

SERVICE PARAMETER	FY 09	FY 10	FY 11	FY 12
Leak Survey (miles of pipeline)	953	1,133	995	1,137
Leakage Abated (mgd)	31.38	28.51	36.4	26.2

As mentioned above, the Water Department is also utilizing inline technology to detect leaks in large-diameter transmission mains and is investigating the use of pressure management to control leakage by using District Metered Areas (DMA). More on these initiatives is discussed in Section III.G.5 (Piloting New Technology).

5. Water System Planning

Consistent with the Strategic Plan, the Water Department has several planning initiatives ongoing that are specific to assessing the long-term needs of the water supply and system.

a) Water Supply Master Plan

The 2050 Water Supply Plan is taking a holistic and long-term approach to defining the Water Department's water system of the future. The plan will be developed in phases and will evaluate source water, treatment plant and distribution needs in terms of both water quantity and quality. The Water Department has not undertaken this level of planning since the 1950's when it defined the system that is currently in place. One of the drivers of this plan is to evaluate projected demands and existing system capacity in light of the age, condition and replacement cost of the existing infrastructure. Initiatives such as the Advanced Water Treatment Process Conceptual Design project will inform this effort. Phase I will focus on the water supply evaluation and will also include a framework outlining a process by which the treatment plant and distribution systems shall be evaluated. Phase I is to be completed by the end of calendar year 2014.

b) Climate Change Planning

The Mayor's Office of Sustainability is leading the Climate Change Program for Philadelphia. A vulnerability analysis for the Water Department's assets will be incorporated into the City's overall plan that is scheduled for completion by 2015. Vulnerability to sea level rise will be evaluated using the Water Department's tidal models and mapping with sea level rise data. The Water Department is involved with the US Army Corps of Engineers and others on a regional investigation of storage

options to capture excess flood flows. Securing the water supply to protect it from flooding and other impacts associated with sea level rise is a high priority. The security of the electric supply is also vital to water supply, and the Water Department is preparing a plan to use cogeneration to reduce peak load days which will help ensure the security of the electric supply while also reducing peak load charges.

D. WATER TREATMENT PLANTS

The water system is served by the Baxter, Queen Lane, and Belmont Water Treatment Plants. The Baxter plant treats water from the Delaware River, while the Queen Lane and Belmont plants are supplied by the Schuylkill River. All three plants provide similar treatment, consisting of raw water sedimentation, coagulation, flocculation, clarification, dual media filtration, disinfection and fluoridation. Finished water can be stored at the treatment site for later distribution, or discharged directly to the distribution system. Portions of each treatment facility date from the early 1900s. Major improvements and additions were completed at the Belmont plant in 1965 and at the Queen Lane plant in 1960. The Baxter plant went on line as a new rapid sand filtration plant in 1959. The plants have been upgraded continuously over the years to address structural issues and to incorporate advancements in equipment and technologies. All three plants are fully automated and have recently completed replacement of their original distributed control systems such that they have state of the art technology that offers enhanced system security and flexibility with a Microsoft Windows®-based interface.

A centralized preventive maintenance program serves common components of the three water treatment plants. Components that require either periodic repair or rehabilitation are placed on a master schedule that includes both preventive and corrective maintenance activities. Priorities for actions are defined using this schedule and reviewed at periodic intervals. Each plant maintains a preventive maintenance program for equipment components that require inspection and lubrication on a more frequent basis than the components covered by the centralized program's master schedule.

The Water Department continues to be proactive in researching and implementing new technologies and operating practices in order to optimize treatment and prepare for future regulatory requirements. A decade long pilot study precipitated the ongoing full scale trials of post filter chlorination at the Belmont Plant and bench scale evaluations of alternative pre-oxidants and coagulants as new products become available. In fiscal year 2011 the Water Department compiled the results of a decade of pilot, bench and full scale tests, and in fiscal year 2012 initiated a planning effort to develop a vision for future long term upgrades to the water treatment plants. This project involves evaluating site constraints and developing conceptual designs for several advanced treatment processes (MIEX®, membrane filtration, ultraviolet disinfection and post filtration chlorination) to prepare the Water Department to make future plant upgrades as needed. The project is anticipated to be completed in December 2013. At this point there is no specific timeline or budget for any improvements identified; rather the results will feed into the recently initiated system-wide 2050 Water Supply Plan.

1. Baxter Water Treatment Plant

The Baxter Water Treatment Plant became operational as a new rapid sand filtration plant in 1959. The Baxter plant draws water from the Delaware River and sends treated water to the Torresdale

Treated Water Pumping Station for distribution to the northern and central parts of the City and to Bucks County. The Baxter plant is the largest of the three water plants, with a design capacity of 320 mgd and a peak hydraulic rate of 420 mgd. Plant production information for the past four years is shown on Table III-4.

Table III-4 Baxter Annual Plant Production

FISCAL YEAR	DAILY OUTPUT (MGD)	
	AVERAGE	MAXIMUM
2009	147	193
2010	144	190
2011	146	190
2012	141	203

The Baxter plant is budgeted for a staff of 57, and currently has three vacancies. The management has conducted interviews for two of the vacancies. The Water Department has been successful in hiring several key technicians as part of a succession plan to fill positions as several shop supervisors and senior technicians retire in the coming years.

In May 2010, the Water Department was notified of a failure in a section of the vegetated roof of the 100 year old Baxter clearwell basin (CWB). This 40 million gallon basin stores treated drinking water and provides water by gravity to the Lardner's Point Pump station. The failure resulted due to concrete failure and presents a significant challenge to the Water Department as the basin cannot be taken off-line without disrupting the operation of the Lardner's Point Pump station. As a temporary measure, the Water Department installed covers and is monitoring water quality at the influent and effluent of the basin. These measures allowed for continued operation of the basin, with no adverse effects to water quality, while a permanent solution was developed. The design of the permanent solution is nearing completion and is intended to be bid during fiscal year 2014. The existing clearwell will be replaced with two 10 MG tanks complete with redundant yard piping to allow flexibility in operations and a new gate house. The project will be conducted in two stages and is estimated to cost $61 million.

In an ongoing effort to optimize the treatment process, Baxter staff is conducting a one-year bench scale evaluation of a new coagulant. If successful, the polymer/ferric blend could allow the plant to reduce the coagulant dose as compared to current ferric chloride coagulation, thus reducing residuals production. The study was prompted by the need for very high coagulation doses during and after recent extreme weather events. The one-year study will capture seasonal variation in water quality and provide the opportunity for plant staff to research other utilities' experience with the product prior to conducting a full-scale trial in the future.

The Baxter plant uses a Supervisory Control and Data Acquisition (SCADA) system program to monitor the treatment process from the intake to the plant effluent. All on-line process data (water quality and operational) is collected and displayed real-time, allowing plant staff to quickly observe and react to changes. Baxter recently completed replacement of an outdated Distributed Control System (DCS) with a new state-of-the-art system. The new system is Microsoft Windows®-based and displays data from the SCADA system but will not utilize the data to initiate process changes.

Vulnerability Assessments conducted in 2002 identified measures to reduce vulnerability to an emergency situation (intentional or accidental). The measures identified included physical security, cyber security, process control, and redundancy. The Water Department has been actively implementing the recommendations of the assessments through the installation of fencing and additional site lighting, the restriction of site access, the conversion of its primary disinfection from chlorine gas to sodium hypochlorite and the installation of an emergency generator capable of supplying energy for all key processes. The Baxter plant also installed on-line monitoring panels at the intake, outlet from the finished water tank, and outlet from the clearwell. These panels include pH probes, turbidimeters, chlorine analyzers and conductivity probes, and are used to track real-time water quality to identify changes that could be indicative of a plant upset or contamination of the water supply.

Management and staff at the Baxter plant continue to implement the recommendations of the Vulnerability Assessments, and have made additional security improvements to the facility such as:

- Installation of a new security guard house and construction of a new plant entrance with an expanded parking area and driveway was completed in fiscal year 2012.
- Continued inspection and replacement of both seal court access hatches and cap/vents for the filtered water storage basins as necessary to enhance finished water security.

Other projects recently completed or ongoing tasks at the Baxter plant are listed below:

- Upgrades and repairs of the sedimentation basins are currently underway. This is to include new railings, repair of basin joints, concrete repairs and painting of clarifiers. The work started in April 2010 and was expected to take 3.5 years to compete all four basins. The project is anticipated to be completed in winter 2013.
- Replacement of filter effluent and flow valve packages on filters was started in 2009. To date, 54 filters have been completed. It is anticipated that the replacements for all filters will be complete by the end of fiscal year 2014. This project is being completed in-house.
- Isolation valves are being installed on each of the four filter quadrants to allow complete isolation and shutdown of each filter quadrants for the installation of new backwash valves on all filters. Replacement of the backwash valves has been delayed due to inability to turn off individual filters (leaking drain valves). Installation of the isolation valves on the North-side started in spring 2013. Backwash valve replacement will follow installation of the isolation valves.
- A Notice-to Proceed has been issued for concrete repairs to the intake building and pre-treatment building.

Capital projects planned for the coming years are listed below.

- A project to reinforce the raw water basin berm and pier was bid in May 2013 and is awaiting notice to proceed.
- A project to dredge the intake and bypass intake is in Projects Control and is anticipated to be bid in fiscal year 2014.

- The installation of raw water basin outlet gates and inspection and repair of existing concrete is in design. Construction will be coordinated with a project at Torresdale Pump Station (also in design) as both will require a temporary plant shutdown for underwater inspection.
- Completion of the security-related improvements with the installation of security cameras will likely be completed in-house. Other security-related improvements, including card access systems and advanced alarming, will be installed under capital contract.
- The Baxter staff is looking into automating the sedimentation basin gate valves. These are currently manual. The project will be completed in-house.

2. Queen Lane Treatment Plant

The Queen Lane Water Treatment Plant began service in 1912 as a 70 mgd slow sand filter plant. The plant was improved several times, including a complete renovation in 1960. The Queen Lane plant draws water from the Schuylkill River and serves as the main distribution point for service to center city and northwest Philadelphia, west of Broad Street and east of the Schuylkill River. The plant is rated at 140 mgd. Recent plant production rates are shown on Table III-5. It is noted that repair work to the plant center conduit limited plant flow for part of fiscal year 2012.

Table III-5 Queen Lane Annual Plant Production

FISCAL YEAR	DAILY OUTPUT (MGD)	
	AVERAGE	MAXIMUM
2009	62.6	94.8
2010	64.5	99.4
2011	65.4	88.9
2012	60.1	93.7

The Queen Lane Plant has 55 budgeted positions with 5 vacancies as of March 2013. One of the vacancies was an Operator Crew Chief, but this critical vacancy was subsequently filled. Other vacancies include an electrician, a municipal guard, a mechanic, and a semi-skilled laborer.

Residuals from the flocculation and sedimentation basins are sent to the Southeast Water Pollution Control Plant (WPCP), as is the filter backwash. The solids load necessitates the addition of phosphate at the WPCP. The Water Department conducted several trials in which a portion of the residuals were sent to the Northeast WPCP. However, there were operational issues associated with this transfer of residuals to the Northeast WPCP, and as a result all solids are still being sent to Southeast WPCP.

Vulnerability Assessments conducted in 2002 identified measures to reduce vulnerability to an emergency situation (intentional or accidental). The measures identified included physical security, cyber security, process control and redundancy. The Water Department has been actively implementing the recommendations of the assessments at Queen Lane through the installation of a new security system at the raw water basin (fence alarm and new key pads), security cameras at

select locations, closure of an existing raw water basin access tunnel, and installation of real-time water quality monitors (pH, turbidity, chlorine and conductivity) at the raw water basin effluent and clearwell effluent. Additional measures include new fencing and lighting around the clearwell basin, a new driveway, and new maintenance entrance are priority projects for the Water Department, however, these have been delayed as a result of community meetings and feedback. The final proposed design for these improvements are currently under review.

The Queen Lane plant suffered a power outage during Hurricane Sandy in October 2012. Both power lines to the plant were lost, and the plant was forced to shut down. The plant staff is trained in shutdown and start-up procedures and both processes went smoothly with no impact to water quality. The plant was off-line for approximately twelve hours. Plant management views the staff response to the incident as a success.

Projects recently completed or ongoing at the Queen Lane plant are listed below.

- Software upgrade for the Distributed Control System was approved in third quarter fiscal year 2013. The software is more user friendly and more easily maintained by plant staff.
- Doors and windows in the filter building have been replaced, and the additional replacement of remaining building windows is currently under design.
- The full rehabilitation of the flocculation/sedimentation basins is currently under construction. This will be a multi-year effort with one basin being taken off line and rehabilitated each year. This work includes replacement of all equipment (flocculator motors, paddles, shafts and pedestals, and baffle walls) as well as structural repairs. As of March 2013, rehabilitation of three of the four basins is complete. Work on the final basin began in April 2013 and is anticipated to be completed in November 2013.
- Significant infrastructure improvements related to the filter influent and effluent conduits were completed in fiscal year 2012. These improvements include reconnecting the north bypass to the clearwell, installing chemical dosing lines in the north conduit, repairing the center conduit to the clearwell, and repairing the settled water conduit.
- Upgrade of the lighting and electrical system in the filter building was implemented in fiscal year 2012.
- Electrical work in the Chemical Building is complete. This included the replacement of Low Voltage Switchgear and Panel Boards.
- Construction of a new pumping station for Roxborough and the Queen Lane High Service District is complete. The 90-day acceptance testing is complete and the pump station is operational.
- Plant staff has implemented security improvements in-house including: installation of security cameras with DVR, card readers, and LED lighting.
- Installation of a backup power line to service the facility is complete.
- A project to repair/replace the gunite on the raw water basin wall was issued a notice to proceed in March 2013. Partial repair work was performed in Spring 2013 before the

project was shut down per contract specifications for the summer. Work will resume in Fall 2013.

Projects planned to be implemented in the near term at the Queen Lane plant are listed below.

- Plant staff will conduct a full scale plant trial to evaluate a new technology for air scour for filter backwashing. The new technology will be piloted in one filter and compared to an existing filter's performance. The trial is being conducted to assess potential for improved filter performance and to evaluate the potential savings that may be realized. Backwash water is sent to the combined sewer system. Reducing the volume of backwash waste would reduce the load to the system consistent with the Water Department's efforts under Green City, Clean Waters (GCCW) program. This project was initiated in the spring of 2013.
- An emergency spillway for the raw water basin is in Projects Control. This upgrade is required by PaDEP. Construction will be bid as an emergency contract.
- Two failed filters (Filters #7 and #16) are to be rehabilitated with new media, underdrains, and surface wash systems. This work has been designed and is in Projects Control. An equipment storage building has been designed and is also in Projects Control.
- Phase I of design for the renovation of the pretreatment building is complete. It will involve the removal of old chemical storage tanks. Phase II is in design and consists of a layout for future use as office space, a conference room, and storage areas.
- Longer range projects which are also part of the facility plan include: Installation of an automatic shutdown of the flocculation/sedimentation process in the event of loss of chemical feed.
- Replacement of the main switchgear is in design. The project will include specification and purchase of a new generator adequate to run key plant processes during a power outage. Anticipated design completion date is early November 2013.

3. Belmont Treatment Plant

The Belmont Water Treatment Plant draws water from the Schuylkill River and serves as the source of supply for West Philadelphia. The Belmont plant is rated at 86 mgd. Recent plant production rates are shown on Table III-6.

Table III-6 Belmont Annual Plant Production

	DAILY OUTPUT (MGD)	
FISCAL YEAR	AVERAGE	MAXIMUM
2009	41.3	49.1
2010	41.9	53.0
2011	43.4	68.1
2012	44.3	54.1

The Belmont Plant has 53 budgeted positions, with 4 vacancies as of March 2013. Management has identified candidates for several of these vacancies and anticipates filling most of them by September 2013.

Residuals from the flocculation and sedimentation basins are sent to the Southwest WPCP as is the filter backwash. An internal discharge permit for the Belmont plant residuals flow was issued by the Water Department's Industrial Waste Unit (IWU) in July 1994. The permit required that routine discharges to the sewer be monitored weekly. Additional sampling is required during periods of high treatment flow rates and high river turbidity. Although this permit has expired and IWU has not reissued it, the plant continues to operate and monitor under the same conditions as required by the permit. The primary purpose of the permit was to ensure sufficient collection and transfer of information between the two plants to allow the Southwest WPCP to effectively treat the residuals load from Belmont. Now that the processes and procedures have long been established, the permit is essentially irrelevant and will likely not be reissued.

The Water Department continues to investigate methods for the reduction of DBP production at all three plants. At Belmont, these investigations have focused on switching to post-filtration chlorine contact. The Belmont Plant converted part of their existing clearwell to a post-filter chlorine contactor and conducted full scale trials of post-filter chlorination starting in August 2008 that have continued each spring through fall. Results of this effort are promising and suggest that DBPs can be reduced below current levels which are already in compliance. In the spring and summer of 2012, the Belmont staff implemented several techniques to address some of the operating challenges that had been encountered in previous years, namely high post backwash turbidity spikes and shortened filter runs. These techniques included: installation of ultrasonic devices in the raw water basin, coating the sedimentation basin weirs with resin, covering the north basin weirs, and testing various polymers. These enhancements resulted in more efficient operations compared to the previous two years, but a comprehensive solution has not been identified. The Belmont staff will continue to refine this process in order to realize the DBP reduction benefits without sacrificing operational efficiency as the trial continues in future years. The trials will not be conducted in the spring or summer of 2013 as rehabilitation of the raw water basin will limit the plant's operational flexibility.

Other projects recently completed or ongoing at the Belmont plant are listed below:

- Replacement of the filter effluent actuators is complete. Replacement of the effluent valves is ongoing and will continue through 2014.
- Reconstruction of the sulfuric acid feed system is complete. It is not currently in use as operational and safety training is first required. Management may convert this feed system for use with peroxide as a preoxidant in future post filter chlorination trials.
- Replacement of filter surface wash piping is complete.
- Replacement of existing variable frequency drives (VFDs) on the flocculators is complete.
- Replacement of power lines to the north and south flocculation/sedimentation basins is complete.
- Replacement of existing oversized and problematic lime slakers is complete.

- Plant staff installed temporary hypochlorite feed lines to the clarifier weirs and ran new hypochlorite feed and return loops.
- Various upgrades to the zinc phosphate, potassium permanganate, and sodium hypochlorite feed and storage systems are underway.
- Rehabilitation of the raw water basin is underway. This project includes, dredging, relining of the basin, replacement of the center flume, spillway construction, and the addition of the carbon feed system.
- Replacement of the medium voltage switchgear and purchase of a high voltage generator capable of powering the whole plant is underway.
- Painting of the lime silo is underway.

Future projects at the Belmont plant are listed below:

- Rehabilitation of asphalt driveway is in Projects Control and is a priority project. Removal of the obsolete chlorine system is also contemplated.
- Repair of terrazzo floor in filter building (along with similar work at Baxter and Queen Lane).
- Replacement of water supply line to administration and hypochlorite buildings.
- Automation of the flocculation/sedimentation basin blowdown process for the removal of settled solids.
- Automation of the filter-to-waste process to allow for remote initiation of valves that send filter effluent to a drain after filter startup.
- Rebuilding of control valve on the ferric chloride feed will likely be implemented internally.
- South filter building egress design is complete and will likely be constructed using operating funds.
- Backup water service.
- Additional ferric storage.
- Rehabilitation of the flocculation/sedimentation basins, including the flocculation area and concrete.
- Finished water basin crack repair and cover replacement.
- Carbon system rehabilitation.
- Dredging of the Schuylkill River at intakes.
- Upgrades of existing DCS software to be completed in fiscal year 2014.
- Replacement of the steel F1 tank.

Other projects that are currently in design include:

- Installation of security lighting and cameras, access control, fencing, access card system, cameras, and portal hardening is in design, substantially ready for bid.

- Motor Control Center (MCC) replacement and influent valve wiring.
- Replacement of the hypochlorite loop using the abandoned high service line.
- Chemical building spill containment and drain replacement.
- Improved mixing and heating of the sodium hydroxide tanks.
- Painting of valves and pipes in the filter building.
- Painting of sodium hydroxide tanks.
- Pre-oxidation chemical feed system.

E. WATER CONVEYANCE

The mission of the Water Conveyance Section is to reliably and efficiently transport and distribute water on demand, preserving quality and providing service focused on overall customer satisfaction. The section is composed of three units, including: Distribution, Pumping, and Load Control. The Division has 344 authorized positions. Currently, there are 19 vacancies. This represents a decrease in authorized positions since 2011 as a result of the transfer of positions to Operations Administration.

1. Distribution Unit

The main responsibilities of this unit are as follows:

- Provide permanent repairs and maintenance to the water distribution infrastructure.
- Provide twenty-four hour emergency response and local control of the water distribution system.
- Rectify system failures and maintain product control.
- Provide reliable and cost effective water supply, while being responsive to customers' needs and the environment.

Major components of the distribution system include: 3,172 total miles of pipeline (403 miles of transmission and 2,769 miles of distribution mains), 25,321 hydrants, and 90,216 valves (83,353 valves 12" and smaller and 6,863 valves 16" and larger).

Table III-7 shows the major performance parameters for the unit for the last four fiscal years.

Table III-7 Repair Record

SERVICE PARAMETER	FY 2009	FY 2010	FY 2011	FY 2012
Breaks Repaired	802	646	954	563
Discontinuance Orders Completed	279	177	167	292
Valves Repaired	368	293	246	400
Connections	112	64	76	82
Leak Survey (miles of pipeline)	931	1,133	995	1,137
Hydrants Repaired	4,765	5,556	5,630	6,279

A preventive maintenance program that involves both field investigations as well as systematic scheduling of repairs and replacements is in place for the pipeline infrastructure. The Water Department has expanded and enhanced their preventative maintenance program by adopting CapPlan™ Sewer. CapPlan™ Sewer is an asset management program that utilizes a variety of data to prioritize infrastructure improvements. Inputs include physical attributes such as pipe age, material and inspection results along with risk information, such as proximity and type of nearby infrastructure. The Water Department's CapPlan™ Sewer program is the largest application of the software to date. The software uses the information to develop a prioritized list of capital improvement projects. Water Department personnel review the list for inclusion into the annual update of the Capital Improvement Program (CIP).

The Distribution Unit conducts leak surveys, examinations of portions of repaired mains to determine the root cause of breaks, and corrosion control studies as part of the preventative maintenance program.

The Water Department's current level of 228 breaks per 1,000 miles is significantly better than the national average of 270 breaks per 1,000 miles. The total number of main breaks in 2012 was 563 breaks (1.5 breaks per day). This is below the historical average break rate of 822 breaks per year (2.3 breaks per day).

The Water Department uses multiple technologies to inspect large diameter transmission mains, which require greater sensitivity than smaller mains due to the level of detectable noise made by leaking water. There is a regular inspection rotation using *Sahara*® inspection technology, which allows for in-pipe inspections of active transmission mains. Additionally, the Water Department continues to evaluate new inspection technologies as they become available. More information on the use of *Sahara*® and leak detection in large diameter transmission mains can be found in the Piloting New Technology section that follows.

To ensure proper operation of the network's 90,216 valves, a valve tracking program is in place. This program records all valve activities (operation, inspection, repair and replacement). Table III-8 summarizes the valve program for fiscal year 2011.

Table III-8 Valve Maintenance (Fiscal Year 2011)

VALVES	TOTAL	SMALL (12" OR SMALLER)	LARGE (16" OR LARGER)
Operated	8,897	7,095	1,802
Found defective	283	249	34
Repair/Replace	247	223	24

In fiscal year 2012, hydrant availability was 99.6 percent. The Water Department attributes this high reliability to the implementation of a new process used to track hydrant information and deploy repair crews. The process was initiated in 2006 and has resulted in hydrant availability above 99 percent since that time. A preventive maintenance program includes routine inspections, repairs, and painting. During fiscal year 2012, the Water Department partnered with the Fire Department to inspect almost all of the city's 25,321 fire hydrants, leading to 6,284 repairs and 4,837 hydrants painted. Additionally, 583 tamper-proof hydrant locks were installed. Over 84

percent of the Water Department's hydrants have locking devices, and hydrant abuse has been controlled to levels that had no noticeable effect on the operation of the water system.

Unit maintenance activities were formally tracked using a variety of computer programs, such as distribution (DMIS), valves (VMIS), and hydrants. In calendar year 2012, asset and work order tracking of this infrastructure was migrated to the Cityworks® computerized maintenance management system. This allows street-side maintenance activities to be tracked uniformly and provides for a more unified customer information and maintenance system.

2. Pumping Unit

The unit's responsibility is to maintain and repair all raw and potable water pumping systems. Additionally, the unit maintains all raw water intakes, finished water reservoirs, system tanks and standpipes. The unit strives to maximize pump availability, pump efficiency, and the productive use of all maintenance resources. Table III-9 details the unit's performance for these three parameters.

Table III-9 Pumping Unit Activity

PERFORMANCE MEASURE	FY 2009	FY 2010	FY 2011	FY 2012
% Pump Availability	93.6	94.1	95.2	95.3
% Station Efficiency (wire to water)	77.9	79.2	79.8	79.8
% Planned Work (a productivity measurement)	94.0	95.0	96.2	96.5

Pump availability remains at a consistently high level due to the proactive maintenance approach employed. Despite the age of the majority of the pumps, the unit has been able to hold pump efficiencies steady through good maintenance practices and the use of techniques such as impeller modification to better suit actual demand. Station efficiency is an overall measure of pumping efficiencies across all stations and represents the percentage of energy put into the system that is actually used to move water (the ratio of mechanical output to electrical input). The efficiency has remained stable at about 78 percent over the past four years, which is relatively close to the original efficiency of the equipment when it was new. The percent planned work activity is a measure of productivity for the Pumping Unit staff in terms of time spent on planned maintenance activities as compared to time spent on emergency repairs. This measure reflects the effectiveness of the preventative maintenance program.

The Pumping Unit and Load Control Unit also provided considerable technical input to the Design Unit for the preparation of design plans and specifications related to the new Queen Lane High Service/Roxborough Express Pumping Station. Construction of this new pump station began in 2009. It will replace the outdated and oversized existing station housed within the treatment plant filter building. A primary goal of the design is to downsize the capacity to an extent that will allow the neighboring East Oak Lane Pumping Station to optimize its pumping levels. At this time construction of the new pump station is complete, the 90-day acceptance test is complete, and the pump station is operational.

The Pumping Unit is also in the process of rehabilitating all of their standing storage tanks. Work to rehabilitate and recoat the two Somerton Standpipes (5 million gallons each) was completed in 2009 and similar work at the Fox Chase Elevated Tank was completed in Fiscal Year 2010.

Rehabilitation of the two Roxborough Standpipes started in April 2013. These are the last of the five distribution system tanks to be rehabilitated. This effort is expected to enhance water quality and increase the security and integrity of the tanks.

As mentioned previously, the Water Department continues to implement the recommendations of the Vulnerability Assessments across the system. To this end, the Water Department is acquiring emergency generators for all pumping stations. Generators have been installed at the Belmont High Service, Roxborough High Service, and Torresdale High Service Pumping Stations. A project to install a new generator and switchgear at the Fox Chase Pumping Station was bid on May 21, 2013. A notice to proceed is expected to be issued in August 2013. Design work is nearly complete for generators and switchgear for the Torresdale Raw Water Pumping Station and the East Oak Lane Pumping Station. It is the Water Department's goal to install standby generators at all of its pumping stations and treatment plants in the coming years.

The Pumping Unit uses a Computerized Maintenance Management System (CMMS) to plan and track maintenance activities and to generate monthly and annual reports regarding pump efficiency, pump availability, and labor productivity. The software, MAXIMO®, is also used in the Water Department's treatment plants to support asset management.

3. Load Control Unit

The mission statement of the Load Control Unit follows: "In order to provide a reliable supply of water to meet all community needs we will operate the water transmission system Load Control Center, maintain the Supervisory Control and Data Acquisition system, conduct hydraulic investigations, develop and utilize a current hydraulic model of the entire water distribution system and assist in long-term planning for responsible management of the City's water supply infrastructure."

The development of a hydraulic model for each city pressure district is complete, as is a city-wide transmission system model. An integrated system-wide model was also completed in 2010. The existing models have been used to simulate operational changes, size pumps, plan water main relays, and investigate water quality issues. Water Department staff updates the models to account for ongoing system changes and increase the accuracy and reliability of information produced.

The Load Control Center and water transmission system operate continuously. All pumps are controlled centrally using a SCADA system. It is a priority of the unit to provide a reliable supply of water in a cost effective manner. This is achieved by using the SCADA system to maximize the use of system storage during peak hours, and then pumping as much as possible to refill lost storage during the less costly off-peak hours. Table III-10 illustrates the unit's ability to control electrical demand, which was a major cost component of the operation prior to December 2010. In January 2011, deregulation of electrical rates and suppliers resulted in increased electricity costs and a significant restructuring of how electricity is billed and purchased. Post January 2011, electrical rates are purchased on the open market for the City as a whole rather than separately by the Water Department. The traditional electrical usage profile (more off-peak than peak usage) of the Water Department continues to be beneficial when purchasing power for the City, but the benefit of off-peak pumping is less directly tied to electricity costs than it had been before. This change, combined with the increased cost of electricity, resulted in the observed increased total power

expenditures in fiscal years 2011 and 2012. Therefore, operation of the pumping stations has been adjusted in fiscal year 2013 to optimize pumping under the new electricity purchase scenario.

Table III-10 Load Control Unit - Electrical Demand

PERFORMANCE MEASURE	FY 2009	FY 2010	FY 2011	FY 2012
Average Daily Delivered Water, mgd	245.8	244.5	250.0	237.1
Total Power Consumption, million kilowatt-hours	124.8	120.6	122.7	119.7
Total Peak Billing Demand, Kilowatts	144,001	144,501	148,897	147,116
Total Expenditures for Power	$6,787,000	$6,610,500	$8,540,000	$8,812,000
Cost per million gallon pumped (raw & treated water)	$74.92	$74.69	$93.59	$101.55

Average daily delivery to the water system in fiscal year 2013 was approximately 237 mgd, down from the system's historical peak of 378 mgd in 1977. Load Control is challenged to find operational cost savings to match the delivery rate decline, while using pumping systems that were designed for higher demands. At most pumping stations, only the smallest pump runs during on-peak hours. Replacement of the existing pumps with smaller pumps is often cost-prohibitive due to unacceptably long payback periods. However, Load Control engineers have worked with Pumping Unit staff to replace a pump impeller at one station, trim the diameter of three impellers at another station, and replace two large pumps with two small pumps at a third station. All these projects were designed, purchased, and installed in-house by Load Control engineers and Pumping Unit technicians. Additionally, Load Control engineers have assisted with the design of a completely new, optimally-sized pumping station at a fourth location where the existing pumping station equipment is nearing the end of its useful life. Load Control and Pumping Unit staff continue to monitor each district for opportunities to improve pumping efficiency and lower overall costs. Most recently, Load Control engineers prepared specifications that the Pumping Unit used to purchase two new, replacement pumps for the Chestnut Hill Pumping Station. The Pumping Unit began installation of these two pumps in March 2013 and installation of one pump has been completed.

The Load Control Unit also provides a variety of water distribution system testing and investigative functions. These functions include fire flow testing, fire system troubleshooting, water quality investigations, and investigation of new leak management initiatives. Asset management support services provided by the unit include: planning and scheduling of capital program water system work, review of all capital program design documents, oversight for the Valve Maintenance Information System, and coordination of the Large Valve Management Program. The unit also plays a lead role in the Water Accountability Committee and the Reservoir Team.

F. SYSTEM STORAGE AND PUMPING

The Water Department provides finished water storage at each treatment plant. There are also six other treated water storage reservoirs, standpipes, or basins in the system. All finished water storage is covered.

1. Finished Water Reservoirs

The Water Department's Reservoir Team manages the strategic planning, capital program projects, and operations and maintenance functions of the Water Department's reservoirs.

The principal covered storage reservoirs and their approximate capacities are:

East Park (Northeast)	147.2 million gallons
Oak Lane	72.8 million gallons
Roxborough (Upper & Lower)	28.5 million gallons

In addition, the Fox Chase elevated storage tank (1.5 mg), the two Somerton standpipes (10 mg), and the two Roxborough standpipes (11 mg) provide a total of 22.5 million gallons of distribution system storage. Work to rehabilitate and recoat the two Somerton Standpipes was completed in 2009 and similar work at the Fox Chase Elevated Tank was completed in Fiscal Year 2010. Rehabilitation of the two Roxborough Standpipes began in April 2013. These are the last of the 5 distribution system tanks to be rehabilitated. This effort will enhance water quality and increase the security and integrity of the tanks.

The Oak Lane Reservoir was taken out of service on February 24, 2009 immediately after it was discovered that the polypropylene membrane cover was deteriorating and particles from the cover were released into the water. Operations to implement the shutdown were efficient and effective with no negative impact on water supply. The reservoir provided water to the East Oak Lane and West Oak Lane Pumping Stations. These pumping stations were supplied directly from Lardner's Point Pumping Station until a new lining could be installed. A new polyethylene cover was installed in 2012. The tank was disinfected and monitored prior to being put back in service on March 5, 2013.

The floating cover on the East Park Reservoir has reached its useful life. The Water Department will replace the reservoir with two 30 MG concrete tanks, for an effective storage volume of 50 MG. The tanks will provide water quality, security and maintenance benefits over the existing reservoir and floating cover. Design of the basins is nearing completion and the project is to be bid near the end of calendar year 2013. The project is estimated to cost $66 million. The need for additional storage will be evaluated as part of the 2050 Water Supply Plan.

2. Pumping Stations

Pumping stations are located at each treatment plant with seven other stations located off-site that provide water service pressure for the distribution system. The major pumping stations, divided into Delaware and Schuylkill Divisions, are:

DELAWARE DIVISION	SCHUYLKILL DIVISION
East Oak Lane	Belmont High Service
Fox Chase Booster	Belmont Raw Water
Lardners Point	Chestnut Hill
Torresdale Low Service	East Park Booster
Torresdale High Service	Queen Lane High Service
Torresdale Raw Water	Queen Lane to Roxborough
West Oak Lane	Queen Lane Raw Water
Roxborough High Service	

By utilizing reservoir storage capacity and pumping capabilities through the Load Control Center, the Water Department is able to provide water during periods of water shortage in a given service area. A great deal of flexibility is built into the system. With few exceptions water can be provided city-wide from any of the three treatment plants.

The Water Department has completed the construction and testing of the new Queen Lane High Service/Roxborough Express Pumping Station. It replaced the outdated and oversized existing station housed within the Queen Lane Water Treatment Plant filter building. Construction of the new pump station began in 2009 and was completed in Fall 2012. Vibration was observed on the suction lines during the 90-day test period. Repairs and additional supports were designed and constructed to address the issues. Another round of 90-day acceptance testing began on March 26, 2013 and is complete. The project met the goal of having the pump station operational by the end of this fiscal year. This new pump station replaces the existing pump station, providing enhanced reliability through upgraded electrical systems and more efficient pumps. The pumping capacity will be less than the existing pump station, but will allow for more efficient use of the neighboring Oak Lane Pump Station. This holistic approach will increase reliability and efficiency for both pump stations and likely result in reduced energy consumption. The project cost of $18.9 million was funded by Pennvest loans.

As mentioned previously, the Water Department continues to implement the recommendations of the Vulnerability Assessments system-wide. To this end, the Water Department is acquiring emergency generators for all pumping stations. Generators have been installed at the Belmont High Service, Roxborough High Service, and Torresdale High Service Pumping Stations. A contract for a new generator and switchgear for the Fox Chase Pumping Station was bid in May 2013. Design work is nearly complete for generators and switchgear for the Torresdale Raw Water Pumping Station and the East Oak Lane Pumping Station. It is the Water Department's goal to install standby generators at all of its pumping stations and treatment plants in the coming years.

G. OPERATIONS ADMINISTRATION

Operations Administration provides administrative support services to all operating units within the Operations Division. Operations Administration reports to the Director of Field Operations and includes five (5) operating units: Meter Management, Delinquency & Restoration, Customer Service, Plumbing Repairs, and Materials Management. There are currently 160 budgeted positions and 19 vacancies. This represents an increase in budgeted positions resulting from the hiring of several employees previously employed by the contractor responsible for the recent meter battery change-out.

Operations Administration is responsible for leading several initiatives including the implementation of Cityworks®, the operations and maintenance of meters city-wide, responding to customer complaints, and addressing delinquency and restoration issues. Key programs led or supported by Operations Administration are discussed in the following sections.

1. Cityworks® Development and Implementation

A major initiative within the Water Department in recent years has been the development and implementation of a customer complaint and maintenance management system called Cityworks® (a product of Azteca, Inc.). The Water Department's Geographic Information System (GIS) is the foundation of the system. The system implementation was substantially complete as of June 2012, with the key operating units having received training and actively using the system at that time. Integration or migration of data from the various legacy databases used by different operating units is also complete. The Water Department will continue to introduce the system to other operating units as needed and to customize reporting and data retrieval functions. Cityworks® is used primarily by the Water Department's field units that work on street side assets associated with the conveyance and collector systems. The software is used to track service requests taken from the Public Affairs Call Center, as well as work orders for system maintenance and repair generated within the field units. It has replaced the individual systems that were previously used by each unit to track infrastructure repairs, replacements, and related projects. This has resulted in streamlined work, consolidated data in one location, and reduced duplication of effort between units. Cityworks® is also an integral component of the CWS, specifically as related to tracking customer complaints and reviewing maintenance activities that might contribute to a water quality event in the distribution system.

2. Meter Management

The Water Department's water meter management program maintains several dozen production meters and a customer meter population of close to one half million. The Water Department also manages the Automatic Meter Reading (AMR) system that provides routine customer meter readings to the billing process. These programs are discussed below.

(1) Production Metering

The Water Department maintains meters on transmission supply mains at its three water treatment plants, pumping stations, reservoirs, as well as interconnections to BCWSA and Aqua Pennsylvania. All meters are connected to the Load Control Center SCADA system and are continuously monitored and balanced on a daily basis. Most meters are verified on at least an annual basis by Load Control technicians and an engineering consultant, and the export sales meters are checked quarterly. This structured level of meter management ensures accuracy in the calculation of the total volume of water supplied to the distribution system.

(2) Customer Meter Management

Customer meters are managed by the Water Department's Metering Unit. This group replaces faulty meters and AMR equipment, investigates suspicious consumption patterns, and performs a host of related duties. The Metering Unit also operates meter test equipment and performs routine meter accuracy testing. The demands on the Metering Unit have grown since the implementation of AMR, as more reliable customer consumption data now exists, revealing many more problems such as tampering and equipment failure.

The Meter Shop has also focused recently on the assessment of large customer meters to determine whether they are sized appropriately. Large meters are defined as those greater than one inch in size. Approximately 3 percent of all meters fall in this category, but these accounts tally almost 50 percent of the billed consumption total. Highlights of this program are presented below:

- Meters ranging from one to two inches in diameter are generally replaced every 10 years to maintain accurate registration. Meters from three to six-inches have a 4-year replacement interval, and those from eight to ten-inches are replaced on a 2-year frequency. This increasing frequency of replacement for the large meters provides a higher level of accuracy and performance.
- The Metering Unit has undertaken a concerted look at downsizing large meters that are oversized in the system. The Water Department has incentive to right size larger customer meters to more accurately measure metered flow that can vary across a broad range. Large meter management results in benefits to both the customer and the Water Department. Meter downsizing results in a decrease to the customer's monthly water service charge, while replacing misapplied or improperly-sized meters typically results in increased flow registration and related volumetric billings. Approximately 250 meters per year were downsized from fiscal years 2006 to 2009 at the request of customers. These customers had an incentive to downsize as a significant portion of their water and sewer bill was based on a fixed charge that was graduated by meter size. With the Water Department's implementation of a stormwater charge in fiscal year 2011, a customer's total water, wastewater, and stormwater bill is less dependent on meter size and the number of downsizing requests have decreased. The Water Department installed fifteen new single jet meters to pilot the use of these meters and confirm if their advertized high accuracy is observed in the field. They are also evaluating the use of mag meters for large customers as that technology is developing. New meter evaluations are being led by the Planning and Research Unit in cooperation with the Meter Shop.

3. Automatic Meter Reading System

The first installation phase of the AMR System from 1997 to 1999 included the replacement of all residential water meters, sized 5/8-inch or 3/4-inch, with new meters equipped with radio transmitter meter reading devices (Encoder, Receiver, Transmitter units or ERTs). Until very recently, the Water Department's AMR System was the largest and most significant AMR endeavor in the United States to be fully implemented. This installation of the AMR system is complete as of March 2013 for all residential, large meter commercial and industrial customers. Significant improvements in customer service and consumption data integrity have been realized as a result of the AMR System. The system is also being leveraged to gain additional benefits in the areas of leakage management and control of unauthorized consumption. Additional benefits of the system include:

- Reduced intrusion into individual homes, resulting in greater customer convenience and security
- More accurate and reliable meter readings
- Fewer customer complaints due to estimated billing

- Improved ability to detect apparent losses, particularly unauthorized consumption
- Long-term savings and revenue improvements

In January2013, the Water Department completed a two year initiative to change out AMR batteries. The original ERTs on residential accounts, which were initially installed from 1997 to 1999, have been replaced with similar ERT units that have a new battery. Additionally, the Water Department specified that that all large metered accounts (1-inch and above) and all accounts within District Metered Area 5 (described below) and the Navy Yard have fixed network-capable ERTs installed. These ERTs have the ability to provide meter reads as often as every 15 minutes and can transmit the data real-time (hourly) via a fixed communication system. The ability to provide more frequent meter reads will provide the Water Department with sufficient data to develop detailed customer consumption profiles, manage district pressures, and better identify leaks or meter tampering.

Overall, the battery change-out will keep the AMR system functioning properly through its contract life (2019) and provide an opportunity to assess the benefits and drawbacks of a fixed network system. As of March 2013, all standard residential ERTs have been switched out along with 8,000 of the planned 15,000 fixed network capable ERTs, including some of the associated fixed network communication equipment.

4. Revenue Protection

The Revenue Protection Program focuses on recovering uncaptured revenue from compromised customer accounts. Management estimates that it has been successful in recovering over $30 million since its inception. Each year the program pursues targeted groups of accounts perceived as areas of missed water consumption and billings. For the past three years the major focus of the program has been "zero consumption" accounts; the majority of which have occurred due to tampering. Table III-11 presents the annual amount of revenue billings identified over the past several years, but does not represent actual cash collections.

Many of the accounts investigated by Revenue Protection occur due to unauthorized consumption. As in many large urban areas, unauthorized consumption occurs in many different ways. The Water Department actively attempts to address the major causes of unauthorized consumption and the associated lost revenue. Over 30,000 accounts are shutoff for non-payment every year, and a notable portion of these accounts are illegally restored by customers. In these instances, the Water Department shuts these accounts off a second time. The Delinquency & Restoration Unit has piloted several new technologies to improve shutoff effectiveness. They are in the process of implementing new technologies and procedures for shut-off. With tablet based technology Delinquency & Restoration representatives will have the ability to accept payments on delinquent accounts in the field or shut off the meter for delinquency after electronically recording the final meter read. Having the final meter read will allow the Water Department to more quickly identify unauthorized restoration of the service. As the Water Department begins planning for installation of the next generation of meters, they anticipate upgrading to Advanced Metering Infrastructure (AMI) which may include leak noise loggers on customer piping, automatic shutoff valves, automated backflow detection and other enhancements. The Water Department is also looking closer at enforcement actions and billing policies to discourage the high level of unauthorized consumption in the City.

Table III-11 Water Department and Water Revenue Bureau Annual Water Audit Summary

FISCAL YEAR	WATER RECOVERED, MGD	REVENUE RECOVERED
2000	1.39	$2,493,949
2001	5.81	$3,398,952
2002	0.69	$1,705,932
2003	1.14	$2,386,379
2004	1.67	$2,449,327
2005	1.74	$3,084,261
2006	1.01	$1,622,768
2007	0.36	$871,780
2008	0.40	$1,026,920
2009	1.00	$1,803,272
2010	1.49	$2,554,261
2011	2.30	$3,889,675
2012	2.40	$4,336,492
Total	**21.40**	**$31,623,968**

Reduction of unauthorized fire hydrant use is another Water Department loss control initiative. As mentioned above, recent efforts have focused on installing tamper-proof, center compression locks (CCL) in those areas most susceptible to fire hydrant abuse. At the end of fiscal year 2012, the Water Department reported that approximately 84 percent of all hydrants were equipped with tamper-proof locks. It is the Water Department's intent to have tamper-proof locks installed on all hydrants in the future.

5. Piloting New Technology

The Water Department is continuously seeking opportunities to enhance and optimize their water loss control, metering and revenue collection services, through participation in research studies and internal efforts. These efforts are led by Planning and Research Unit in cooperation with Operations Administration and other Operations Division units

As part of the project "Leakage Management Technologies," the Water Department isolated a small area of the distribution system to establish a pilot District Metered Area (DMA). The objective of the pilot is to utilize continuous flow and pressure monitoring to evaluate leakage levels, and apply advanced pressure management techniques to control leakage and prevent water main breaks. The research found that the DMA approach is feasible and the Water Department achieved a significant, sustainable leakage reduction in the DMA. Upon the completion of the study in 2007, the Water Department continued its efforts to fully optimize operations of the DMA for leakage control by integrating established Water Department programs such as acoustic leak detection and water main replacement. Flow modulated pressure control is used to coincide with changes in demand to reduce the potential for leakage. Pressure reducing valves are used to reduce system pressure

during low flow periods (typically at night), and increase pressure during higher flow (daytime) periods. Maintaining optimal pressure is effective in reducing background leaks or seepage, while monitoring the change in flows during low flow periods helps to identify trends of newly emerging leakage. In 2012, the Water Department expanded the DMA initiative to the Navy Yard. The isolated nature of the distribution network in the Navy Yard and the high pressures observed make the area ideal for a DMA. The Water Department will continue to focus on these DMAs in the near-term with consideration of additional applications of DMA principles in other parts of the distribution system. As previously noted, Fixed Network AMR ERTs are being installed on all customer accounts in DMA5. This will give the Water Department the capability to compute a daily water balance of supply flows into the DMA and compare it with the total daily customer water consumption. By July 2013, 83% of the customer accounts in DMA5 will have a Fixed network AMR ERT installed. The infrastructure is in place to begin receiving interval data by September 2013.

As mentioned above, in 2007 the Water Department began to contract for services from the Pressure Pipe Inspection Company (now part of Pure Technologies) for use of its *Sahara*® service of inline acoustic leak detection for large diameter transmission pipelines. Traditional, above-ground acoustic leak detection cannot detect leaks on inaccessible piping (e.g., under highways or creeks) and the Sahara® technology is providing a valuable tool for the Water Department to better maintain its large diameter piping. The six year old program has scanned 40 miles of large piping and identified 82 leaks, the vast majority of which have been repaired. The Water Department conducts the surveys two times per year, with the assistance of their contractor. Between surveys, the Water Department addresses the leaks detected as appropriate. Two of the leaks that have been detected to date would be very difficult to access for repair. Thus, management has determined not to repair these as they present little risk due to the low volume of leakage identified. The Water Department is assessing other technologies as they become available. Such technologies might feature enhanced capabilities with respect to leak detection, measurement of pipe wall thickness, and video.

The Water Department's ongoing activities continue to build on successful efforts of the past. Future program initiatives include:

- Utilize the full potential of the new billing system to enhance the management of customer account data.
- Increase staff levels to enhance revenue collections.
- Search for opportunities to improve efficiency and timeliness in addressing leakage on customer services connection piping.
- Leverage the Cityworks® maintenance management system to better track leak occurrences, pipeline failure modes, and response and repair times.
- Establish a process to reliably track the period of time when leaks are identified to the completion of repairs, and improve practices to minimize this average period of time.
- Investigate opportunities for additional DMAs with enhanced pressure management capabilities.

- Evaluate and pilot an array of new metering capabilities known as Advanced Metering Infrastructure (AMI) including leak noise loggers on customer piping, automatic shutoff valves, automated backflow detection and other enhancements.

IV. Wastewater System

A. INTRODUCTION

By the end of the Nineteenth Century, Philadelphia had established a Department of Sewerage and had constructed approximately 800 miles of sanitary and storm sewers. In 1923, the Northeast Water Pollution Control Plant (WPCP) went into service with a capacity of 60 million gallons per day (mgd). From that point until the mid-1940s, most expenditures were for collection and transmission facilities rather than for treatment works. It was not until 1946 that wastewater service charges in the City provided the means of financing the modernization of the original Northeast WPCP and the construction of the original Southeast and Southwest plants as primary treatment facilities. All three wastewater treatment plants were upgraded in the 1970s and 1980s to provide secondary treatment. Construction of the Biosolids Recycling Center (BRC), formerly the Sludge Processing and Distribution Center (SPDC) which manages sludge produced from all three treatment plants, was subsequently completed in 1989. The most significant recent change to the BRC operation is its privatization in 2008 to a joint venture led by Synagro through the Philadelphia Biosolids Services (PBS) company. Under a 20-year contract with the Water Department, PBS leased a portion of the property and assumed responsibility for the operation of the existing facility until a new Class A Drying Facility was constructed and operational. The new facilities were fully operational and producing Class A pelletized bio-solids in February 2012.

B. WASTEWATER SYSTEM OVERVIEW

The Philadelphia Water Department's wastewater system currently serves the City of Philadelphia, and parts of Bucks, Montgomery, and Delaware Counties. According to the 2012 Census data and Water Department estimates, the total service area population is approximately 2,309,607 including approximately 1,547,607 people within the City and 762,000 residents in outlying municipalities. The service area population is distributed over 364 square miles, with 230 square miles in suburban communities and 134 square miles in the City.

The wastewater collection system consists of approximately 3,722 miles of sewers, 19 pumping stations (16 City Owned and 3 owned by others but operated by the City), 93,818 manholes, 26 storm relief structures, 74,430 stormwater inlets, and 56 metering chambers to monitor flows from surrounding townships. There are 759 miles of sanitary sewer, 734 miles of storm sewer, 1,856 miles of combined sanitary and storm sewer, and 135 miles of major interceptor sewer that convey wastewater to the treatment plants. The sewers range in size from 8-inch diameter to 21 feet by 24 feet arch-shaped conduits and are primarily constructed of brick, vitrified clay, or reinforced concrete. The wastewater system is divided into three drainage districts, each served by a treatment plant as indicated in Figure IV-1.

In November 2009, the water and wastewater infrastructure of the Navy Yard was turned over to the Water Department for operation and maintenance. The wastewater system and storm system contain 21 miles of sewer, 60 miles of stormwater conduits, and three pumping stations. The

infrastructure has been fully integrated into the Water Department's planning, operations and maintenance programs and is reflected in the overall statistics presented above.

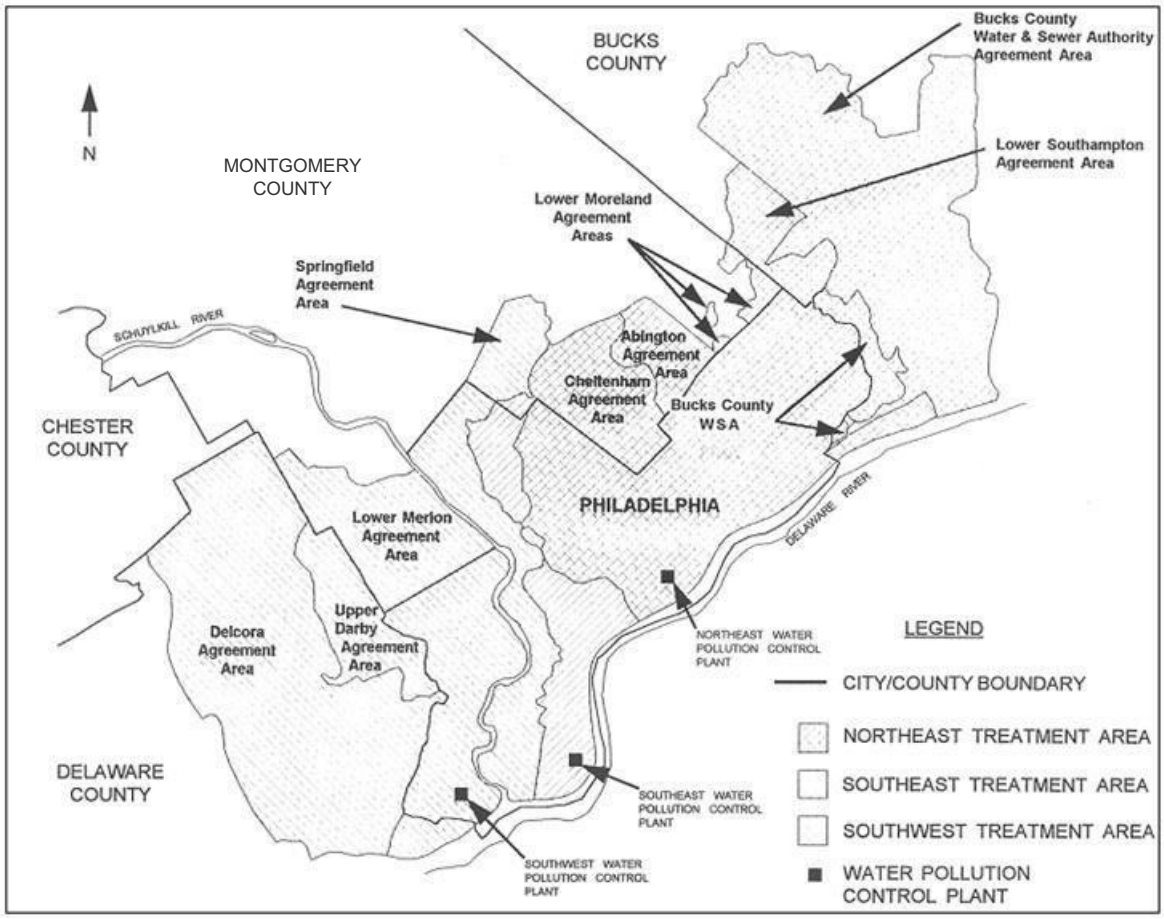

Figure IV-1 Wastewater Service Areas

C. WHOLESALE SUBURBAN CUSTOMERS

Contracts for wastewater treatment service with nine neighboring municipalities and authorities provide for the billing of charges based on wastewater strength and volume. As illustrated in Figure IV-1, parts of Bucks and Montgomery Counties contribute to the Northeast plant; parts of Montgomery and Delaware Counties contribute to the Southwest plant; and Springfield Township of Montgomery County contributes to the Southeast plant.

Table IV-1 summarizes the contract limit flows and actual flows by receiving plant.

Table IV-1 Suburban Flows to WPCPs

PLANT	AVERAGE DAILY FLOW (MGD)	
	Annual Maximum (Contract Limit)	Fiscal Year 2012
Northeast Plant	56.6	42.7
Southeast Plant	1.0	0.5
Southwest Plant	84.7	50.2
Total	**142.3**	**93.4**

D. CONSENT ORDER AND AGREEMENT FOR COMBINED SEWER OVERFLOWS

A primary initiative for the Water Department over the coming years will be the ongoing implementation of the Consent Order and Agreement (COA) with the Pennsylvania Department of Environmental Protection (PaDEP). The purpose of the consent order is to improve the overall water quality of the City's rivers and streams by reducing combined sewer overflows (CSOs) from the Water Department's combined sewer system. The Water Department's primary means for complying with the consent order is the approved Long Term Control Plan Update (LTCPU), also known as Green City, Clean Waters (GCCW). The LTCPU outlines the Water Department's strategy for implementing traditional and non-traditional improvements that will focus on eliminating or removing no less than the mass of pollutants that otherwise would be removed by the capture of 85 percent by volume of combined sewage collected in the combined sewer system during rainfall events. The implementation of the LTCPU will require a significant increase in capital expenditures over the next 25 years, as well as the focus of staff and management on implementing, tracking, measuring, and reporting progress toward compliance with the COA's requirements. To achieve this level of program oversight, the Office of Watersheds underwent a Program Quality Review process as discussed in Section II.2. Office of Watersheds (OOW) restructured and developed processes and procedures to enable it to execute and track the projects required under GCCW.

This Consent Order and Agreement is particularly significant because it is the first of its kind and represents a shift from traditional CSO programs and agreements. The Water Department's LTCPU will address CSOs through large scale implementation of green stormwater infrastructure city-wide, with only minimal installation of the more traditional gray infrastructure improvements (in the form of treatment plant capacity increases and collection system improvements). This approach focuses on controlling pollution at its source and improving water quality by restoring the natural hydrologic cycle in the urban environment. The approach is consistent with U.S. Environmental Protection Agency's (EPA's) strategy for addressing wet weather impacts. The Water Department will be in the spotlight and under scrutiny as regulators and peers observe their progress during the implementation of this program.

As discussed above, the overall goal of the COA is for the Water Department to eliminate or remove no less than the mass of pollutants (Biochemical Oxygen Demand (BOD); Total Suspended Solids (TSS); and fecal coliform bacteria) that otherwise would be removed by the capture of 85 percent by volume of the combined sewage collected in the combined sewer system (CSS) during precipitation events on a system-wide annual average basis. To track the progress toward this goal and determine compliance with the COA, a Water Quality Based Effluent Limit (WQBEL) Table with

performance standards will be included in the Water Department's renewed National Pollutant Discharge Elimination System (NPDES) permits. The Table below is an excerpt from the COA and provides Water Quality Requirements to be included in the Water Department's renewed NPDES permits:

Table 1 - WQBEL Performance Standards							
Metric	Units	Baseline value	Cumulative amount as of Year 5	Cumulative amount as of Year 10	Cumulative amount as of Year 15	Cumulative amount as of Year 20	Cumulative amount as of Year 25
[plant name] WPCP upgrade: Design	percent complete	0	* note (1)	* note (1)	* note (1)	100%	100%
[plant name] WPCP upgrade; Construction	percent complete	0	* note (1)	* note (1)	* note (1)	100%	100%
Miles of interceptor lined	miles	0	2	6	14.5	14.5	14.5
Overflow Reduction Volume (2)	million gallons per year	0	600	2,044	3,619	5,985	7,960
Total Greened Acres	Greened Acres	0	744	2,148	3,812	6,424	9,564
Equivalent Mass Capture -TSS	percent	62%	Report value	Report value	Report value	Report value	85%
Equivalent Mass Capture - BOD5	percent	62%	Report value	Report value	Report value	Report value	85%
Equivalent Mass Capture - Coliform bacteria	percent	62%	Report value	Report value	Report value	Report value	85%

(1) Performance Standards for "percent complete" for the WPCP upgrade design and construction projects were not available at the time of the Consent Order Agreement. The City shall provide these targets to the Water Department along with the Facility Concept Plan for the WPCP. The Facility Concept Plan is due on a specific date given in the Consent Order and Agreement. After the Water Department approves the Facility Concept Plan, the targets for "percent complete" will be entered into Table 1. The formal modification of Table 1 may be accomplished by the DEP by issuing a revised NPDES permit.

(2) Overflow Reduction Volume means the difference between the volume of overflow in million gallons per year for the condition prevailing at the time of the report and the volume of overflow in million gallons per year for the baseline year. The baseline year is represented by Philadelphia's physical systems as they were configured on January 1, 2006. Both volumes will be determined from modeling, using climatic data representing the same "typical year" for Philadelphia as determined in the LTCPU development process, and a hydrologic/hydraulic model calibrated with flow data collected for verification of actual performance.

As the Table shows, the Water Department will be evaluated on its progress in the following areas:

- Upgrade of Water Pollution Control Plants (Design and Construction): These targets were to be developed by the Water Department along with Facility Concept Plans for each WPCP and submitted to PaDEP within 24 months after the June 1, 2011 signing. The Water Department completed and submitted these plans to the PaDEP by the June 1, 2013

deadline. Current plans are to increase the secondary treatment capacity of the Southwest, Northeast, and Southeast WPCPs by 60 mgd, 15 mgd, and 50 mgd, respectively. These increases will be achieved through a combination of collection system and plant upgrades to increase both the flow delivery to the plant and the flow through the treatment train. There is also a planned 215 mgd secondary bypass planned for the Northeast WPCP.

- Miles of interceptor lined: Involves lining streamside interceptors within the Cobbs and Tacony-Frankford watersheds to improve stream quality and aesthetics during dry weather. The Water Department is on target to meet their five-year target. They are conducting this work under contract to increase inspections and identify new projects without compromising existing services.
- Reduction of CSO volume: Tracks the reduction of total CSO volume compared to the baseline year of 2006. The Water Department has various traditional and green infrastructure improvements completed or planned and are positioned to meet the 5-year requirement. These projects include, but are not limited to, the Northeast WPCP Bypass and High Level Sewer Lining projects.
- Total Greened Acres: Provide a measure of runoff capture during wet weather events. One Greened Acre is equivalent to one inch of managed stormwater runoff from one acre of drainage area, or 27,158 gallons of managed stormwater. Of the 9,564 cumulative Greened Acres to be achieved by Year 25, approximately 3,000 are expected to be completed through private development. As of June 2013, 190 greened acres have been constructed throughout the City by the Water Department and through private re/development. Thus, the Water Department is on target for meeting the 5-yr requirement of 744 greened acres. Approximately 91 of the total greened acres recently constructed or in design were designed and will be constructed with $30 million in Pennvest funds. Much of the program's success is due to partnerships with the private sector, with community and civic groups, with peer agencies, and with City Council.
- Equivalent Mass Capture: Using the presumption approach outlined in the National CSO Control Policy, the goal is to reduce the impact of BOD, TSS, and fecal coliform bacteria on local waterways equivalent to the capture and treatment of 85 percent of CSO overflows.

The Water Department is on target for meeting all of performance standards defined above as well as all other deliverables identified in the COA. To date the Water Department has submitted the following deliverables:

- Implementation and Adaptive Management Plan (December 2012).
- Green Infrastructure Maintenance Manual development process plan (June 2013).
- Comprehensive Monitoring Plan (December 2013).

The Water Department has completed and submitted the following by June 1, 2013:

- Facility Concept Plans for each of the WPCPs.
- Updated Nine Minimum Controls Report.
- Tributary Water Quality Model for Bacteria.

The COA outlines civil penalties to be assessed should the Water Department be unable to meet the performance standards mentioned above or other requirements related to submission of periodic deliverables; record keeping; and planning, design, and construction requirements. Penalties for not meeting the 5-Year performance targets listed above would amount to $25,000 per month per violation and would increase to $100,000 per month per violation should the Water Department remain in violation for 13 months or more.

The Water Department has committed to spending $2.4 billion ($1.2 billion in non-inflated 2009 dollars) over 25 years to implement the LTCPU. EPA guidance utilizes a residential indicator for assessing the financial impact of the LTCPU. The residential indicator is a ratio of wastewater cost to the average median household income (MHI), and a result of greater than 2.0 percent is considered a high financial impact to a utility's customers. The Water Department performed a Financial Capability Assessment using methods outlined in the EPA's Guidance for Financial Capability Assessment and Schedule Development. The results show that the financial burden on residents will be approximately 2.51% of the MHI by the end of the 25-year implementation period. The COA includes a provision that allows the Water Department to request an extension of time for implementation should it be determined that the cost to implement the LTCPU has exceeded or will exceed 2.27% of MHI.

E. RELEVANT REGULATORY PERMITS AND CONSENT DECREES

The Water Department's wastewater treatment plants and the collection system are regulated by three permits which include:

- National Pollutant Discharge Elimination System (NPDES) Permits
- Municipal Separate Storm Sewer System (MS4) Permit
- Title V Major Source Operating Permits-Clean Air Act (Title V) Permit

1. National Pollutant Discharge Elimination System Permits

The NPDES permits for the Northeast, Southeast, and Southwest WPCPs all became effective September 1, 2007 and expired August 31, 2012. The facilities are operating under a continuation of the expired permit per PaDEP policy. In February 2012 PaDEP certified that the application for the permit renewal was Administratively Complete. The Water Department has received a draft version of the NPDES permit for the Northeast WPCP. The PaDEP has incorporated the requirements of the LTCPU COA into the NPDES permit as was negotiated in the COA. The new permit is anticipated to be issued sometime in calendar year 2014.

The draft permit proposes one major change to the Fecal Coliform limit requirements. In the proposed change, the instantaneous maximum concentration for the fecal coliform shall continue to not exceed 1,000 fecal coliforms per 100 milliliters. However, the instantaneous maximum exception that is currently allowed in 10% of the samples, will not be permitted during the months of May through September, and will be allowed only during the remaining months. The water department is currently in negotiations with the PaDEP on the permit requirements.

Current NPDES permit limitations are included in Table IV-2. Key components of the permits and several of the more significant changes that have been negotiated with these permits are summarized below. Future permit considerations may include limits on dissolved oxygen and

nutrients but modifications or additions for these parameters are not anticipated by the Water Department in the next permit cycle.

The NPDES permit is comprised of three major components: Parts A, B and C. Part A regulates the effluent discharges for each plant and provides for monitoring, record keeping, and reporting requirements. Table IV-2 details the key effluent discharge limitations established in the permits. Additionally, Part A outlines monitoring requirements for the plant's stormwater outfall system (each plant has its own stormwater system), which were formerly part of a separate permit. Part A also lists all combined sewer outfalls that are tributary to each of the wastewater treatment plants. Specific limitations and programs for the combined sewer outfalls are detailed in the other sections of the permit.

Part A of the permits includes the plant's stormwater outfall system as a part of the permitted facilities. Every stormwater outfall at the WPCPs must be monitored for select parameters on an annual basis. The Water Department, in compliance with the requirements of the permits, developed a Preparedness, Prevention, and Contingency Plan (PPC) to assure that stormwater outfalls do not pollute the receiving waters and Best Management Practices (BMPs) are being implemented. The Water Department updates the PPC annually in concert with updates to the spill prevention plans.

Part A of the NDPES permit also includes additional fecal coliform limitations. In addition to the fecal coliform geometric mean limitation, the instantaneous maximum for the fecal coliform concentration shall not exceed 1,000 fecal coliforms per 100 milliliters in more than 10 percent of the samples. This requirement took effect September 1, 2009 for the Northeast plant. The plant has been meeting this requirement while meeting the total residual chlorine limitation. Similar requirements have been in place since September 2007 for the Southwest and Southeast plants.

Part B of the NPDES permit outlines Management Requirements, Penalties and Liabilities and Other Responsibilities.

Table IV-2 Current NPDES Key Effluent Limitations

EFFLUENT CHARACTERISTIC	DISCHARGE LIMITATION
	(Average Monthly)
$CBOD_5$ (mg/l)	25[(1) (2)]
$CBOD_5$ (lbs/d)	36,430[(1)], 19,800[(2)]
$CBOD_{20}$ (lbs/d)	71,760[(1)], 35,830[(2)] , 33,600[(3)]
$CBOD_5$ (% removal)	86[(1)], 89.25[(2)]
$CBOD_5$ (% removal at flows > MDF)	See footnote 5
BOD_5 (mg/l)	30[(3)]
BOD_5 (lbs/d)	19,650[(3)]
BOD_5 (% removal)	86[(3)]
BOD_5 (% removal at flows > MDF)	See footnote 6
TSS (mg/l)	30[(1) (2) (3)]
TSS (lbs/d)	52,540[(1)], 50,400[(2)], 28,025[(3)]
TSS (% removal)	85[(1) (2) (3)]
TSS (% removal at flows > MDF)	See footnote 7
pH	6-9[(1) (2) (3)]
Fecal Coliform	200/100 ml[(4)]
Total Residual Chlorine (mg/l)	0.5[(1) (2) (3)]
Average Monthly Flow - AMF (mgd)	monitor/report
Maximum Daily Flow – MDF (mgd)	monitor/report
Maximum Daily Flow – MDF recognized for calculating % removals at high flow day events (mgd)	315[(1)], 300[(2)], 168[(3)]

[(1)] Northeast WPCP
[(2)] Southwest WPCP
[(3)] Southeast WPCP
[(4)] Geometric mean
[(5)] If a calendar month includes one or more days where flows exceed the MDF, a value of 86 % and 89.25 % respectively at the Northeast WPCP and the Southwest WPCP may be used for those days for calculating $CBOD_5$ percent removal.
[(6)] If a calendar month includes one or more days where flows exceed the MDF, a value of 86 % at the Southeast WPCP may be used for those days for calculating BOD_5 percent removal.
[(7)] If a calendar month includes one or more days where flows exceed the MDF, a value of 85% may be used for those days for calculating TSS percent removal.

mg/l milligrams per liter
ppd pounds per day
mgd million gallons per day
$CBOD_5$ Carbonaceous Biological Oxygen Demand (five day)
BOD_5 Biochemical Oxygen Demand (five day)
TSS Total Suspended Solids
AMF Average Monthly Flow
MDF Maximum Daily Flow

Part C of the permits contains 29 "Other Requirements." Some of the key requirements are summarized as follows:

- Standard test methods are referenced for all of the parameters being monitored.
- Requirements are established for stormwater outfalls serving the wastewater plants. This section calls for the preparation of a Preparedness, Prevention and Contingency Plan (PPC) for each facility. Also, an annual comprehensive site compliance evaluation must be performed as well as the implementation of Stormwater Management Best Management Practices (BMPs).
- The schedule calls for a re-evaluation of the local limits for significant industrial users (SIUs) to be completed within one year of the permit issuance date. The Water Department re-evaluated its local limits associated with its pretreatment program and submitted to PaDEP for approval. The Water Department's current regulations reflect the approved local limits.
- The section for calculating and reporting mass loadings acknowledges the Water Department's efforts to reduce the frequency and volume of untreated sewage discharges and allows flexibility in calculating and reporting removal levels and mass loadings at the treatment plants during high flows.
- Development of an Operations and Maintenance Plan is required. Each wastewater treatment facility must update its plan whenever a significant revision to the facility occurs. The plan contains the following elements:
- Process control strategy
- Monitoring and compliance plan
- Wet weather operations strategy
- Emergency operations plan
- Preventative maintenance plan
- Emergency maintenance plan
- Solids management plan
- Each of the wastewater treatment plants already has O& M manuals and Standard Operating Procedures (SOPs) that are in total conformity with this requirement.
- A Sludge Dewatering Summary Report is required. This monthly report is to be filed along with the Discharge Monitoring Reports (DMRs).
- A Polychlorinated Biphenyls (PCBs) Requirements Plan is required to be prepared. The Water Department has previously prepared, and the Delaware River Basin Commission (DRBC) has accepted, a Pollution Minimization Plan (PMP) related to PCBs. The Water Department updates this plan annually.
- Development of a CSO Program is required. This section details a comprehensive program to minimize combined sewer overflows and has three components:
- Implementation of the Nine Minimum Controls

- Implementation of the Long Term CSO Control Plan
- Monitoring and Assessment

The details and schedules for all components of the CSO Program are documented in the June 1, 2011 COA that is discussed above. The requirements of the COA will be included in the NPDES permits when they are renewed in 2014.

2. Municipal Separate Storm Sewer System Permit

PaDEP has the authority to regulate municipal stormwater through the NPDES Municipal Separate Storm Sewer System (MS4) program. The Water Department's previous permit was issued in September 2005 and expired in September 2010. The Water Department submitted a renewal application in March 2010, as is required, and continues to operate under the old permit until PaDEP issues a new one. The Water Department submitted a draft permit to the PaDEP for consideration in early 2013. The Water Department seeks significant modifications to the permit to allow them to focus more on techniques that will provide measurable water quality improvements. They anticipate the first meeting with PaDEP to occur in fall 2013. With both permits up for renewal, the Water Department is hopeful that the issuance and expiration dates for the new NPDES permits for the plant and the MS4 will coincide to facilitate overall watershed planning and reporting.

Sections of the Water Department's expired permit include:

- Sediment Total Maximum Daily Load (TMDL) for Wissahickon Creek
- Pollutant Minimization Plan (PMP) for Polychlorinated Biphenyls (PCBs) in the City's Municipal Separate Storm Sewer System (MS4)
- Stormwater Management Program
- Source Identification
- Discharge Management, Characterization, and Watershed-based Assessment and Management Program for three watersheds (Pennypack, Poquessing and Wissahickon)
- Detection, Investigation, and Abatement of Illicit Connections and Improper Disposal
- Monitoring and Control Pollutants from Industrial Sources
- Monitoring and Control Stormwater from Construction Activities
- Best Management Practices (BMPs)

3. Title V Major Source Operating Permits

As amended, the Federal Clean Air Act (the "Clean Air Act," CAA) sets forth requirements for the regulation of certain air emissions. In January 1994, the PaDEP published regulations pursuant to the Clean Air Act's mandates for the control of Volatile Organic Compounds (VOC) and NOx emissions from major stationary sources. These regulations required, in part, that all sources of VOC and NOx quantify their emissions. The three WPCPs are sources of VOCs and NOx.

The Title V permits require bi-annual reporting for NOx and VOC emissions. Section C, Facility Wide Requirement of the Title V permits, also contains requirements regarding odor emissions. Any

detection of a malodorous air contaminant outside the facility property line must be reported. Permit requirements consist of monitoring and reporting. No limitations are stipulated.

In June 2001, Title V Major Source Operating Permits were issued for the Northeast WPCP and the combined site of the Southwest WPCP and the BRC. The Northeast WPCP Title V consent order agreement is complete and addresses the odor issues from the facility by requiring the installation of gravity thickeners and related odor control by 2018. There is a separate Title V Major Source Operating Permit for the new Combined Heat and Power Facility that is under negotiation at this time. The permit for the Southwest WPCP has been administratively continued while a new permit is being negotiated with the City Health Department's Air Management Services (AMS). PBS has received a new separate permit for the BRC, which is held by Synagro. With the removal of the BRC from its permit, the Water Department anticipates that the Southwest WPCP may be eligible to be permitted as a minor facility and thereby no longer subject to Title V. The Southeast WPCP is considered a minor source and does not have a Title V permit and continues to hold that status.

Since 2008, no odor violations have been reported at the Northeast WPCP, Southeast WPCP, or Southwest WPCP.

F. ENERGY INITIATIVES

The Water Department is committed to achieving energy efficiency in all of its operations, particularly in light of a series of internal and external factors that include: the January 2011 deregulation of power utilities in Pennsylvania; volatile energy markets, global and industry-wide emphasis on energy reduction and carbon footprint analysis; the potential for energy intensive pumping or treatment requirements in the future; and the City's Greenworks Philadelphia Plan which calls for reductions in energy consumption and greenhouse gas emissions, along with increased energy independence. Previous or ongoing efforts in energy conservation and optimization include: optimization of pumping strategies; multiple efforts to utilize co-generation facilities; and implementation of lighting system evaluations and upgrades.

In fiscal year 2010 the Water Department adopted a Utility-Wide Strategic Energy Plan (Energy Plan). The Energy Plan included rate projections in light of the then anticipated deregulation, energy inventories and conservation management strategies, and preliminary evaluations of various renewable energy sources. In the process of developing the Energy Plan, the Water Department established an organizational structure to ensure that it would be adopted and implemented at all levels, from senior management to the technical staff and trades. This included an Executive Management Team, Energy Management Team, and Energy Champion. The Energy Plan calls for energy independence at the wastewater plants, management and control of energy usage, and triple bottom line analyses to integrate energy consumption into planning decisions.

The Water Department continues to implement the Energy Plan by implementing energy conservation measures, developing renewable energy sources, and pursuing strategic energy purchasing opportunities. The Water Department has a variety of energy-related projects in various stages of investigation, development, and implementation, including the following:

- Construction of a 5.6 megawatt digester gas cogeneration facility is in progress at the Northeast WPCP and on schedule to be mechanically complete in September 2013 and substantially complete by the end of calendar year 2013. The facility is expected to generate

44 megawatt hours per year, which accounts for 80% of the WPCP's total power consumption.

- The Water Department installed geothermal technology at the Southeast WPCP in February 2012 as a pilot test. The test and system proved successful with the geothermal unit producing enough heat to heat the compressor building. This could save the Water Department $11,000 annually. A detailed cost estimate and scale-up analysis will be conducted after the 2012 to 2013 heating season.
- At the Southeast WPCP, the Water Department's photovoltaic solar system continues to generate approximately 300,000 kilowatt hours of AC power per year.
- Efforts to enhance digester gas production at all WPCPs include the addition of aircraft de-icer fluid from the Philadelphia International Airport directly into the anaerobic digesters at the Southwest WPCP; a pilot evaluation of the OpenCEL® system that reduces digester solids and increases methane generation; and a two-phase feasibility study on the addition of food waste to the anaerobic digesters at the Southwest WPCP.
- The Water Department is leading the Water Environment Research Foundation project ENER1C12–Energy Balance and Reduction Opportunities, Case Studies of Energy-Neutral Wastewater Facilities and Triple Bottom Line (TBL) Research Planning Support. The purpose is to investigate energy efficiency and production opportunities that achieve energy neutral wastewater treatment. The Northeast WPCP and onsite Cogeneration Facility will be featured as one of the energy neutrality case studies.

Other areas where the Water Department is exploring the feasibility of energy alternatives include: geothermal wells, hydroelectric, hydrokinetic and other enhanced gas production pathways.

G. WATER POLLUTION CONTROL PLANTS OVERALL PERFORMANCE

The three WPCPs have maintained high levels of treatment such that they have been recognized by the National Association of Clean Water Agencies (NACWA), formerly the Association of Metropolitan Sewerage Agencies (AMSA), with either Silver, Gold, or Platinum awards over the past decade. The Northeast and Southeast WPCPs met all permit requirements in calendar years 2011 and 2012 and received NACWA platinum awards. This platinum award is given to facilities that are in perfect compliance with NPDES requirements for five consecutive calendar years. The Northeast and Southeast WPCPs are working toward their 9th and 14th platinum awards, respectively. In calendar year 2010, the Southwest WPCP exceeded its $CBOD_{20}$ loading limitation which removed it from consideration for an award. Southwest received the NACWA gold award for 100 percent NPDES permit compliance in calendar years 2011 and 2012.

H. NORTHEAST WPCP

1. Service Area

The Northeast plant serves northeast Philadelphia and suburban areas in southeast Bucks and eastern Montgomery counties.

2. Capacity and Performance

The plant is sized for a design average flow of 210 mgd and a peak flow of 435 mgd. The peak flow of 435 mgd represents an increase of 15 mgd since 2011 and is the result of the removal of hydraulic bottlenecks within the primary treatment process piping. As indicated in the NPDES permit, specific projects are detailed to further increase the capture and treatment of combined sewage flows. The NPDES permit for each WPCP required the CSO Long Term Control Plan (LTCP) to be updated by September 1, 2009. Through the Green City, Clean Waters program associated with the LTCPU (see above), a commitment has been made to expand the capacity of the Northeast WPCP to include a 215 mgd secondary treatment by-pass to allow for the better capture and treatment of combined sewage during wet weather events. Design is complete on the project, and it is expected to be bid during the Fall of 2013.

During fiscal year 2012, the plant treated an average flow of approximately 186 mgd. Plant performance is normally well below permit limits. Effluent concentrations are typically at or below 10 mg/l for $CBOD_5$ and TSS. Total Residual Chlorine (TRC) levels are also below permit requirements.

3. Liquid Stream Process

The facility consists of a preliminary treatment building (PTB) providing screening, influent pumping and grit removal; primary clarifiers; aeration basins; final clarifiers; and disinfection.

Residuals from the Baxter Water Treatment plant are discharged to the Northeast plant. The characteristics of these residuals reduce available phosphorous for the activated sludge process. The plant has the ability to add phosphoric acid (to assure proper nutrient levels), and added phosphoric acid in 2012. Key activities or improvements to the liquid stream process that have recently been made or are currently in progress include the following:

Projects recently completed:

- Modifications to Set 2 at Final Sedimentation Tanks (FST)
- New Conduits from PTB to Set 1 Primary Tanks

Projects either planned or ongoing:

- Under Construction:
  - Replacement of Hydrogritters
  - Frankfurt High Level Lining Project
- In Design Process:
  - New Preliminary Treatment Facility
  - New Secondary By-Pass Conduit from Set 1 to Effluent Conduit
- Planned for Future Implementation:
  - Overhaul influent pumps–ongoing routine maintenance

4. Sludge Stream Process

Sludge treatment is provided by dissolved air flotation (DAF), thickening of waste activated sludge (WAS), and anaerobic digestion of combined primary and thickened waste activated sludge. Digested sludge is delivered by gravity to two transfer tanks. Approximately once daily, the sludge from these tanks is discharged to barges and transported to the BRC for final processing. PBS

operation of the BRC has been smooth and has not impacted the solids handling and transporting conducted by the Northeast WPCP. Key activities or improvements to the sludge stream process that have recently been made or are currently in progress include the following:

Projects either planned or ongoing include:

- Under Construction:
  - New Combined Heat and Power facility
  - Replacement of FST Set 1 Return Sludge Piping
- In Project Controls Pending Bid:
  - Construction of New Gravity Sludge Thickeners

5. Facility and Utility Maintenance Projects

In addition to the liquid stream and sludge stream projects listed above, key facility and utility maintenance projects are listed below:

Projects recently completed:

- Demolition of Abandoned Digesters
- Rehabilitation of Grit Channel Aeration

Projects either planned or ongoing:

- Under Construction:
  - Installation of Plant 15 KV Primary Switchgear
- In Project Controls Pending Bid:
  - Installation of High Efficiency Lighting
  - Rehabilitation of Biogas Condensate Vaults and Replacement of Biogas Meters
  - Replacement of Process Air Blower Valves and Actuators
  - Painting of Aeration Tanks Process Air Headers
  - Rehabilitation of the Plant Water System
  - Replacement of Aeration Tank High Voltage Switchgear
  - Replacement of Existing 480V Switchgear on Set 2 FST
  - Replacement Emergency Lighting Throughout the Plant
- In Design Process:
  - Upgrades to FST Set 1 Scum Collection Controls
  - Automation of Final Tank Scum Removal
- Planned for Future Implementation:
  - Acquisition of properties for Plant Expansion

6. Operation and Maintenance

A process computer system is currently used for monitoring certain plant processes and for computing various process trends. The following unit processes are automated: raw influent pumps, bar screen rakes and conveyors, influent flow splitting to the primary settling tanks, scum gates, dissolved oxygen and air flow controls for the aeration tanks, return sludge system components, hypochlorite disinfection, digester feeding, and DAF thickening system. Future plans call for the automation of final settling tank scum collection. Operators are assigned responsibility for key plant facilities with dedicated operator stations. The stations are equipped with computer

monitors which assist the operator in making process control decisions. Upgrades have made process and lab data more available via web-based reporting, and trending and analysis of data has been greatly enhanced. An on-site process control laboratory is also used to check and optimize plant operation.

Maintenance management is facilitated by the MAXIMO® CMMS. This Computerized Maintenance Management system (CMMS) is a Water Department-wide system that is primarily used by the treatment plants (both water and wastewater) and the pumping stations for planning and tracking maintenance. This program is used to organize all plant maintenance activities and to help staff emphasize predictive and preventive maintenance. Currently, planned maintenance accounts for approximately 75 percent of all the work orders.

The status of plant tankage, conduits, buildings, and structures is tracked through the Capital Facilities Assessment Plan (CFAP). The CFAP identifies critical assets within the plant that need to undergo detailed inspection. Assets are cataloged, and inspections are programmed over a ten year period. The MAXIMO® system is used to generate inspection work orders. Results of facility inspections are used in the capital planning process.

The Northeast WPCP is operated seven days per week with three daily operating shifts. Approximately 109 (132 authorized) total staff, including administrative, operations, and maintenance personnel are employed at the Northeast WPCP. There are three certified operators. Currently, there are 23 vacant positions. Vacancies in the instrumentation series are considered the most critical. The plant participated in a Water Department-wide apprenticeship program and hired three interns that completed the program. Plant staff believes that participation in the apprenticeship program helped attract talented and skilled trade professionals.

Other significant Operation and Maintenance programs include:

- The chlorine minimization program continues. Management believes this program has resulted in both cost savings and water quality benefits.
- Staff is being trained to obtain commercial driver's licenses (CDLs).
- Northeast WPCP participates in load shedding program with the local utility provider, PECO, providing an estimated cost savings between $40,000 and $50,000 per year.
- Northeast WPCP will begin generating 5.6 MW of power by the end of fiscal year 2014.

7. Odor Issues

The Water Department continues its long standing commitment to managing odor emissions at the Northeast WPCP. Odor violations by calendar year are presented in Table IV-3. As can be seen, there have been no violations in the last four years.

Table IV-3 Odor Violations

CALENDAR YEAR	2009	2010	2011	2012
Violations	0	0	0	0

The reduction in odor violations has occurred as the Water Department has strengthened its odor minimization program. Some highlights of the Water Department's program include taking a more proactive approach to minimizing odors, addressing any potential odor-causing issues in a timely manner, and maintaining a good rapport with the neighboring community and AMS staff. To further reduce odor sources, capital facilities will be built to allow for continual pumping and thickening of the primary sludge. This project will help to eliminate a potential odor source and provide a more uniform feed to the digesters.

8. Cogeneration System

As mentioned above in the Energy Initiatives Section, a new cogeneration facility has been designed to produce approximately 5.6 MW of electricity utilizing digester gas as a fuel source. The project is in construction and on schedule to be mechanically complete in September 2013 and substantially complete by the end of calendar year 2013. A previous cogeneration facility for the Northeast WPCP was shut down in fiscal year 2008 after it was abandoned by the operator.

I. SOUTHEAST WPCP

1. Service Area

The Southeast WPCP service area includes the eastern portion of Center City, the eastern portion of South Philadelphia, a portion of North Philadelphia, the majority of Kensington/Richmond, and the central portion of Germantown/Chestnut Hill. The Philadelphia Naval Base and a small portion of Springfield Township in Montgomery County are also served by the Southeast WPCP.

2. Capacity and Performance

The plant provides treatment for an average annual design flow of 112 mgd and a peak flow of 224 mgd. The average daily flow to the plant in fiscal year 2012 was 75 mgd (due to construction in the collection system that diverted flow to the Southwest WPCP). The NPDES permit for each WPCP required the CSO Long Term Control Plan (LTCP) to be updated by September 1, 2009. Through the Green City, Clean Waters program associated with the LTCPU, a commitment has been made to expand the wet weather capacity of the Southeast WPCP by 50 mgd through process and hydraulic improvements in the plant and collection system. This effort will review bottlenecks within the plant related to the aeration tanks and the secondary clarifier weirs and will allow for better capture and treatment of combined sewage during wet weather events.

The Southeast WPCP meets or exceeds NPDES requirements as evidenced by its award winning performance that is mentioned above. Effluent concentrations of less than 10 mg/1 for BOD and TSS are consistently achieved. Total residual chlorine levels are also below permit requirements. In fiscal years 2011 and 2012, there were no odor complaints.

3. Liquid Stream Process

Liquid stream processes of the plant facilities include: influent pumping, bar screens, grit removal, pre-aeration, primary clarifiers, air activated sludge process in covered aeration basins, final clarifiers, chlorination, and effluent pumping. Screenings, scum, and grit that are removed from the process are trucked to the Southwest WPCP for processing and ultimate disposal to a landfill.

Since 1996, reduced secondary system organic loadings have allowed plant staff to operate the secondary system without the original cryogenic oxygen generation facility. The system is now operated in an air activated sludge mode, using the mechanical aerators and blowers for aeration. The cryogenic oxygen facility is no longer in service.

Residuals from the Queen Lane Water Treatment plant are discharged to the Southeast plant. The characteristics of these residuals reduce available phosphorous for the activated sludge process. Therefore, phosphoric acid is added to assure proper nutrient levels are maintained.

4. Sludge and Scum Stream Process

Primary sludge is pumped to a wet well in the sludge pumping station by pumps located in sumps at the primary clarifiers. Waste activated sludge is pumped to sludge storage tanks. Separate sludge transfer pumping systems are provided for primary and waste activated sludge. Both systems are located in the pump room of the sludge pumping station, and two eight-inch force mains convey the sludge to the Southwest WPCP for processing.

Scum and grease from the primary and secondary clarifiers are pumped to scum concentration tanks. The scum is collected and trucked to the Southwest WPCP for separate processing and ultimate disposal to a landfill.

Projects either planned or ongoing in this area of the facility include:

- In Construction
  - Replace Sludge Grinders / PST Sludge Pumps
  - Replacement of Waste Activated Sludge Pumps and Primary Sludge Pumps
- In Project Controls Pending Bid:
  - Scum Concentration Building Modifications
- In Design Process:
  - Rehabilitate or Replace Sludge Force Main (portion under the river)
  - Modify Scum Transport from Concentration Building

5. Facility and Utility Maintenance Projects

In addition to the liquid stream and sludge stream projects mentioned above, projects recently completed, ongoing or planned at the Southeast plant include the following:

Projects recently completed:

- Renew Low Voltage Switchgear Access Buildings 5 & 6
- Repairs to Chlorine Mixing Chamber and New Mixers
- Overhaul of an additional 4 aeration mixer units (32 total units, 28 already rebuilt)

Projects either planned or ongoing:

- Under Construction:
  - Replacement of the Influent Bar Racks
  - Replacement of Doors Throughout the Plant
  - Overhaul of final 4 aeration mixer units
- In Project Controls Pending Bid:
  - Rehabilitation of the HVAC System Throughout the Plant-Phase II

  - Replacement of Flights and Chains in the Final Tanks
  - Roof Replacement Administration and Maintenance Building
- In Design Process:
  - Repaving of Roads and Installation of "Green" Parking Lots
  - Final Tank Concrete Repair
- Planned for Future Implementation:
  - Replacement of Railings Throughout the Plant
  - Replacement of Existing Perimeter Fencing

6. Operation and Maintenance

The plant operates continuously and has an authorized staffing level of 68, including four certified operators. There are seven staff vacancies. Control of the plant is performed through the Process Control Center (PCC). The PCC houses a digital computer and operator interface equipment. The PCC operator has unit process CRT graphic displays available at the Central Computer Console. The computer can control the influent and effluent pumping stations, primary sludge pumping, final clarifier scum collection, return and waste activated sludge and disinfection systems.

Maintenance management is facilitated by the MAXIMO® CMMS. Planned maintenance work is averaging 90 percent of the total maintenance work orders. Major equipment uptime is greater than 90 percent. The Southeast WPCP has a predictive maintenance program that includes equipment vibration testing, oil analysis, and infrared testing of electrical equipment.

The status of plant tankage, conduits, buildings and structures is tracked through the Capital Facilities Assessment Plan (CFAP). The CFAP identifies critical assets within the plant that need to undergo detailed inspection. Assets are cataloged, and inspections are programmed over a ten year period. The MAXIMO® system is used to generate inspection work orders and results of facility inspections are used in the capital planning process. Recently the mixed liquor channels were drained and inspected and no concrete damage was noted.

A number of programs have been instituted which have resulted in cost savings. Highlights of these modifications include:

- Energy Management initiatives such as off-peak operation and energy efficient lighting continue to save energy.
- Installation of Solar Photovoltaic Energy System.
- Raised influent operating level of sewer to reduce pumping costs.
- Online analyzers for return activated sludge and mixed liquor suspended solids allow for more precise process control and reduction of chemicals.
- Pilot program for heat exchangers with mixed liquor for heat recovery. Pilot has been running.

J. SOUTHWEST WPCP

1. Service Area

The Southwest WPCP serves the western portions of Philadelphia and areas in eastern Delaware and southeastern Montgomery counties.

2. Capacity and Performance

The Southwest WPCP was designed to handle an average annual flow of 200 mgd and a peak flow of 400 mgd. Future plans call for the treatment of more flow during storm conditions. In order to accept more flows beyond 400 mgd, a variety of hydraulic bottlenecks will need to be eliminated. The limiting hydraulic factors include conduits linking the primary clarifiers to the aeration basins, influent pumping station, and the plant effluent conduit. Through the Green City, Clean Waters program associated with the LTCPU, a commitment has been made to expand the secondary treatment capacity of the Southwest WPCP by addressing bottlenecks in the collection system and within the plant to increase delivery and treatment of combined sewage during wet weather events.

During fiscal year 2011, the plant treated an average of 182 mgd (due to flow diverted from the Southeast WPCP for collection system construction). Plant performance is well below permit limits with effluent concentrations consistently below 10 mg/l for CBOD and TSS. Total Residual Chlorine (TRC) levels are also below permit requirements. In fiscal years 2011 and 2012, the plant had no odor violations. The plant continues to be proactive in anticipating and addressing challenges. For example, a pilot study is currently being evaluated to address the impact on the treatment process of side stream loadings from the solids processing centrate stream in anticipation of potentially more stringent nutrient limits. There were no effluent violations in FY 2011 or FY 2012. The plant has achieved two NACWA Gold Awards.

3. Liquid Stream Process

The plant liquid stream processes include influent pumping, screening, grit removal, pre-aeration/flocculation, primary clarification, secondary treatment using pure oxygen activated sludge, secondary clarification, effluent pumping, and disinfection.

The Southwest WPCP also receives water plant residuals from the Belmont facility and is the only plant to receive septage. The septage receiving program is monitored by the on-site laboratory and the Industrial Waste Unit.

Since 2010, the Water Department has implemented numerous upgrades and improvements to the Southwest WPCP. Key projects that are currently in progress, or are planned include the following:

Projects either planned or ongoing:

- In Project Controls Pending Bid:
  - Installation of a Sluice Gate at Effluent Pumping Station
  - BioMix Large Bubble Mixing system for flocculation tanks and mixed liquor channels
  - Replace Influent Screw Pumps
- In Design Process:
  - Installation of Sixth Effluent Pump

- Planned for Future Implementation:
  - Centrate Side Stream Treatment Project

4. Sludge Stream Process

Waste activated sludge (WAS) from the Southwest plant is combined with WAS from the Southeast plant in mixing Chamber No. 1 and sent to the dissolved air flotation (DAF) tanks for thickening. The DAF thickened WAS is combined with primary sludge from both the Southwest and Southeast plants in Mixing Chamber No. 2. From there, the blended sludge is delivered to the digesters. After digestion, the sludge overflows into a sump where it is pumped to the BRC for final processing.

Projects planned for future implementation:

- In Design Process:
  - Rehabilitation of Dissolved Air Flotation Tanks
- Planned for Future Implementation:
  - Replacement of Return Sludge Piping

5. Facility and Utility Maintenance Projects

In addition to the liquid stream and sludge stream projects mentioned above, projects recently completed, ongoing or planned at the Southeast plant include the following:

Projects recently completed:

- Rehabilitate Waste Gas Burner System

Projects either planned or ongoing:

- Under Construction:
  - Replace switchgear in PTB and Compressor Buildings
- In Project Controls Pending Bid:
  - Replace Roofing North and South Digester Buildings
  - Gallery Tunnel/Inspect/Repair/Paint
  - Concrete Repairs and Coating of Aeration Tanks
  - Replace Elevator in PTB
  - Coating of Final Sedimentation Tank Interiors
  - Pave Roadways and install "Green" parking lot
- In Design Process:
  - Installation of High Efficiency Lighting
  - Replacement and Automation of PST Scum Gate Actuators
- Planned for Future Implementation:
  - Replace Building Drain Lines
  - Replace Switchgear in Influent Pump Station (IPS), Effluent Pump Station (EPS), Access Buildings, and Scum Building
  - Replace Maintenance Building Boilers
  - New Truck Scale Facility
  - Reline Hypochlorite Tank

6. Operation and Maintenance

The plant is continuously operated seven days per week. Approximately 128 total staff, including administrative, operations, and maintenance personnel are employed at the Southwest facility, including five certified operators. Currently, there are 13 vacant positions; however, all shift positions are filled, and there are no critical vacancies.

Main control of the plant is performed by the operating staff. Operators are assigned responsibility for key plant facilities with dedicated operator stations. The stations are equipped with computer monitors to assist the operators in making decisions regarding process control. The process control computer system has been upgraded. The system monitors all unit processes and currently controls the following operational parameters:

- Aeration tank oxygen feed
- Return sludge pumping
- Activated sludge wasting
- Secondary scum collection
- Effluent hypochlorite dosing
- Effluent pumping station
- Digester tank feeding
- Dissolved air flotation thickening
- Primary sludge pumping

Future unit processes to be automated will also include the primary scum collection. An on-site process control laboratory is used to check operating parameters. The process engineering staff analyzes data, determines operating set points, and establishes operating procedures.

The NPDES permit held by the Southwest WPCP calls for the development and updating of the Operations and Maintenance Plan, which must include standard operating procedures (SOPs). The plan and the SOPs have undergone review and modifications during fiscal year 2012.

Maintenance management is facilitated by the computer program MAXIMO® CMMS. Planned maintenance work is averaging 90 percent of the total maintenance work orders. Major equipment uptime is greater than 90 percent. The plant has a predictive maintenance program that includes equipment vibration testing, oil analysis, and infrared testing of electrical equipment.

The status of plant tankage, conduits, buildings, and structures is tracked through the Capital Facilities Assessment Plan (CFAP). The CFAP identifies critical assets within the plant that need to undergo detailed inspection. Assets are cataloged, and inspections are programmed over a ten year period. The MAXIMO® system is used to generate inspection work orders and results of facility inspections are used in the capital planning process

In addition to maintenance efforts, plant staff has made changes to increase plant efficiency and has continued energy reduction and other cost saving initiatives. Examples of their efforts include:

- Better utilization of digester gas has allowed the 22 building campus to be heated with only digester gas. No fuel oil is utilized.

- The facility has a 1.0 megawatt load shed agreement with PECO. The agreement has been utilized and treatment standards were not compromised. Annual savings are approximately $50,000.
- The operating levels of the Effluent Pumping Station were raised to increase the efficiency of the pumps and reduce pumping requirements.
- Installation of high efficiency lighting is planned.
- Plant staff believes the oxygen generation equipment is currently oversized and is reviewing approaches to optimize the use of the oxygen that is produced.
- Increasing digester gas production by allowing airport de-icer to be fed directly to the mix chambers leading to the digesters.
- Procurement and use of a special chopper pump to facilitate digester cleaning to reduce contract costs and return centrate.
- Starting in May 2012, digester gas is utilized by Synagro for drying. Approximately 40% to 50% of digester gas is being used, which has minimized flaring. Dryers can utilize up to a 50:50 blend of natural gas and digester gas.
- The Installation of a large bubble mixing to reduce power consumption, which will eliminate the use of a 300 Hp compressor.

7. Digester gas utilization

In fiscal year 2008, the cogeneration facilities at the Southwest WPCP were shut down. The usage of fuel oil in plant boilers has been eliminated due to the successful use of digester gas to heat the 22 building campus. Some excess gas is used by Synagro at BRC, but the process of flaring excess gas is still necessary.

K. BIOSOLIDS RECYCLING CENTER

Philadelphia terminated the ocean disposal of biosolids in 1980. The City constructed a centralized biosolids dewatering and composting facility to handle the biosolids processing requirements associated with all three treatment plants. The BRC, formerly known as the Sludge Processing and Distribution Center, was completed in 1989. In 2008 the Water Department privatized the operation of the BRC to Synagro through the PBS company. Under a 20-year contract with the Water Department, PBS leased a portion of the property for the purpose of building a Class A thermal drying facility and assumed responsibility for the operation of the existing facility until the new facility was operational. The new facilities were fully operational and producing Class A pelletized biosolids in February 2012. Pellets are being applied in Pennsylvania, Maryland, Virginia and Florida and are used as an energy source and material for concrete production. With completion of the new facility, PBS has assumed responsibility for all regulatory requirements and permits.

PBS continues to meet or exceed all contractual requirements and monetary targets. The venture is viewed as a success by Water Department management. The Water Department maintains an engineer that monitors PBS performance and compliance with the contract. A high-level meeting is conducted every month as a means for exchanging information and discussing issues associated

with the BRC. The transition of management and operation of the BRC to a private entity was smooth with no impact on the operation of the Water Department's WPCPs.

1. Recent Declaration of Bankruptcy by Synagro Technologies, Inc

On April 24, 2013, Synagro filed for bankruptcy protection under Chapter 11 of the United States Bankruptcy Code with a plan to sell certain of its subsidiaries. The filing was made with the bankruptcy court in Delaware and is docketed as Case No. 13-11041-BLS. The bankruptcy excludes Synagro project companies in Philadelphia involved in the operation of the BRC. The BRC project companies and other Synagro subsidiaries which are all special purpose entities are the subject of a proposed sale of assets to EQT Infrastructure II, LLC (EQT), a European private equity firm with experience in the biosolids business, for $455 million. Synagro expects that this sale will take place within 60 to 90 days of the bankruptcy filing.

The Water Department received notice of the bankruptcy filing and planned sale of the above described subsidiaries via letter from Synagro dated April 24, 2013. Synagro describes the bankruptcy filing as being designated to 1) re-organize its capital structure; and 2) facilitate the sale of certain project companies (including project companies noted above) to EQT. The proposed sale is not anticipated to impact operations at the Biosolids Recycling Center.

The Water Department has developed a contingency plan in the event of a service disruption, which includes both legal and practical solutions to avoid any impact on the Water Department's wastewater operations. The Water Department believes it has the ability to address any possible disruption in the biosolids treatment and disposal process. The Water Department does not believe there will be a material increase in cost should a disruption occur in the biosolids treatment and disposal process.

L. WASTEWATER COLLECTION AND PUMPING

1. Organization and Responsibility

The Wastewater Collection section of the Water Department presides over an extensive urban sewer network. The section has the operational and maintenance responsibility for the sanitary, storm, combined sewers and stormwater inlets within the City limits. The Wastewater Collection section also operates and maintains storm and sanitary pump stations and township wastewater metering chambers. In addition, the field work for many of the programs outlined in NPDES and Stormwater Permits is accomplished by the Wastewater Collection section. The section is sub-divided into three units. The units and their principal areas of responsibility are:

- Sewer Maintenance - responsible for maintenance and repair of the wastewater and stormwater collector systems (storm, sanitary, and combined sewers) as well as the Waterways Restoration Team and Defective Connections Group. The unit is also responsible for cleaning, debris removal, and relief of emergency flooding conditions for all stormwater inlets. Inlet Cleaning, previously a standalone unit, is now managed as part of Sewer Maintenance. Management believes this consolidation will result in greater efficiencies within Wastewater Collection, a larger pool of candidates from which to recruit candidates for higher level positions, and a closer designation with job levels in the Distribution Unit.

- Flow Control - operates and maintains all system pumping stations, combined sewer regulators, tide gates, rain gauges, and township metering chambers. This unit also conducts all sewer Closed Circuit Television (CCTV) inspections.
- Collector System Support - provides administrative and technical support to the other operating units.

2. Sewer Maintenance Unit

The Sewer Maintenance Unit maintains the City's network of sewers which includes all storm, sanitary, and combined sewers and the associated inlets and manholes. Responsibilities include repairs to sewers, stormwater inlets and manholes; inlet and sewer cleaning, and relieving choked sewers. The Waterways Restoration Team also resides within Sewer Maintenance. This team is responsible for general inspection, debris removal, culvert cleaning, plunge pool filling, bank stabilization, and outfall repair. In fiscal year 2012 the Waterways Restoration Team removed over 704 tons of debris from City streams.

The authorized staff level for the unit is 213 (excluding Inlet Cleaning which is discussed below). Currently, there are 29 vacancies, including critical vacancies for heavy equipment operators and brick masons. Table IV-4 contains a summary of the Sewer Maintenance Unit work order history.

Table IV-4 Sewer Maintenance Unit Work Order History

MAINTENANCE CATEGORY	FISCAL YEAR			
	2009	2010	2011	2012
Sewers and Laterals Examined	21,881	23,201	20,298	24,680*
Waterway Restoration- tons of debris removed	658	1,437	748	704
Inlets Reset and Reconstructed	12,369	11,860	8,581	8,835*

(Note: * June 2012 data was estimated)

To more effectively provide service, the Sewer Maintenance Unit was reorganized. Crew sizes have been reduced, and the number of crews has increased to 44, enabling the unit to more consistently manage their work order backlog. The reorganization has also allowed the unit to dedicate two crews full time to planned work. These crews perform proactive inspections to uncover and identify problems prior to CCTV video inspections. The inspection crews have recently further increased their diagnostic capabilities by utilizing quick view cameras. These cameras are lowered in the manhole and provide valuable information without the need for a confined space entry.

Defective Connections Group operates out of the Sewer Maintenance Unit. The Defective Lateral Detection and Abatement Program was initiated in fiscal year 1994 to ensure Water Department compliance with the NPDES Storm Water Permit. The 16 employee group performs a variety of tasks with the goal of identifying, tracking, and eliminating sanitary flow into the storm system. The number of cross connections abated since the inception of the program and in fiscal year 2012 was 1,181 and 62, respectively. It is estimated that the program has eliminated 165.9 million gallons per year of sewer flow discharged to city creeks and streams. Through June 2012 the group had tested 48,219 properties and found 1,206 illicit connections of which 1,181 have been repaired. Quarterly

and annual reports on the program are provided to the PaDEP. The Water Department Plumbing Repair Programs Unit is responsible for abating defective laterals that are detected.

In July 2010, the management of inlet cleaning was moved to the Sewer Maintenance Unit. The Inlet Cleaning Unit is primarily responsible for the inspection and cleaning of 74,430 stormwater inlets, the maintenance of inlet covers (retrieving, replacing, and locking), and for relieving choked inlet traps and outlet piping. The unit uses computerized routing to maximize crew utilization and efficiency. The Water Department recently purchased smaller inlet cleaning trucks. They anticipate that this equipment will have the dual benefit of allowing better access to smaller streets and reducing fuel consumption. Sewer Maintenance and the Inlet Cleaning Unit will likely be given some responsibilities for maintaining the Green Stormwater Infrastructure that is being installed City-wide as part of GCCW. The details and level of effort of this new role have not been determined, but Collector Systems management is participating in preliminary meetings with OOW related to defining maintenance practices and schedules.

The Inlet Cleaning Unit has an authorized staff of 108 and a current vacancy level of 17. Critical vacancies are semi-skilled laborers and heavy equipment operators. Despite these vacancies, overall performance has remained excellent. Table IV-5 contains a four-year summary of inlet cleaning. The percent planned work represents the fact that the vast majority of the work was planned or scheduled, as opposed to being reactive or emergency-type activities.

Table IV-5 Inlet Cleaning

FISCAL YEAR	INLETS CLEANED	% PLANNED WORK	RESPONSE TIME (DAYS)
2009	75,029	99	2.9
2010	72,802	96	2.7
2011	71,771	NA	2.3
2012	81,239	NA	1.6

3. Flow Control Unit

The Flow Control Unit is responsible for the operation and maintenance of the combined sewer overflow system, the remote wastewater and stormwater pumping stations, the remote odor control facilities, the wastewater metering chambers, and the rain gauge network. The unit also performs all CCTV sewer inspections and contracted seasonal operation of the Water Department's floatables removable boat. The Flow Control Unit has an authorized staff 92 and 26 current vacancies. Critical vacancies include Electronic Technicians, group leaders and Assistant Superintendents.

The Flow Control Unit is continually updating their equipment to allow for the most efficient capture of CSOs, and to provide the most accurate and up-to-date information. They are using solar power for approximately one-third of their remotely monitored stations and have updated all stations to use cellular data transmission. This reduced their transmission costs, as compared to traditional hard-wire transmission, while allowing for more frequent data transmission.

a) Combined Sewer Overflow Program

As previously mentioned, the Water Department's Office of Watersheds is responsible for the development of the GCCW Program associated with the newly signed COA. The Flow Control Unit is tasked with a significant amount of operation and maintenance activities to support GCCW.

The Flow Control Unit uses the Real Time Control (RTC) center at its Fox Street facility to control 175 CSO points in its collection system. The combined system also consists of 89 tide gates associated with CSOs, 26 storm relief structures (diversion chambers), 5 siphons, related wastewater control devices, and a city-wide remote monitoring system.

Combined systems were designed so that during dry weather all wastewater is conveyed to the sewage treatment plant. However, during certain rain events, the additional stormwater exceeds the capacity of the collection system and/or wastewater treatment plant. Therefore, during these rain events, the combined system was designed to discharge, or overflow, the excess mix of stormwater and wastewater directly to local waterways. These flow conditions can also occur during dry weather, and are referred to as dry weather overflows (DWOs). Eliminating DWOs is a key objective of GCCW.

Table IV-6 provides a four year history of DWOs, which have generally decreased and stabilized after reaching a maximum of 33 in 2005.

Table IV-6 DWO Activity

FISCAL YEAR	2006	2007	2008	2009	2010	2011	2012
Dry weather overflows	18	13	16	17	19	15	12

The Flow Control Unit has increased remote monitoring of CSOs over time. Currently, over 230 level and flow monitors are in place at 142 sites. At the end of fiscal year 2012, 99 percent of the CSO monitoring sites were operable.

b) Sewer Assessment Program

The Flow Control Unit currently has seven crews dedicated to CCTV inspection of sewers. All crews have access to the GIS system from truck mounted laptops. Crew technicians are certified through the National Association of Sewer Service Companies' (NASSCO) Pipeline Assessment Certification Program (PACP), and create a video record of each sewer segment inspected. This video contains observations regarding any sewer defects in accordance with consistent defect code standards. All inspections for the day are wirelessly downloaded from the truck onto a server. The information is tied to the GIS system and made available to Water Department staff for design, hydraulic analysis, and field troubleshooting purposes.

All new field information is reviewed monthly by the Sewer Assessment Committee and repair and replacement projects are created and prioritized. The Water Department currently focuses on identifying NASSCO level 5 (pipeline has failed or will fail within 5 years) defects for repair or replacement, however, future plans call for evaluating NASSCO level 4 (pipeline has severe defects and is likely to fail in 5 to 10 years) defects for potential preventative maintenance lining projects.

An inspection history is provided in Table IV-7. The unit inspects approximately 50 miles per year on average to satisfy the needs of various internal requests for preventative maintenance, trouble shooting, and long-term planning.

Table IV-7 Sewer Inspection Miles

FISCAL YEAR	2007	2008	2009	2010	2011	2012
CCTV Inspections	53.5	56.1	50.1	46.6	51.9	46.8

c) Wastewater/Stormwater Pumping Stations

The wastewater system includes 16 sanitary pumping stations (15 Water Department-owned and 1 owned by others but operated by the Water Department) and 3 stormwater pumping stations (1 City-owned and 2 owned by others but operated by the Water Department) that are operated and maintained by the Flow Control Unit. The wastewater pumping stations range in capacity from 0.2 mgd to 195 mgd, and the stormwater pumping stations range in capacity from 6 mgd to 832 mgd. All the pumping stations are automated and remotely monitored. Each station has an emergency standby generator. Preventive and predictive maintenance is routinely practiced, and approximately 85 percent of the maintenance work orders are planned. Main pump equipment availability averaged 99.8 percent in fiscal year 2012.

Capital projects planned for the remote pumping stations include rehabilitation of the Belfry Drive, Rennard, Linden Avenue, and Central Schuylkill wastewater pumping stations, as well as the rehabilitation of the 26th and Vare stormwater pumping station. Designs for the Linden Avenue and Central Schuylkill pumping stations are 70 percent complete. It is anticipated that Central Schuylkill pumping station will be bid in fiscal year 2014. Design for the 26th and Vare pumping station is 30 percent complete.

d) Odor Control

The Flow Control Unit operates and maintains two remote odor control facilities. Both facilities utilize a sodium hypochlorite solution to eliminate the buildup of hydrogen sulfide, thereby reducing odors and protecting the sewer structure. Facilities are remotely monitored and are routinely inspected. The dosing station located at the Queen Lane Raw Water pumping station injects the solution into the Upper Schuylkill East interceptor. The dosing station at the Totem Road pumping station injects the solution into the Bucks County force main.

e) Wastewater Metering Chambers

The Flow Control Unit maintains 56 chambers for the metering of flows from the surrounding communities. The sites are routinely inspected, and flow meter calibration is done annually. All flow signals are transmitted to the Real Time Control Center (RTC). Operational availability for these metering chambers averaged 100 percent in fiscal year 2012.

f) Rain Gauge Network

This city-wide system is operated and maintained by the Flow Control Unit. There are 24 gauges which routinely transmit data to the computer system at Fox Street. Rain gauge information is used to estimate CSO discharge volume for PaDEP reports, modeling sewer hydraulics, and analyzing storm sewer capacity. The gauges are routinely serviced and calibrated annually.

4. Collector System Support

The primary function of the Collector System Unit is to provide technical expertise to the operating units through engineering evaluations and studies. The unit investigates complex drainage and flooding problems, and also conducts hydraulic analysis of the collector system through field surveys and computer aided calculations. In addition, the Collector System Support Unit is also responsible for the management of maintenance contracts for collector system equipment. The unit has 11 positions and 4 vacancies.

The legacy data management systems previously used by various units to manage complaints and maintenance activities have been integrated into Cityworks® or will be integrated into MAXIMO®. The Inlet Cleaning Operating Information System (ICOIS) and the Sewer Maintenance Operating Information System (SMOIS) have been migrated to Cityworks®. The remote pump stations information system (PUMA) will be replaced by MAXIMO® in the future.

Capital projects related to the Collection System are listed below:

- The Venice Island Storage Tank project consists of the construction of a three million gallon tank to capture flow during large wet weather events to prevent sanitary sewer overflows during extreme wet weather events. The project was bid in May 2011 for approximately $47.0 million. Construction is substantially complete and is in the testing phase. The facility is to be fully operational in November 2013. The Water Department requested and received a COA deadline extension from May to November for project completion.
- The Frankford High-Level Sewer Lining project will rehabilitate the currently unused second barrel to the Northeast WPCP enabling conveyance of an additional 40 mgd to the treatment plant. This project is a key element in the overall expansion plan for Northeast. The project was bid in May 2013 with bids starting at $886,000. Notice to Proceed is expected to be issued in August 2013.
- Under the COA the Water Department committed to lining 14.5 miles of streamside interceptors within the Cobbs and Tacony-Frankford watersheds to address erosion and improve stream quality and aesthetics during dry weather. To achieve these improvements without compromising existing services, inspections and lining associated with this requirement are being completed under a contract managed by the Design Unit.
- The Water Department is initiating a multi-phase flood relief project in the Northern Liberties section of the City to address chronic flooding problems. The project is estimated to cost between $37 million to $40 million over the four year period. In the fall of 2013, the Water Department will begin construction on a large junction chamber, which merges flows, directs sanitary flow to the treatment plant, and discharges storm flow to the river. This portion of the project is estimated to cost between $7.5 and $8.5 million.

M. TOXICS REDUCTIONS AND CONTROL

Under the National Pollutant Discharge Elimination System, the Water Department is required to regulate industrial waste discharged to the wastewater collection system. The primary function of the Water Department's Industrial Waste Unit (IWU) is to ensure compliance with federal industrial pretreatment standards. The unit handles a wide variety of additional assignments including:

- Monitoring wastewater characteristics from townships
- Determining industrial surcharges
- Investigating spill incidents
- Managing the Water Department's hazardous chemical storage tanks compliance program
- Overseeing the sewer rental factor program
- Administering the Water Department's hazardous waste removal contracts
- Pretreatment support required for the Water Department's CSO program efforts
- Stormwater sampling services as part of the illicit connection program
- Assisting PaDEP to control storm quality from industrial activities - pertains to storm flows from industrial sites discharged to the municipal separate sewer system
- Administering the Water Department's polychlorinated biphenyl pollutant minimization plan (PCB PMP)
- Issuing septage permits
- Overseeing the groundwater discharge program (groundwater contaminated with petroleum products)
- Supervising the manhole pump out program (permits are issued to utilities to ensure pump out water is not directed to storm sewers and is not contaminated)

There are 17 positions budgeted for the unit and 2 vacancies.

The Water Department's Pretreatment Program dates from 1980. It is an EPA approved program that has grown in scope. A formal permitting system is in place that addresses federal requirements and the impacts of each industrial discharge. Significant industrial users (SIUs) are subject to local limits, which take into account their potential for adversely impacting the performance, compliance, and sludge disposal options of the Water Department's treatment plants. Significant industries are distinguished from categorical industries, the latter which are federally-identified industries in specific categories such as metal finishing and electroplating, which are subject to published federal categorical pretreatment standards. Local limits have been updated as required by the NPDES permit and incorporated into the Water Department's regulations. EPA reviewed and approved the local limits, but has required a more stringent limit with respect to sampling performed by SIUs. If an SIU now misses a single sampling event as required by its permit, it is considered a significant non-compliance (SNC) event per the Water Department's regulations. Previously, SIUs could miss a small number of sampling events before it became a SNC event. This change is substantial and the Water Department has seen a reduction in the compliance rate for SIUs that they believe is attributable to this requirement. The Water Department has issued approximately 134 final discharge permits to all categorical and significant users. The identification of SIUs is an ongoing process. Permitted industries, through their self monitoring and reporting obligations, provide the bulk of data used by the Industrial Waste Unit to ascertain compliance with effluent standards. The Industrial Waste Unit samples and inspects each permitted user at least once annually. For the most recent 6-month compliance period ending March 2013, the compliance rate was 76 percent. This is considered low compared to previous years. In fiscal year 2010, 91 percent of the categorical and

significant users were in compliance. The Water Department attributes this decrease to the more stringent sampling limits discussed previously.

IWU's pretreatment program is computerized and includes the ability to review industrial directories to identify candidate SIUs, assess the compliance status of SIUs, and generate compliance letters and public notices of violation. The Water Department provides PaDEP with an annual report on this program per its NPDES permit.

The IWU also oversees the assessment of the surcharge for wastewater that exceeds 250 mg/l BOD or 350 mg/l TSS in strength. In fiscal year 2012, over 985 samples were collected by the Industrial Waste Unit for the surcharge billing of 69 industrial customers. Surcharge revenues for the past seven years are presented in Table IV-8. Surcharge revenues for fiscal year 2013 are projected to be approximately 5.5 million dollars.

Table IV-8 Surcharge Revenues

FISCAL YEAR	SURCHARGE
2006	$4,241,421
2007	$4,521,705
2008	$4,263,678
2009	$5,798,891
2010	$4,903,436
2011	$4,933,127
2012	$5,176,040

The IWU is also responsible for permitting septage haulers that discharge wastewater at the Southwest WPCP. Only sanitary waste is accepted and all loads are sampled prior to discharge. Chemical haulers are prohibited from discharging into the sewer collection system.

The IWU also receives and processes applications for sewer rental factors (SRF). The SRF provides customers with a credit for metered water that is not discharged to the wastewater system. An example of this is a manufacturing customer that incurs water loss during its processes or where the final product includes water. Currently there are approximately 401 SRF accounts. This represents an increase as compared to the 178 SRF accounts active in 2010. The increase is attributed to better communications with the Water Revenue Bureau (WRB), including more frequent meetings and the implementation of Basis2©. Applications are received, reviewed, modified, and approved by the IWU. IWU continue to review SRF accounts to determine whether the historical conditions that resulted in the permit are still aligned with current operating conditions. This review is ongoing as the Water Department continues to request information from customers. They have adopted a policy to revoke credits if no response is received after several requests for information are made.

The IWU's responsibilities also include administration of a PCB PMP. The plan was created to address the concerns of the DRBC and meet the requirements of the Delaware River PCB TMDL. It is designed to identify sources of PCBs that could potentially enter the Water Department's

wastewater or stormwater systems. Activities under this plan include monitoring the sewer system to determine the source of PCB discharges, and assessing City parcel sites that are potential PCB sources with the goal of minimizing or eliminating PCB discharges to the wastewater or stormwater systems. Approximately 500 sites were surveyed in the last six years, and some have been identified for follow-up as they need more information or have concerns. A five-year PMP report was be submitted to PaDEP and DRBC as required. The report documented activities through the end of the NPDES permit cycle. Follow-up activities continue as the Water Department awaits the issuance of the new NPDES permit and associated PMP requirements.

The IWU also samples the separate storm sewer outfalls as part of the Water Department's defective lateral detection and abatement program. There are approximately 430 stormwater outfalls and in fiscal year 2011 approximately 157 outfalls were sampled for fecal coliform bacteria during dry weather flows. If fecal coliform is detected, a group from the Sewer Maintenance Unit attempts to locate the illicit source.

One of the most significant challenges for the IWU is responding to accidental spill incidents and dealing with the unauthorized dumping of hazardous materials into the sewer system. IWU is currently working with Operations Administration to incorporate their spill incident response dataset with Cityworks®. In fiscal year 2011, the IWU responded to approximately 182 spill incidents where it assisted with preventing the spill from entering the sewer system or mitigating the impact of any spill on the Water Department's operations. While it is impossible to prevent the unauthorized discharge of hazardous materials into the sewer system, IWU staff believes that a more concerted effort of public education may help to reduce the amount of unauthorized dumping. To this end IWU recently started distributing a periodic newsletter, "Pre-treatment Times" to their permittees. The newsletter provides regulatory updates and tips. It also lists recipients of IWUs 100% compliance award, a small incentive program which recognizes permittees for their diligence and commitment to compliance.

V. Capital Improvement Program

A. OVERVIEW

The City of Philadelphia has for many years used a formal capital programming and budgeting process in which the Water Department participates, along with all other elements of City government. Under this process, capital programs are projected forward over a six-year period and a detailed budget is adopted for the first year of the period. Both program and budget commitments are reviewed each year and modified as necessary.

The Water Department projects included in the six-year program proposed for fiscal years 2014 through 2019 involve total expenditures of $1,673,013,000 at projected fiscal year 2014 cost levels. These capital expenditures will be used to pay for the Water Department's design, construction, and administrative personnel who work on the capital programs, and for improvements related to the water, wastewater, and stormwater systems.

Beginning in the mid-1970s, the Capital Improvement Program (CIP) concentrated heavily on the upgrade and expansion of the City's three wastewater treatment plants, and the Biosolids Recycling Center. In recent years, the Water Department has refocused its energies to the areas of potable water treatment, distribution and collection system rehabilitation, implementation of the previous Long Term Control Plan (LTCP), and storm flood relief. Emphasis has also been placed on addressing the issues and complying with the requirements of the rules associated with the Safe Drinking Water Act Amendments, including the Public Health Security and Bioterrorism Preparedness and Response Act of 2002. The CIP is managed under the Project Controls section of the Engineering and Construction Division. In the coming years, the focus will be on implementing the Green City, Clean Waters (GCCW) program, including installation of green infrastructure; collector system improvements; water pollution control plant expansions; along with targeted major infrastructure improvements in the water distribution system and storage facilities.

B. FISCAL YEARS 2014-2019 CAPITAL IMPROVEMENT PROGRAM

The Water Department has initiated a comprehensive review and update of its six-year CIP for fiscal years 2014 through 2019. Incorporated within the budget for fiscal years 2014 through 2019, the Water Department anticipates spending approximately $296 million of the total $1.2 billion program contemplated under the Consent Order and Agreement (COA). Projects related to the COA, along with enhanced initiatives for flood relief and large water meter installations have resulted in significant increases in the capital budget. Using the fiscal year 2012 budget of $187M as a baseline for comparison, the $278.8M per year average annual capital expenditure of the CIP for fiscal years 2014 through 2019 is approximately 49 percent greater, excluding adjustments for inflation. Key items resulting in the increase include an additional $33M in flood relief projects in fiscal year 2017 and $100M for large water meter replacements during fiscal years 2018 through 2019. The increase in budgeted capital improvements is projected to be manageable within the current staffing and organizational structure utilized by the Water Department. In Table V-1 key capital programming areas are summarized. In the sections that follow a brief discussion of each is presented.

Table V-1 Capital Improvement Program (Fiscal Years 2014-2019)

Engineering and Administration[1]	$173,968,000
Improvements to Treatment Plants	$388,000,000
Improvements to Conveyance System	$312,385,000
Improvements to Collector System	$209,660,000
Storm Flood Relief/ CSO	$553,000,000
Vehicles	$36,000,000
Total	**$1,673,013,000**

Note:
1. Engineering and Administration costs include an allowance for inflation.

1. Engineering and Administration

This program provides for the funding of all Engineering and Administrative personnel within the Water Department who are involved with the CIP. Fringe benefits are included in the cost projection.

2. Improvements to Treatment Plants

Upcoming improvements to water and wastewater treatment facilities, pumping stations, and finished water reservoirs are included in this category. This category also includes capacity expansions to the wastewater treatment facilities as contemplated in the COA and associated Long Term Control Plan Update (LTCPU). The various improvement projects and rehabilitation/replacement projects are identified in the Water Department's planning documents. Several of the projects which are included have been identified in other chapters of this report.

3. Improvements to the Conveyance System

This category encompasses the replacement of existing water mains throughout the City. It is an ongoing project that replaces aged mains to reduce the likelihood of water main breaks. The preventive nature of this program puts the Water Department in a proactive rather than reactive posture for addressing main replacements. The Water Department has a goal of replacing approximately 22 miles of water mains (0.7 percent of all distribution mains) each year.

4. Improvements to the Collector System

The Collector System replacement program is an ongoing project and involves the replacement of old and worn out sewers, as well as the construction of new sanitary sewers to serve new or previously un-sewered developments with the objective of relieving existing unsanitary conditions. The benefits of this program include improved hydraulics by eliminating old lines with blockages, and reductions in the likelihood of street collapse. It is also preventive in nature, and generates the same type of benefits as its counterpart in water conveyance. Lastly, this category covers the conversion of old septic tank systems to public sewers, particularly in the northwestern sections of the City.

5. Storm Flood Relief/Combined Sewer Overflow (CSO)

These projects, which are ongoing, entail the construction of new storm flood relief sewers or storage tanks in flood-prone areas, stream restoration, as well as projects related to the recently signed COA and associated LTCPU. The projects that are part of the LTCPU are aimed at reducing

the amount of pollution that enters Philadelphia's rivers and streams that is equivalent to the capture of 85 percent of the CSOs under annual average conditions. These projects will consist of green infrastructure, e.g., converting impervious cover into green management areas that absorb and filter stormwater runoff, and traditional upgrades to combined sewer interceptors. The benefits of these projects include controlling excessive erosion, managing the watersheds by capturing and infiltrating or conveying stormwater, reducing combined sewer overflows, reducing unplanned sewer maintenance activity, and minimizing citizen complaints related to chronic flooding. The COA and LTCPU are specifically aimed at protecting the overall water environment in the Philadelphia area and fulfilling the Water Department's obligations under the Clean Water Act and the Pennsylvania Clean Streams Act.

6. Vehicles

Included in this line item are expenditures for the purchase of replacement vehicles utilized by the various units throughout the Water Department's operations. This excludes maintenance of vehicles, which is covered under a separate contract with Fleet Management and charged to expenses.

VI. Financial Requirements

A. OVERVIEW

An evaluation of the adequacy of revenues to meet projected revenue requirements has been made for fiscal years 2013 through 2019. Revenue projections for retail service customers are based on the schedules of rates for water and wastewater service, which were effective beginning July 1, 2012. In December 2012, the Water Commissioner rendered a rate decision based on the rate hearing process adopting three years of rate increases for fiscal year 2013 (effective January 1, 2013) through fiscal year 2015 (which will become effective July 1, 2014). Based upon the rate hearings, the Commissioner's decision provided an overall revenue increase of approximately 4.48 percent was placed into effect on January 1, 2013; an overall revenue increase of approximately 4.48 percent will be placed into effect on July 1, 2013; and an overall revenue increase of approximately 4.48 percent will be placed into effect on July 1, 2014. Projected revenue increases from these adopted increases are reflected in Lines 4 through 6 of Table V1-8.

The prior rate hearings in support of the existing rates as of July 1, 2012 included a stormwater cost reallocation which was phased in during fiscal years 2011 through 2012, and will continue for the two following fiscal years. This cost reallocation represents a revision to the stormwater fee structure to shift from a meter based fee to a parcel area based fee for non-residential customers. The stormwater rates applicable to retail customers were initially transitioned to recognize parcel area considerations during the three year period of fiscal years 2002 through 2004 based on rate hearings held in 2002. There are now adequate technological resources and an adequate billing system to fully accommodate this new parcel basis of charge for stormwater service to the non-residential customers on an individualized basis and to new stormwater only customers in the City. The revision in the stormwater fee structure was designed to be revenue neutral and is not intended to impact the projected revenues.

Beyond fiscal year 2015, additional annual operating revenue increases are projected to be necessary to meet the Water Department's projected expenses and to comply with the rate covenants of the General Ordinance. A projected statement of revenues and expenses for the seven-year study period covering fiscal years 2013 through 2019 ("Study Period") is presented in Table VI-8 which provides an indication of the adequacy of revenues and the feasibility of issuing the Bonds and future indicated revenue bond issues consistent with the requirements of the General Ordinance.

The financial data used in the analyses presented herein was obtained from the Water Department's historical audited financial statements through fiscal year 2012, the approved operating and capital budgets for fiscal year 2013, and the approved operating and capital budgets for fiscal year 2014.

The Water Department operates on a modified accrual basis of accounting. Revenues are recorded upon receipt, except revenues from other governments which are accrued as billed, and interest which is accrued as earned. Expenditures are recorded as expenses on an encumbrance basis, except debt service and lease payments which are recorded when paid.

B. EXISTING RATES AND RATE METHODOLOGY

Under the current Philadelphia Home Rule Charter, in accordance with standards ordained by City Council from time to time, the Water Department is empowered and required to establish rates for water, wastewater and stormwater service, without further authorization of the City Council, at levels which provide sufficient revenue to meet all operating expenses of the water, wastewater, and stormwater systems, including interdepartmental charges for services provided to the Water Department, and debt service requirements on all obligations issued for the Water Department, as well as other specific bond ordinance covenants.

The Water Department retained Black & Veatch in July 2012 to assist in the development of cost of service based rates for the period of fiscal years 2013 through 2015. Rates for wholesale water and wastewater service became effective July 1, 2012, and additional increases have been noticed to the wholesale customers, becoming effective at the beginning of each of the fiscal years 2014 and 2015. The initial increase in water and wastewater rates applicable to retail customers, including residential, commercial, industrial, charities and schools, the Philadelphia Housing Authority, and municipal service became effective beginning January 1, 2013, and were based in large part on the Black & Veatch studies and the results of the rate hearing process related to retail service. Subsequent increases for retail service customers were scheduled to become effective at the beginning of fiscal years 2014 and 2015.

The schedules of retail rates shown in Table VI-1 are those that were in effect as of July 1, 2012 and January 1, 2013. The rates in effect as of July 1, 2012 are the basis for the "base" level of revenue projections used in this report. The indicated additional revenues for fiscal year 2013, shown in Line 4 of Table VI-8, recognize the adopted rates in effect as of January 1, 2013, the initial year of the adopted rates from the recent rate hearing process.

In addition to the existing General Service rates presented in Table VI-1, special reduced rates (currently 75 percent of the General Service rates) are applicable to certain properties or customer groups such as charitable institutions, schools, and eligible senior citizens as prescribed by ordinance. Reduced rates are also applicable to the Philadelphia Housing Authority equal to 95 percent of the General Service rates. Charges are also established for municipal fire protection and private fire protection and for dischargers of high strength wastewater service.

Service to customers located outside the City is on a wholesale basis through contracts with various municipalities, authorities, and townships. The present bases of charges to the wholesale customers are set out in respective contracts for service to each customer. There are currently 10 wholesale wastewater customers and two wholesale water customers. The existing rates for the wholesale customers are based upon the cost of service study which Black & Veatch prepared for the Water Department in conjunction with the development of the retail rates which were the subject of the rate hearings discussed previously. The existing rates for wholesale customers became effective July 1, 2012, with additional increases approved for these customers effective July 1, 2013, and July 1, 2014. For purposes of revenue projections from wholesale customers beyond fiscal year 2014, the overall revenue increases shown on Lines 7 through 10 in Table VI-8 of this report are assumed to equally apply to both wholesale and retail customers.

Table VI-1 General Service Water and Wastewater Rates

Meter Based Monthly Service Charges

	Water		Wastewater	
Meter Size	Existing Effective July 1, 2012	Adopted Effective January 1, 2013	Existing Effective July 1, 2012	Adopted Effective January 1, 2013
Inches				
5/8	6.37	6.12	4.41	6.30
3/4	7.31	7.11	15.21	7.72
1	9.65	9.51	23.55	10.89
1-1/2	14.81	14.89	43.92	18.32
2	21.82	22.10	68.92	27.86
3	37.27	38.07	126.64	49.41
4	65.10	66.21	213.19	84.67
6	125.72	128.30	423.20	165.86
8	195.78	200.33	673.29	261.21
10	284.23	290.56	969.86	377.67
12	495.30	510.02	1,787.53	678.16

Residential Stormwater Charges

Description	Existing Effective July 1, 2012	Adopted Effective January 1, 2013
Charge Per Parcel	11.06	10.51
Billing & Collection	2.60	1.59

Non-Residential Stormwater Charges (a)

Meter Based

Meter Size	Existing Effective July 1, 2012	Adopted Effective January 1, 2013
Inches		
5/8	13.66	12.29
3/4	74.72	86.03
1	123.06	142.20
1-1/2	243.51	282.62
2	388.52	451.12
3	726.36	844.30
4	1,212.33	1,405.97
6	2,422.05	2,810.17
8	3,872.17	4,495.21
10	5,567.85	6,461.07
12	10,388.56	12,077.86

Parcel Based

Description	Units	Existing Effective July 1, 2012	Adopted Effective January 1, 2013
Min Charge		11.06	10.51
Gross Area	$/500 sf	0.528	0.500
Impervious Area	$/500 sf	4.169	4.001
Billing & Collection Charge		2.65	1.98

Quantity Charges

Water Rates		
Monthly Water Usage	Existing Effective July 1, 2012	Adopted Effective January 1, 2013
	$/Mcf	$/Mcf
First 2 Mcf	32.85	35.63
Next 98 Mcf	26.62	28.64
Next 1,900 Mcf	24.43	26.30
Over 2,000 Mcf	18.60	19.48

Wastewater Rates			
Description	Units	Existing Effective July 1, 2012	Adopted Effective January 1, 2013
All Billable Water Usage	$/Mcf	22.14	24.74
BOD in excess of 250 mg/l	$/lb	0.332	0.310
SS in excess of 350 mg/l	$/lb	0.326	0.292

Notes:

(a) Non-Residential parcel based stormwater charges are being phased in during FY 2013 and FY 2014.
FY 2013 non-residential stormwater charges are based on 25% meter based charges and 75% parcel based charges.
FY 2014 non-residential stormwater charges are based on parcel based charges only.

sf - square feet
Mcf - Thousand cubic feet
mg/l - milligrams per liter
BOD - Biochemical Oxygen Demand
SS - Suspended Solids

C. PROJECTED REVENUES UNDER EXISTING RATES

Projected operating and non-operating revenues of the Water Department are shown in Table VI-2 for fiscal years 2013 through 2019 under rate schedules for water and wastewater service for General Service customers and Contract Service customers that became effective July 1, 2012. Operating revenues of the Water Department consist of several components, which are projected separately for the water and wastewater utilities.

Operating revenues for the water and wastewater utilities include charges for water and wastewater service to several customer classes. Wastewater service revenues include revenues for both sanitary sewer and stormwater services. The General Customer group, shown on Lines 1 and 9 of Table VI-2, consists of residential, commercial, industrial, public utility accounts, senior citizens, charitable institutions, schools, and the Philadelphia Housing Authority. Projected water and wastewater gross billings have been developed by applying the existing schedules of rates to normalized projections of water sales and number of customers for respective classes based upon an analysis of historical trends. The projection of customer accounts reflects an annual increase of approximately 43 accounts, equivalent to 0.01 percent annual increase of total system accounts. The projection of water sales reflects an annual decrease of approximately 0.9 percent, which includes a 1 percent annual reduction to the sales per account associated with 5/8' meter General Customers. The decrease in the use per customer for smaller accounts has been a trend which has been fairly consistent over the past several years. Revenues under existing rate levels from General Customers, which are comprised of the above mentioned accounts, reflect an adjustment to the

projections of gross billings to anticipated cash receipts based on an analysis of historical annual billings and receipts.

Table VI-2 Projected Revenue Under Rates Effective July 1, 2012
(in thousands of dollars)

Line No.	Description	2013	2014	2015	2016	2017	2018	2019
	Operating Revenue							
	Water Operations							
1	Metered Sales to General Customers	206,564	206,195	204,651	202,944	201,227	199,503	197,780
2	Municipal Service	6,795	6,814	6,814	6,814	6,814	6,814	6,814
3	Private Fire Protection	2,057	2,057	2,057	2,057	2,057	2,057	2,057
4	Public Fire Protection	6,951	6,951	6,951	6,951	6,951	6,951	6,951
5	Contract Service	9,780	9,774	9,774	8,168	8,168	8,168	3,736
6	Subtotal Water Service Revenue	232,147	231,791	230,247	226,934	225,217	223,493	217,338
7	Other Operating Revenue	9,846	8,932	8,911	8,871	8,849	8,828	8,754
8	Total Water Operations	241,993	240,723	239,158	235,805	234,066	232,321	226,092
	Wastewater Operations							
9	Metered Sales to General Customers	282,068	280,647	279,248	277,998	276,744	275,487	274,225
10	Municipal Service	11,459	11,467	11,467	11,467	11,467	11,467	11,467
11	Contract Service	33,289	33,289	33,289	34,969	34,969	34,969	34,969
12	Excess Strength Service Charge	5,713	5,568	5,412	5,256	5,100	4,944	4,788
13	Subtotal Wastewater Service Revenue	332,529	330,971	329,416	329,690	328,280	326,867	325,449
14	Other Operating Revenue	9,293	10,773	10,748	10,724	10,699	10,675	10,650
15	Total Wastewater Operations	341,822	341,744	340,164	340,414	338,979	337,542	336,099
16	Total Operating Revenue	583,815	582,467	579,322	576,219	573,045	569,863	562,191
	Nonoperating Income							
17	Interest Income - Capital Funds (a)	833	1,134	1,366	1,390	1,569	1,565	1,517
18	Interest Income - Operating Funds (b)	1,175	1,024	968	925	899	939	1,052
19	Total Nonoperating Income	2,008	2,158	2,334	2,315	2,468	2,504	2,569
20	**Total Water Department Revenue**	**585,823**	**584,625**	**581,656**	**578,534**	**575,513**	**572,367**	**564,760**

(a) Includes interest income on the Construction Fund and Debt Service Reserve Account. Excludes deposit into Residual Fund for City General Fund. Up to $4,994,000 annually in interest income on the Debt Service Reserve Account is transferred to the City General Fund.

(b) Includes interest income on Revenue and Rate Stabilization Funds.

Revenues from Municipal Service, shown on Lines 2 and 10 of Table VI-2, are derived solely from water and wastewater service to various municipal entities within the City of Philadelphia and the provision of system facilities for public fire protection, shown on Line 4 of Table VI-2. The City of Philadelphia is the largest customer of the Water Department. The fiscal year 2013 revenues under existing rates from the City are expected to amount to approximately $25,205,000. This includes $6,951,000 in public fire protection charges. Existing schedules of charges also include a charge for private fire protection connections to the water system, the revenue from which is shown on Line 3 of Table VI-2.

Contract water service, Line 5 of Table VI-2, consists of water sales to the Bucks County Water and Sewer Authority and to Aqua Pennsylvania (formerly the Philadelphia Suburban Water Company) on a wholesale basis. Current charges for water service provided to Bucks County are assessed on a monthly basis and include an annual fixed charge to recover allocated capital costs, a commodity charge applicable to metered usage, and a demand charge per unit of measured maximum demand.

In May 2011, a new six-year contract with Bucks County was executed. This contract provides for the sale of treated water to Bucks County at a maximum rate of up to 35 million gallons per day (mgd) but does allow Bucks County to decrease its 35 mgd reserved capacity with prior notice 90 days in advance of the fiscal year. As provided in the wholesale water agreement, Bucks County Water and Sewer Authority has requested and received a 4.0 mgd reduction in their reserved contract capacity to reflect reduced sales for portions of Bucks County served by Aqua Pennsylvania. Projected sales volumes and revenues have also been reduced by 3.5 mgd to reflect the anticipated reduction in water sales as a result of the reduced contract capacity. It is anticipated that Bucks County will reduce their reserved capacity by an additional 3 mgd in fiscal year 2016 based on the elimination of the sales for portions of Bucks County served by Aqua Pennsylvania. In addition, Bucks County has indicated that it plans to discontinue the purchase of water in fiscal year 2019. Projected revenue under existing rates for fiscal years 2013 to 2015 includes $6.0 million for wholesale water service to Bucks County, which represents 1.1 percent of total revenues under existing rates. Projected revenue under existing rates for fiscal years 2016 to 2018 includes $4.4 million for wholesale water service to Bucks County, which represents 0.8 percent of total revenues under existing rates. No projected revenue under existing rates is anticipated from Bucks County in fiscal year 2019.

The charges to Aqua Pennsylvania, which commenced taking service from Philadelphia in fiscal year 2002, includes a commodity charge applicable to metered water usage for the recovery of power and chemical costs, and a fixed charge to recover all other allocable operation and maintenance expenses and capital related costs. The contract with Aqua Pennsylvania is for up to 9.5 mgd of maximum day capacity and covers a term of 25 years, ending in 2026.

Other operating revenue from the water operations shown on Line 7 of Table VI-2 consists largely of penalties on overdue bills for retail water service customers and miscellaneous other revenue.

Wholesale wastewater service is provided to 10 suburban customers on a contractual basis with multi-year terms. Three wholesale customers make capital contributions to the Water Department for their allocated share of investment in treatment and collection system facilities used in providing wastewater service to the particular customer. Contract rates for wastewater service are applied on a monthly basis and generally consist of charges for operation and maintenance expense, certain capital costs associated with the collection and treatment facilities used in providing the service, and a management fee. The Water Department actively manages the wholesale service agreements to recover the costs associated with the wholesale service. Recent wholesale contract negotiation efforts include the following existing wholesale customers:

- ***Delaware County Regional Sewer Authority (DELCORA).*** A new 15-year contract was executed on April 1, 2013 as the previous contract expired in fiscal year 2013. The new contract maintained the management fee at 12%, maintained the contractual flow limits at current levels, extended the current exceedance charges for any exceedances in flows or

pollutant loadings, and provides for the recovery of a portion of the Water Department's Long Term Control Plan Update (LTCPU) costs.

- ***Cheltenham Township.*** Discussions regarding a new agreement are underway and will require that Cheltenham pay depreciation and return on investment on all new capital facilities serving them, including approximately a proportional share of the Water Department's LTCPU expenditures. The Water Department and Cheltenham Township are each evaluating the current flow and loading parameters for this agreement and will likely modify the contractual limits for this contract once the analysis is completed. Expanded capacity for Cheltenham Township will also likely result in certain improvements to the Water Department's collection system which will be recovered from Cheltenham.

- ***Springfield Township.*** Discussions regarding a new agreement are underway and will require that Springfield pay depreciation and return on investment on all new capital facilities serving them, including approximately their proportional share of the Water Department's LTCPU expenditures. The Water Department and Springfield Township are each evaluating the current flow and loading parameters for this agreement and will likely modify the contractual limits for this contract once the analysis is completed.

- ***Abington Township.*** The Water Department has notified Abington Township of the intent to terminate the current agreement. Discussions are underway regarding a new agreement which would require that Abington pay depreciation and return on investment on all new capital facilities serving them, including approximately their proportional share of the Water Department's LTCPU expenditures. The Water Department is also evaluating the current flow and loading parameters for this agreement and will likely modify the contractual limits for this contract once the analysis is completed.

Projected revenue under existing rates from wholesale wastewater customers is shown on Line 11 of Table VI-2. Projected revenues reflect the current contract capacities for Cheltenham, Springfield, and Abington Townships. The projected revenues for fiscal years 2016 to 2019 include $1.6 million of additional revenue to reflect the anticipated increased revenue associated with DECLORA's share of the Water Department's LTCPU costs.

Retail customers which contribute high strength wastewater are presently assessed an extra strength surcharge based upon monitored strength. Revenue from these customers is shown on Line 12 of Table VI-2.

Other operating revenues for the wastewater utility, shown on Line 14 of Table VI-2, include penalties on overdue bills and income from permits and licenses, and other miscellaneous sources.

Non-operating revenue of the Water Department consists of interest and other income. Interest income recognizes the requirements set forth in the General Ordinance which provides for the transfer of all interest earnings from investment of the Construction Fund, the Rate Stabilization Fund, and the Debt Reserve Account to the Revenue Fund, in addition to the interest income earned on the Revenue Fund itself. Projections of interest income for the Study Period are based on the projected average balances in these funds and are considered to be available to meet the Water Department's revenue requirements throughout the Study Period. An interest rate of 0.5 percent

has been assumed in estimating interest income on the various operating funds and accounts, and the Construction Fund. An interest rate of 0.6 percent has been assumed in estimating interest income on the Debt Reserve Account. Total non-operating interest income available to the Revenue Fund is shown on Line 19 of Table VI-2.

D. CAPITAL IMPROVEMENTS FINANCING

Table VI-3 summarizes the Water Department's Capital Improvement Program (CIP) for fiscal years 2013 through 2019 on an encumbrance basis, that is, the total cost of each project is shown in the year that design of the project is scheduled to commence.

Table VI-3 Capital Improvement Program
(in thousands of dollars)

Line No.	Description	Fiscal Year Ending June 30, 2013	2014	2015	2016	2017	2018	2019
	WATERWORKS IMPROVEMENTS							
1	Engineering and Administration (a)	11,191	12,056	12,059	12,063	12,066	12,069	12,073
2	Water Treatment Plant Improvements	26,400	26,400	26,400	29,480	29,480	29,480	29,480
3	Distribution System Rehabilitation	35,085	36,085	36,060	36,060	36,060	84,060	84,060
4	Vehicles	3,000	3,000	3,000	3,000	3,000	3,000	3,000
5	Subtotal	75,676	77,541	77,519	80,603	80,606	128,609	128,613
	WASTEWATER COLLECTION AND TREATMENT							
6	Engineering and Administration	13,137	14,152	14,156	14,160	14,165	14,169	14,173
7	Water Pollution Control Plant Improvements	33,600	33,600	33,600	37,520	37,520	37,520	37,520
8	Storm Flood Relief	68,300	72,000	75,000	75,000	107,000	112,000	112,000
9	Reconstruction of Old Sewers	34,860	34,860	34,960	34,960	34,960	34,960	34,960
10	Vehicles	3,000	3,000	3,000	3,000	3,000	3,000	3,000
11	Subtotal	152,897	157,612	160,716	164,640	196,645	201,649	201,653
12	Total Improvements (Line 5 + Line 11)	228,573	235,153	238,235	245,243	277,251	330,258	330,266
13	Inflation Adjustment (b)	0	0	9,530	20,012	34,619	56,097	71,553
14	Inflated Total	228,573	235,153	247,765	265,255	311,870	386,355	401,819

(a) Excludes allowance for inflation, which is included on Line 14.

(b) Cost estimates for fiscal years 2015 to 2019 are in terms of fiscal year 2014 cost levels. Allowance for inflation of 4.0 percent per year after 2014.

Costs shown in Table VI-3 reflect the estimated total costs of the various projects, a portion of which will be financed from Capital Account Deposits, transfers from the Residual Fund, and other non-bond sources such as assessments. Projected fiscal years 2015 through 2019 costs for the CIP are stated at estimated fiscal year 2014 cost levels based on the Water Department's preliminary fiscal year 2014 capital budget. An annual inflation allowance of 4 percent has been recognized on Line 13 of Table VI-3 beginning with fiscal year 2015.

Table VI-4 shows the total projected capital improvement costs, a net cash flow adjustment, and the annual net cash financing requirements associated with the CIP. The cash flow adjustment indicated in Table VI-4 represents the net result of carrying forward costs which are encumbered in

one year, but which do not become a cash expenditure until a subsequent year. Estimated Engineering and Administration costs are anticipated to be incurred fully during the fiscal year in which the costs are budgeted. It is anticipated that the Water Department will be able to accomplish the processing of a higher level of annual capital expenditures compared to historical levels through the Study Period in order to meet the projected timeline for the objectives set forth in its Long Term Control Plan Update.

Table VI-4 Annual Cash Capital Improvement Financing Requirement
(in thousands of dollars)

Fiscal Year Ending June 30	Total Capital Improvements	Net Cash Flow Adjustment	Net Cash Financing Required
2013	228,573	(68,899)	159,674
2014	235,153	(25,153)	210,000
2015	247,764	(13,764)	234,000
2016	265,255	(13,255)	252,000
2017	311,870	(13,870)	298,000
2018	386,355	(70,355)	316,000
2019	401,819	(65,819)	336,000

Net cash financing requirements indicated in Table VI-4 are assumed to be primarily met from future revenue bond issues, Pennvest loans, Capital Account Deposits, and transfers to the Construction Fund from the Residual Fund. Projected revenue bonds and Pennvest loans are assumed to be issued to finance a major portion of the Water Department's share of costs as the encumbrances mature into actual cash payments to contractors. The annual net cash financing required for capital improvements through fiscal year 2019 is expected to be met by the outstanding proceeds from the Water and Wastewater Revenue Bonds Series 2012 and the issuance of additional revenue bonds and Pennvest loans, including $200,000,000 from the proposed Water and Wastewater Revenue Bonds, Series 2013A Bonds; $60,825,000 from the Pennvest Loans anticipated to be received over the two year period covering fiscal years 2013 to 2014; $250,000,000 of revenue bonds anticipated to be issued in the first half of fiscal year 2015: $250,000,000 of revenue bonds anticipated to be issued in the first half of fiscal year 2016: $300,000,000 of revenue bonds anticipated to be issued in the first half of fiscal year 2017: $300,000,000 of revenue bonds anticipated to be issued in the second half of fiscal year 2018; and $260,000,000 of revenue bonds anticipated to be issued in the second half of fiscal year 2019.

Table VI-5 presents an estimate of the flow of funds in the Construction Fund of the Water Department for fiscal years 2013 through 2019. Line 1 of the table shows the total amount of the proposed revenue bond issues that are to be used to finance a portion of the Water Department's CIP. Lines 2 through 6 show the disposition of the proceeds of these revenue bond issues. Lines 8 through 19 of Table VI-5 show the estimated receipts and disposition of funds in the Construction Fund and the Debt Reserve Account. Line 10 of Table VI-5 shows the projected proceeds from the anticipated $60.825 million of Pennvest Loans. Line 11 of Table VI-5 shows the annual Capital Account Deposit into the Construction Fund. The amount of this deposit is projected to be equal to

1 percent of the net plant investment in water and wastewater facilities. Lines 12 and 17 of Table VI-5 show transfers from the Residual Fund into the Construction Fund and Debt Reserve Account, respectively. As monies begin to flow into the Residual Fund, it is assumed that one of the most prudent uses of those balances would be to finance a portion of the Water Department's CIP. Other prudent uses of Residual Fund balances could include prepayment or redemption of a portion of outstanding revenue bonds. For purposes of this report, we have shown the use of Residual Fund balances to be used as an additional source of cash financing of the Water Department's CIP and the debt service reserve requirements associated with the replacement of a $67.0 million surety policy provided by Assured Guaranty Municipal Corporation (AGM).

Lines 20 and 21 of Table VI-5 show the estimated interest earnings from the investment of the Construction Fund and the Debt Reserve Account based on respective average annual balances. As previously indicated, interest earnings rates of 0.6 percent and 0.5 percent have been assumed for the Debt Reserve Account and the Construction Fund, respectively. These interest earnings are considered as nonoperating income and are transferred to the Revenue Fund except as described below, and are used to meet annual revenue requirements of the Water Department under the General Ordinance. An amount not to exceed the lower of $4,994,000 or annual interest earnings on the Debt Reserve Account is transferred to the Residual Fund to provide the annual payment to the City General Fund, in accordance with the General Ordinance.

Table VI-5 Projected Flow of Funds - Construction Fund
(in thousands of dollars)

Line No.	Description	Fiscal Year Ending June 30, 2013	2014	2015	2016	2017	2018	2019
	Disposition of Bond Proceeds							
1	Proceeds From Sale of Bonds	83,166	200,000	250,000	250,000	300,000	300,000	260,000
	Transfers:							
2	Debt Reserve Account (a)	0	10,000	12,500	6,250	4,057		
3	Cost of Bond Issuance (b)	751	3,000	3,750	3,750	4,500	4,500	3,900
4	Refund Outstanding Bonds	82,415						
5	Construction Fund (c)	0	187,000	233,750	240,000	291,443	295,500	256,100
6	Capitalized Interest Requirement							
7	Total Issue	83,166	200,000	250,000	250,000	300,000	300,000	260,000
	Construction Fund							
8	Beginning Balance	221,392	114,092	158,288	198,899	242,769	294,104	337,531
9	Transfer From Bond Proceeds	0	187,000	233,750	240,000	291,443	295,500	256,100
10	PENNVEST Loan Proceeds	32,993	27,832	0	0	0	0	0
11	Capital Account Deposit	19,380	19,865	20,361	20,870	21,392	21,927	22,475
12	Transfer from Residual Account	0	19,500	20,500	35,000	36,500	42,000	37,900
13	Total Available	273,766	368,288	432,899	494,769	592,104	653,531	654,006
14	Net Cash Financing Required	159,674	210,000	234,000	252,000	298,000	316,000	336,000
15	Ending Balance	114,092	158,288	198,899	242,769	294,104	337,531	318,006
	Debt Service Reserve							
16	Beginning Balance	152,569	219,569	229,569	242,069	248,319	252,376	252,376
17	Transfer From Residual Fund	67,000	0	0	0	0	0	0
18	Transfer From Bond Proceeds	0	10,000	12,500	6,250	4,057		
19	Ending Balance	219,569	229,569	242,069	248,319	252,376	252,376	252,376
	Interest Income							
20	Construction Fund (d)	833	1,134	1,366	1,390	1,569	1,565	1,517
21	Debt Reserve Account (e)	1,299	1,358	1,426	1,460	1,485	1,493	1,493
22	Total Interest Income	2,132	2,492	2,792	2,850	3,054	3,058	3,010

(a) Amount of Debt Service Reserve Account deposit estimated based on maximum annual future debt service payment.

(b) Cost of FY 2014 to FY 2019 bonds issuance assumed at 1.5 percent of issue amount.

(c) Deposits equal proceeds from sale of bonds less transfers to the Debt Reserve Account and Costs of Issuance.

(d) Interest income is transferred to the Revenue Fund.

(e) Interest income is transferred to the Residual Fund in the lesser amount of $4,994,000 and actual interest earned.

E. PROJECTED REVENUE REQUIREMENTS

The annual revenue requirements of the Water Department consist of operating expenses for existing and proposed water and wastewater system facilities, including interdepartmental charges for services provided to the Water Department by other departments of the City, debt service on all obligations issued by the Water Department, projected Capital Account Deposits, and a payment to the City General Fund. In addition, revenues must be adequate to meet applicable rate covenants, as set forth in the General Ordinance.

1. Operating Expenses

Operating expenses, including interdepartmental charges, consist of all costs of the Water Department necessary and appropriate for the operation, maintenance, and administration of the water and wastewater systems during each year. Projections of operating expenses for the water and wastewater utilities for the fiscal years 2013 through 2019 are shown in Table VI-6. Projections of operating expenses include expenses such as personal services, purchased services including power, materials and supplies, equipment, fringe benefits, and indemnities.

Table VI-6 Projected Operation and Maintenance Expense
(in thousands of dollars)

Line No.	Description	Fiscal Year Ending June 30, 2013	2014	2015	2016	2017	2018	2019
	Water Operations							
1	Personal Services and Fringe Benefits	75,992	75,828	74,242	76,736	78,619	80,547	82,521
2	Purchase of Services	35,408	35,706	36,994	38,066	39,447	40,889	42,388
3	Materials and Supplies	24,898	24,791	26,529	28,408	30,445	32,646	35,031
4	Equipment	664	773	798	821	847	871	895
5	Contributions, Indemnities, Refunds and Taxes	1,892	2,285	2,285	2,285	2,285	2,285	2,285
6	Interdepartmental Charges	27,975	28,757	28,553	29,386	30,114	30,861	31,626
7	Subtotal Operating Expenses	166,829	168,140	169,401	175,702	181,757	188,099	194,746
8	Less: Liquidated Encumbrances	(8,600)	(8,600)	(8,600)	(8,600)	(8,600)	(8,600)	(8,600)
9	Operating Expenses - Water	158,229	159,540	160,801	167,102	173,157	179,499	186,146
	Wastewater Operations							
10	Personal Services and Fringe Benefits	104,744	104,787	102,673	106,170	108,776	111,449	114,194
11	Purchase of Services	86,545	89,744	92,740	95,001	98,222	101,549	104,996
12	Materials and Supplies	13,728	13,654	14,249	14,878	15,540	16,246	16,993
13	Equipment	884	1,016	1,045	1,077	1,108	1,142	1,179
14	Contributions, Indemnities, Refunds and Taxes	3,221	3,890	3,890	3,890	3,890	3,890	3,890
15	Interdepartmental Charges	41,882	43,156	42,818	44,048	45,123	46,226	47,357
16	Subtotal Operating Expenses	251,004	256,247	257,415	265,064	272,659	280,502	288,609
17	Less: Liquidated Encumbrances	(12,900)	(12,900)	(12,900)	(12,900)	(12,900)	(12,900)	(12,900)
18	Operating Expenses - Wastewater	238,104	243,347	244,515	252,164	259,759	267,602	275,709
19	**Total Operating Expenses**	**396,333**	**402,887**	**405,316**	**419,266**	**432,916**	**447,101**	**461,855**

Direct operating expense projections shown in Table VI-6 include recognition of the potential impact of anticipated escalation in costs due to inflation during the Study Period. Fiscal years 2013 and 2014 expenses are based upon the Water Department's adopted and proposed budgeted expenditures for that year. An analysis of previous years' budgets and actual obligations by functional division and by budgetary object class within each division has been used to adjust the adopted and proposed budgeted expenditures for fiscal years 2013 and 2014 downward slightly to reflect recent actual obligation experience.

Labor costs are expected to increase 1.0 percent in fiscal year 2015 and 2.0 percent in fiscal years 2016 to 2019. Electric power costs are expected to increase 5.0 percent annually for fiscal years 2015 to 2019. Chemical costs are expected to increase 9.0 percent annually for fiscal years 2015 to 2019. All other purchased services, materials and supplies, and equipment expenditures are projected to increase at 3.0 percent annually in fiscal years 2015 to 2019.

Interdepartmental charges for service provided to the Water Department by other City departments and agencies anticipated through the seven year Study Period are also included in Table VI-6. These charges represent the Water Department's proportionate charge for services provided directly by other City departments and agencies, including the Water Revenue Bureau (WRB), which has responsibility for the collection of revenue for water and wastewater service provided by the Water Department. Accomplishment of this responsibility requires reading of meters, maintenance of customer accounts, billing, collection of payments, enforcements of payments, and customer relations. Projections of interdepartmental expenses are also based on the adopted and proposed budgets for fiscal years 2013 and 2014. Cost escalation factors used to project expenditures for the Study Period are the same as those used to project direct Water Department operating expenditures mentioned above.

2. Debt Service Requirements

Projected debt service on outstanding revenue bonds is shown on Line 1 of Table VI-7 for the Study Period. The projection of debt service on outstanding revenue bonds reflects projected debt service schedules provided by the Water Department. The projected debt service payments on the outstanding variable rate bonds reflect the following assumptions based on discussions with and guidance from Water Department staff:

- Series 1997B. The projected interest cost is estimated based on an interest rate of 3.0 percent.
- Series 2005B. The projected interest cost for the Study Period reflects an overall average interest rate of 4.53 percent over the Study Period.

The Water Department's projected debt service on currently outstanding bonds decreases significantly in fiscal years 2017 to 2019 (decreasing from approximately $185.5 million per year in fiscal years 2013 to 2016 to approximately $167.5 million per year in fiscal years 2017 and 2018 and $118.5 million in fiscal year 2019), and it is assumed that the proposed bonds in fiscal years 2014 to 2017 will be structured to defer initial principal payments to level the projected debt service.

The Series 2012 Bonds were issued in November 2012. Debt Service on the Series 2012 bonds reflects the final bond pricing and is presented on Line 2 of Table VI-7. The Series 2013A Bonds are

anticipated to be issued in August 2013 and the projected debt service assumes a 30-year amortization schedule and a 5.0 percent interest rate. Projected debt service on the subsequent proposed $250,000,000 in fiscal year 2015, $250,000,000 in fiscal year 2016, $300,000,000 in fiscal year 2017, $300,000,000 in fiscal year 2018, and $260,000,000 in fiscal year 2019 assumes a 30-year amortization schedule and a 5.0 percent interest rate. The Series 2013A Bonds and the proposed bonds in fiscal years 2015 reflect interest only payments prior to fiscal year 2017. The proposed bonds in fiscal year 2016 reflect interest only payments prior to fiscal year 2018. The proposed bonds in fiscal year 2017 reflect interest only payments prior to fiscal year 2019. Table VI-7 summarizes the total revenue bond debt service projected for the Study Period.

Table VI-7 Future Debt Service Requirements
(in thousands of dollars)

Line No.	Description	Fiscal Year Ending June 30, 2013	2014	2015	2016	2017	2018	2019
	Revenue Bonds							
1	Existing (a)	191,029	182,189	179,642	189,118	166,810	168,157	118,468
	Proposed							
2	Fiscal Year 2013 (b)	1,693	6,017	6,025	3,250	3,250	3,250	3,250
3	Fiscal Year 2014 (c)		5,000	10,000	10,000	13,658	13,658	13,658
4	Fiscal Year 2015 (c)			6,250	12,500	16,781	16,781	16,781
5	Fiscal Year 2016 (d)				6,250	12,500	16,781	16,781
6	Fiscal Year 2017 (e)					7,500	15,000	20,137
7	Fiscal Year 2018 (f)							19,515
8	Fiscal Year 2019 (f)							
9	Total Proposed	1,693	11,017	22,275	32,000	53,689	65,470	90,122
10	Total Revenue Bonds	192,722	193,206	201,917	221,118	220,499	233,627	208,590
	Pennvest Loans							
11	Pennvest Parity Loans	9,175	11,943	12,320	12,320	12,320	12,904	13,112
12	Pennvest Subordinate Loans	0	0	0	0	0	0	0
13	Total Debt Service	201,897	205,150	214,237	233,439	232,820	246,531	221,702

(a) Assumes the average interest rates of 3.00% for the Variable Rate Series 1997B Bonds and 4.53% for the Variable Rate Series 2005B Bonds.
(b) Reflects final pricing of the Series 2012 Bonds.
(c) Assumes interest only payments through FY 2016 based on 5.00% interest. Assumed to be issued during the first half of the fiscal year.
(d) Assumes interest only payments through FY 2017 based on 5.00% interest. Assumed to be issued during the first half of the fiscal year.
(e) Assumes interest only payments through FY 2018 based on 5.00% interest. Assumed to be issued during the first half of the fiscal year.
(f) Assumed to be issued during the second half of the fiscal year.

Lines 11 and 12 of Table VI-7 show the debt service payments on the outstanding and proposed Pennvest loans. Line 11 shows the annual debt service which is related to parity revenue bonds issued through Pennvest, including the 2009 Pennvest Loans. Projected debt service on the 2009 Pennvest Loans reflects the following terms of the funding offers provided by Pennvest: (i) three years of monthly interest only payments during the period covering November 2009 to October 2012 (based on an interest rate of 1.193%), (ii) monthly principal and interest for the five year period covering November 2012 to October 2017, (based on an interest rate of 1.193%), and (iii) monthly principal and interest payments for the fifteen year period covering November 2017 to October 2032 (based on an interest rate of 2.107%). Line 12 shows the annual debt service which is a subordinate loan issued through Pennvest dated June 15, 1993.

3. Capital Account Deposit

The General Ordinance establishes a Capital Account as an account within the Construction Fund. The Water Department covenants to make deposits to the Capital Account in each fiscal year, subject to the availability of funds, in an amount not less than one percent of the total net plant investment in water and wastewater facilities. Such deposits will be required June 20 of each fiscal year to fund annual renewals, replacements, and improvements to maintain adequate water and wastewater service to the areas served by the system. The projected level of the annual Capital Account Deposit reflects the current level of net plant investment in water and wastewater facilities and the historical rate of growth in net plant investment value. The projected fiscal year 2013 requirement amounts to $19,380,000 and increases during the Study Period to $22,475,000 in fiscal year 2019.

4. City General Fund Deposit

Under the General Ordinance, annual payments to the City General Fund are required from the Residual Fund in an amount not to exceed the lower of $4,994,000 or annual interest earnings on the Debt Reserve Account. Applicable interest earnings are transferred to the Residual Fund to meet this obligation.

F. ADEQUACY OF PROJECTED REVENUES TO MEET PROJECTED REVENUE REQUIREMENTS UNDER GENERAL ORDINANCE REQUIREMENTS

Table VI-8 presents a statement of projected revenues and revenue and rate covenant requirements for water and wastewater operations for fiscal year 2013 through fiscal year 2019 under the stipulations of the General Ordinance. The table provides an indication of the adequacy of the Water Department's revenues and the feasibility of the issuance of the Bonds and future anticipated revenue bond sales during the Study Period.

Projections of annual operating revenue for water and wastewater service shown on Lines 1 and 2 of Table VI-8 include revenue from retail customers under the rate levels in effect as of July 1, 2012, as previously presented in Table VI-2. Lines 4 through 10 indicate additional service revenue required in each fiscal year to meet revenue requirements and rate covenant compliance during the Study Period. The annual revenue increases of 4.48 percent in fiscal years 2013 to 2015, reflected in Lines 4 to 6, were reviewed and adopted as a part of the most recent rate hearing process.

Table VI-8 Projected Revenue and Revenue Requirements
(in thousands of dollars)

Line No.	Description			Fiscal Year Ending June 30, 2013	2014	2015	2016	2017	2018	2019
	OPERATING REVENUE									
1	Water Service - Existing Rates			232,147	231,791	230,247	226,934	225,217	223,493	217,338
2	Wastewater Service - Existing Rates			332,529	330,971	329,416	329,690	328,280	326,867	325,449
3	Total Service Revenue - Existing Rates			564,676	562,762	559,663	556,624	553,497	550,360	542,787
	Additional Service Revenue Required									
	Year	Percent Increase	Months Effective							
4	FY 2013	4.48%	6	9,512	25,212	25,073	24,937	24,797	24,656	24,317
5	FY 2014	4.48%	12		26,341	26,196	26,054	25,908	25,761	25,406
6	FY 2015	4.48%	12			27,370	27,221	27,068	26,915	26,544
7	FY 2016	5.75%	12				36,503	36,298	36,092	35,596
8	FY 2017	5.75%	12					38,385	38,168	37,642
9	FY 2018	5.75%	12						40,362	39,807
10	FY 2019	4.50%	12							32,944
11	Total Additional Service Revenue Required			9,512	51,553	78,639	114,715	152,456	191,954	222,256
12	Total Water & Wastewater Service Revenue			574,188	614,315	638,302	671,339	705,953	742,314	765,043
13	Transfer From/(To) Rate Stabilization Fund			45,300	16,995	8,540	15,485	(4,025)	(6,585)	(43,595)
	Other Income (a)									
14	Other Operating Revenue			19,139	19,705	19,659	19,595	19,548	19,503	19,404
15	Construction Fund Interest Income			833	1,134	1,366	1,390	1,569	1,565	1,517
16	Debt Reserve Fund Interest Income			0	0	0	0	0	0	0
17	Operating Fund Interest Income			458	463	471	488	491	504	492
18	Rate Stabilization Interest Income			717	561	497	437	408	435	560
19	Total Revenues			640,635	653,173	668,835	708,734	723,944	757,736	743,421
	OPERATING EXPENSES									
20	Water & Wastewater Operations			326,475	330,975	333,944	345,832	357,677	370,015	382,872
21	Direct Interdepartmental Charges			69,857	71,913	71,371	73,434	75,237	77,087	78,983
22	Total Operating Expenses			396,332	402,888	405,315	419,266	432,914	447,102	461,855
23	NET REVENUES AFTER OPERATIONS			244,303	250,285	263,520	289,468	291,030	310,634	281,566
	DEBT SERVICE									
	Senior Debt Service									
	Revenue Bonds									
24	Outstanding Bonds			191,029	182,189	179,642	189,118	166,810	168,157	118,468
25	Pennvest Parity Bonds			9,175	11,943	12,320	12,320	12,320	12,904	13,112
26	Projected Future Bonds			1,693	11,017	22,275	32,000	53,689	65,470	90,122
27	Total Senior Debt Service			201,897	205,149	214,237	233,438	232,819	246,531	221,702
28	**TOTAL SENIOR DEBT SERVICE COVERAGE (L23/L27)**			1.21 x	1.22 x	1.23 x	1.24 x	1.25 x	1.26 x	1.27 x
	Subordinate Debt Service									
29	Outstanding General Obligation Bonds			0	0	0	0	0	0	0
30	Pennvest Subordinate Bonds			0	0	0	0	0	0	0
31	Total Subordinate Debt Service			0	0	0	0	0	0	0
32	Total Debt Service on Bonds			201,897	205,149	214,237	233,438	232,819	246,531	221,702
33	**CAPITAL ACCOUNT DEPOSIT**			19,380	19,864	20,361	20,870	21,392	21,927	22,475
34	**TOTAL COVERAGE (L23/(L32+L33))**			1.10 x	1.11 x	1.12 x	1.13 x	1.14 x	1.15 x	1.15 x

Line No.	Description	Fiscal Year Ending June 30, 2013	2014	2015	2016	2017	2018	2019
	RESIDUAL FUND							
35	Beginning of Year Balance	44,707	1,015	6,787	15,209	15,368	15,687	15,863
36	Interest Income (b)	282	0	0	0	0	0	0
	Plus:							
37	End of Year Revenue Fund Balance	23,026	25,272	28,922	35,160	36,819	42,176	37,389
38	Deposit for Transfer to City General Fund (c)	1,320	1,390	1,459	1,492	1,518	1,526	1,526
	Less:							
39	Transfer to Construction Fund	0	19,500	20,500	35,000	36,500	42,000	37,900
40	Transfer to City General Fund	1,320	1,390	1,459	1,492	1,518	1,526	1,526
41	Transfer to Debt Service Reserve Fund	67,000	0	0	0	0	0	0
42	End of Year Balance	1,015	6,787	15,209	15,368	15,687	15,863	15,353
	RATE STABILIZATION FUND							
43	Beginning of Year Balance	166,014	120,714	103,719	95,179	79,694	83,719	90,304
44	Deposit From/(To) Revenue Fund	(45,300)	(16,995)	(8,540)	(15,485)	4,025	6,585	43,595
45	End of Year Balance	120,714	103,719	95,179	79,694	83,719	90,304	133,899

(a) Includes other operating and nonoperating income, including interest income on funds and accounts transferable to the Revenue Fund.
(b) Includes interest earnings on Debt Service Reserve substitution funds deposited in the Special Water Infrastructure Account.
(c) Transfer of interest earnings from the Bond Reserve Account to the Residual Fund as shown in Line 38 to satisfy the requirements for the Transfer to the City General Fund.

As indicated by the positive year-end balances shown on Line 37 of Table VI-8, the adopted revenue increases and proposed future revenue increases beyond fiscal year 2015 are projected to be adequate to satisfy the basic Charter requirement that the Water Department provide sufficient revenues to meet all operating expenses of the water and wastewater systems, debt service requirements on all obligations issued for the Water Department, and certain payments to the City General Fund, as well as other specific bond ordinance covenants.

In addition to meeting the requirements listed above, pursuant to the authorizing General Ordinance, the Water Department covenants that during any given fiscal year it will, at a minimum, impose, charge, and collect in each fiscal year such water and wastewater rents, rates, fees, and charges as shall yield net revenues which shall be equal to at least 1.20 times the debt service requirements for such fiscal year (recalculated to exclude therefrom principal and interest payments in respect of Subordinated Bonds); provided that such water and wastewater rents, rates, fees, and charges shall yield net revenues which shall be at least equal to 1.00 times (i) the debt service requirements for such fiscal year (including debt service requirements in respect of Subordinated Bonds); (ii) amounts required to be deposited into the Debt Reserve Account during such fiscal year; (iii) the principal or redemption price of and interest on General Obligation Bonds payable during such fiscal year; (iv) debt service requirements on interim debt payable during such fiscal year; and (v) the Capital Account Deposit amount for such fiscal year (less any amounts transferred from the Residual Fund to the Capital Account during such fiscal year).

In addition to the rate covenant of the General Ordinance described above, the City has agreed with AGM, for so long as the Series 2005A Bonds, the Series 2005B Bonds and the portion of the Series 2010A Bonds insured by AGM are outstanding, to establish rates and charges for use by the Water

and Wastewater Systems sufficient to yield Net Revenues (excluding amounts transferred from the Rate Stabilization Fund into the Revenue Fund during, or as of the end of, such fiscal year) at least equal to 90 percent of the Debt Service Requirements (excluding debt service due on any Subordinated Bonds) in such fiscal year. Further, any calculation by a consulting engineer of projected rate covenant compliance in connection with the proposed issuance of additional Bonds for each fiscal year must state that Net Revenues (excluding amounts transferred from the Rate Stabilization Fund into the Revenue Fund during, or as of the end of, such fiscal year) in each fiscal year included in the Study Period are projected to be at least 90 percent of the Debt Service Requirements (excluding debt service due on any Subordinated Bonds) in such fiscal year.

To comply with the General Ordinance covenants discussed above, as well as the requirements set forth in the City's agreement with AGM, additional water and wastewater service revenue, above the increase in rates which were in effect on July 1, 2012, was necessary during the Study Period, and such requirements are reflected in the revenue projections shown on Lines 4 through 10 of Table VI-8. The increases shown for fiscal years 2013 to 2015, as indicated previously, have already been approved through the rate hearing process. As shown on Lines 28 and 34, the levels of additional service revenue projected for the Study Period are indicated to be adequate to provide for the debt service coverage and requirements of the AGM agreement as described above, and as mentioned previously the positive year-end balances shown on Line 37 indicate that Charter requirements are also projected to be satisfied. It is important to note that under the General Ordinance, which provides for the various rate covenants discussed above, the Water Department utilizes the Rate Stabilization Fund, along with necessary increases in revenue, to manage its debt service coverage on its senior lien Bonds to meet the required 1.20 level each year. As shown on Line 28 of Table VI-8, the senior debt service coverage is projected to increase from a 1.21 coverage to a 1.27 coverage during the Study Period. This reflects the Water Department's intent to increase coverage in order to generate additional cash funded capital funds through the Residual Account.

Flow of funds in the Residual Fund (Lines 35-42) and the Rate Stabilization Fund (Lines 43-45) are also presented in Table VI-8 for the Study Period through fiscal year 2019. As indicated on Line 42 of Table VI-8, a balance of approximately $15,000,000 is maintained in the Residual Fund at the end of each fiscal year, with the exception of fiscal years 2013 to 2014 due to the need to transfer $67.0 million to the Debt Reserve Account to replace a surety policy provided by AGM. In accordance with the General Ordinance, funds in the Residual Fund may be used for the following purposes: (1) to pay operating expenses; (2) to fund transfers to any fund or account other than the Revenue Account and the Rate Stabilization Fund; (3) to pay principal and interest on any revenue bonds and general obligation debt; (4) for the payment of amounts due under capitalized leases or similar obligations; and (5) to fund required transfers to the City's General Fund. One of the most prudent uses of such funds is for capital program financing in future years. Accordingly, for purposes of this report, we have indicated the annual transfers of available Residual Fund balances to the Construction Fund and Debt Reserve Account in the amounts shown on Lines 39 and 41 of Table VI-8.

The current projections of fiscal year 2013 revenues and revenue requirements indicate that a $45,300,000 transfer to the Rate Stabilization Fund is anticipated. The balance of funds projected in the Rate Stabilization Fund at the end of fiscal year 2013 amounts to $120,714,000. The Water Department has indicated the need to maintain a combined balance of approximately $100,000,000

in the Rate Stabilization and Residual Funds to provide for working capital needs. The updated projection of revenues for fiscal years 2016 to 2019 recognize the levels required to meet projected revenue requirements and debt service coverage covenants and to maintain the end of fiscal year 2018 Rate Stabilization Fund and Residual Fund cumulative balance of approximately $100.0 million to provide for adequate working capital and reserve needs. The projected fiscal years 2016 to 2019 additional service revenues are premised upon the authorization of the rate increases required for these additional revenues.

In April 2012, the City Council introduced Ordinance #12770 and Resolution #12808, which proposed a ballot referendum for the November 2012 ballot regarding the amendment of the Charter allowing City Council to establish an independent ratemaking body responsible for fixing and regulating rates and charges for water and sewer services; and establish open and transparent processes and procedures for fixing and regulating said rates and charges. This Ordinance was enacted and the Resolution was adopted in June 2012. The referendum question was included on the November 2012 ballot for voter consideration. The amendment of the Charter was approved by referendum and the City Council is now authorized to adopt an ordinance to establish a new ratemaking agency. Prospective rates established by a new ratemaking body would be subject to the Act and the covenants and requirements of the General Ordinance, including the Rate Covenant. Any revisions to the rate process are planned for future rate proceedings applicable to Fiscal Year 2016 and future years. It is anticipated that a new rate making body, which is to be responsible for implementing rate increases beginning in fiscal year 2016, will be in place to receive and approve future applications for rate relief.

On April 4, 2013, the City Council introduced Ordinance #130251 (the "Rate Ordinance") which would establish a five member board (the "Board") to oversee the water, sewer and stormwater rate process. The Rate Ordinance would require the preparation of a Water Department Financial Stability Plan ("Financial Stability Plan") which shall forecast capital and operating costs and expenses and corresponding revenue requirements. The Financial Stability Plan would also be required to identify the strengths and challenges to the Water Department's overall financial status, including the Water Fund's credit ratings, planned and actual debt service coverage, capital and operating reserves, condition of assets and utility service benchmarks and to compare the Water Department to similar agencies in peer cities in the United States. The Financial Stability Plan is required to be submitted to the City Council every four years, and updated prior to proposing revisions in rates and charges.

The Rate Ordinance would also establish additional rate standards to be utilized by the Board in the establishment of future rates as follows:

- Rates and charges shall be fixed to provide a minimum of 100% of funding for operating expenses, other City fund charges and debt service from current revenues with reasonable sums to cover unforeseeable or unusual expenses, reasonably anticipated cost increases or diminutions in expected revenue;
- Rates and charges shall be fixed to provide a minimum of 20% of capital expenditures from revenue sources excluding grants and bond proceeds. Commencing in Fiscal Year 2019 the minimum percentage shall be 25%;

- Rates and charges shall be fixed to maintain a minimum total balance of cash, working capital and rate stabilization funds equal to 120 days of Water Fund appropriations. This minimum balance specifically excludes restricted capital construction funds, bond proceeds and debt service reserves. In addition, such fund levels shall be set to meet or exceed all legal requirements and provide adequate assurance to ratepayers, investors and others that the existing quality of services and financial ratings will be maintained;
- Rates and charges may be fixed to stabilize customer costs over a reasonable number of years and include anticipated changes in operating and capital costs, including personnel cost changes and other cost inflation;
- In fixing rates and charges the Board shall recognize the importance of financial stability to customers, consider the Water Department's Financial Stability Plan and evaluate the impact of the Board-approved rates and charges on planned improvements, operating expenses, debt service coverage, financial reserves, credit ratings and future rates and charges;
- Rates and charges shall be developed in accordance with sound utility rate making practices and consistent with the current industry standards for water, wastewater and storm water rates. Industry standards include the current versions of: American Water Works Association (AWWA) Principles of Rates, Fees and Charges Manual (M-l) and Water Environment Federation's Wastewater Financing & Charges for Wastewater Systems; and
- Whenever the Water Department has proposed changes to the rates and charges, the Board shall issue a written report incorporating the information used by the Board in reaching a decision to approve, modify or reject the proposed rates and charges. The Board shall approve the proposed rates and charges unless the Board finds that the Water Department has proposed rates and charges that are inequitable or have not been reasonably supported by the information provided to the Board by all participants in the rate setting process. If the Board has rejected or modified the proposed rates and charges, the Board's report shall identify the impacts of the approved rates and charges on planned improvements, operating expenses, debt service coverage requirements, reserve fund levels and future rates and charges.

A hearing with respect to the proposed Rate Ordinance was scheduled to be held on June 11, 2013. Further action on the Rate Ordinance is not expected until City Council returns from recess in September 2013. There can be no assurance that the Rate Ordinance will be enacted by City Council or approved by the Mayor and, if enacted and approved, no assurance that the Rate Ordinance as enacted and approved will be in the same form as described above.

In conclusion, based upon the assumptions recognized in this report regarding the estimated future annual financial operations of the Water and Wastewater Systems, it is our opinion that the Water and Wastewater Systems will yield pledged Project Revenues (including projected revenue increases indicated in this report) over the amortization period of the Bonds sufficient to meet the payment or deposit requirements of: all expenses of operation, maintenance, repair and replacement of the Water and Wastewater Systems; all reserve funds required to be established out of such Project Revenues; the principal or redemption price and interest on all Bonds, as the same become due and payable, for which such Project Revenues are pledged; and, the Rate Covenant set forth in

Section 5.01 of the General Ordinance. In addition, the Net Revenues are currently sufficient to comply with the Rate Covenant and are projected to be sufficient (including projected revenue increases indicated in the report) to comply with the Rate Covenant for each of the two fiscal years following the fiscal year in which the Bonds are issued.

APPENDIX III

SUMMARIES OF CERTAIN AUTHORIZATIONS FOR THE BONDS

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APPENDIX III

SUMMARIES OF CERTAIN AUTHORIZATIONS FOR THE BONDS

The following are summaries of certain provisions of The First Class City Revenue Bond Act (the "Act"), the Restated General Water and Wastewater Revenue Bond Ordinance of 1989, as amended and supplemented (the "General Ordinance") and the Fourteenth Supplemental Ordinance to the General Ordinance (the "Fourteenth Supplemental Ordinance"). The summaries are not, and should not be regarded as, complete statements of the provisions of these documents and legislation. Reference is made to the Act, the General Ordinance and the Fourteenth Supplemental Ordinance, copies of which are available from the Office of the Director of Finance, 1300 Municipal Services Building, 1401 J. F. Kennedy Boulevard, Philadelphia, Pennsylvania 19102, for the complete terms and provisions thereof.

THE FIRST CLASS CITY REVENUE BOND ACT
(Act 234 of the General Assembly of the Commonwealth, approved October 18, 1972, P.L. 955; 53 P.S. §§ 15901-15924)

The City of Philadelphia Water and Wastewater Revenue Bonds, Series 2013A (the "Series 2013A Bonds") are being issued under the terms of the Act, the General Ordinance and the Fourteenth Supplemental Ordinance. The following summarizes the terms of the Act. All capitalized terms used in the following summary of the Act are defined as in the Act and may be differently referenced in other portions of this Official Statement.

General Authorization; Definition of Project; Bonds to be Special Obligations

The Act is intended to provide a comprehensive authorization to the City of Philadelphia (the "City") and any other Pennsylvania cities of the first class to issue revenue bonds ("Bonds") to finance various types of projects.

The Act defines "Project" to include, among other things, any building, structure, facilities or improvements of a public nature, the related land, rights or leasehold estates in land and the related furnishings, machinery, apparatus or equipment of a capital nature, which the City is authorized to own, construct, acquire, improve, lease, operate, maintain or support; any item of construction, acquisition or extraordinary maintenance or repair thereof, the City's share of the cost of any of the foregoing or any combination thereof undertaken jointly with others; and any combination of any of or all of the foregoing or any undivided portion of the cost of any of the foregoing as may be designated as a "Project" by the City for financing purposes and in respect of which the City may reasonably be expected to receive Project Revenues.

Bonds issued under the Act are required to be payable solely from Project Revenues and to be secured solely by such revenues and by any reserve funds which may be created or funded in connection with the Bonds. The Bonds are not permitted to pledge the credit or taxing power of the City to create any debt or charge against the tax or general revenues of the City, or create any lien against any of the City property other than the Project Revenues pledged therefore and reserve Funds established in respect of the Bonds. The Bonds do not constitute a debt of the City, and are excluded from the calculation of the City's debt-incurring capacity under the Pennsylvania Constitution.

Estimates of Future Revenues

To establish that Project Revenues will be sufficient to amortize all Bonds outstanding, the Act requires a finding to be made in the ordinance authorizing the issuance of the Bonds that the pledged Project Revenues will be sufficient to pay any prior parity charges thereon and the principal of and interest on the Bonds. This finding is to be based on a report of the chief fiscal officer of the City filed with the City Council and supported by appropriate schedules and summaries. The report of the chief fiscal officer of the City may be based on a report of consulting engineers employed by the City to evaluate the project.

For the purpose of estimating future Project Revenues, the Act provides that only the following shall be included: (i) those rents, rates, tolls or charges to the general public which, under existing authorizations, will be reasonably collectible in such year under the schedule or rate of rents, rates or charges which are or will be in effect during such year in accordance with such ordinance, resolutions or rate schedule or which may be imposed by administrative action without further legislation; (ii) those bulk payments which may be imposed under subsisting legislation or which are provided under subsisting agreements or which are the subject of an expression of intent by the prospective obligor deemed reliable by the chief fiscal officer of the City; and (iii) those governmental subsidies or payments which, under subsisting legislation, are subject to reasonably precise calculation and, unless stated in such legislation or authorization to be of an annually or more frequently recurring nature, are payable in such year.

Detail of Bonds and City Covenants

The Act provides that the ordinance authorizing the issuance of the Bonds shall fix the aggregate amounts of the Bonds to be issued from time to time and determine, or designate officers of the City to determine, the form and details of the Bonds. The City may include in its Bond ordinance various covenants with Bondholders, including covenants governing the imposition, collection and disbursement of Project Revenues, Project operation and maintenance, the establishment, segregation, maintenance, custody, investment and disbursement of sinking funds and reserves, the issuance of additional priority or parity bonds, the redemption of the Bonds and such other provisions as the City deems necessary or desirable in the interest or for the protection of the City or of such Bondholders. Under the Act the covenants, terms and provisions of the Bond ordinance made for the benefit of Bondholders constitute contractual obligations of the City, but such covenants (within limitations, if any, fixed by the Bond ordinance) may be modified by agreement with a majority in interest of the Bondholders or such larger portion thereof as may by provided in the Bond ordinance.

Sinking Fund

The Act requires that the Bond ordinance shall provide for the establishment of a sinking fund for the payment of the principal of and interest (including Qualified Swap payments) on the Bonds. Payment into such sinking fund shall be made in annual or more frequent installments and shall be sufficient to pay or accumulate for payment all principal of and interest on the Bonds for which the sinking fund is established as and when the same shall become due and payable. The sinking fund shall be managed by the chief fiscal officer of the City and moneys therein to the extent not currently required, shall be invested, subject to limitations established by the Bond ordinance and the Act. Interest and profits from investment of moneys in the sinking fund shall be added to such fund and may be applied in reduction of or to complete required deposits into the sinking fund. Excess moneys in the sinking fund shall be repaid to the City for its general purposes or may be applied as may be provided in the Bond ordinance. All moneys deposited in the sinking fund are subjected to a perfected security interest for the benefit of the holders of the Bonds, for which the fund is established, until property disbursed. This perfected security

interest also applies, under the terms of the Act, to moneys in the sinking fund reserve created as part of the sinking fund by the General Ordinance.

Refunding

Any outstanding Bonds issued under the Act or other bonds issued for purposes for which Bonds are issuable under the Act, whether issued before or after the effective date of the Act, may from time to time be refunded by Bonds issued under the Act and are subject to the same protections and provisions required for the issuance of an original issue of Bonds. The last stated maturity date of the refunding Bonds may not be later than ten years after the last stated maturity date of the Bonds to be refunded. If outstanding Bonds are refunded in advance of their maturity or redemption date, the principal thereof and interest thereon to payment or redemption date, and redemption premium payable, if any, will no longer be deemed to be outstanding obligations when the City shall have deposited with a bank, bank and trust company or trust company, funds irrevocably pledged to the purpose, which are represented by demand deposits, interest-bearing time accounts, savings deposits, certificates of deposit (insured or secured as public funds) or specified obligations of the United States or of the Commonwealth of Pennsylvania sufficient to effect such redemption or payment or, if interest on the deposited funds to the time of disbursement is also pledged, sufficient, together with such interest, for such purpose and, in the case of redemption, shall have duly called the Bonds for redemption or given irrevocable instructions to give notice of such call.

Validity of Proceedings; Suits and Limitations Thereon

Prior to the delivery of any Bonds, the City is required to file with the Court of Common Pleas of Philadelphia County (the "Court") a transcript of the proceedings authorizing the issuance of the Bonds. If no action is brought on or before the twentieth day following the date of recording of the transcript, or when the proceedings have been approved finally by the Court, then notwithstanding any defect or error in such proceedings, the validity of the proceedings, the City's right to issue the Bonds, the lawful nature of the purpose for which the Bonds are issued, and the validity and enforceability of the Bonds in accordance with their terms may not thereafter be inquired into judicially, in equity, at law, or by civil or criminal proceedings, or otherwise, either directly or collaterally except where a constitutional question is involved.

Negotiable Instruments

The Act provides that Bonds issued thereunder shall have the qualities and incidents of securities under Article 8 of the Uniform Commercial Code of the Commonwealth and shall be negotiable instruments.

Exemption from State Taxation

The Commonwealth pledges with the holders from time to time of Bonds issued under the Act that such Bonds, and interest thereon, shall at all times be free from taxation within and by the Commonwealth, but this exemption does not extend to underwriting profits or to gift, succession or inheritance taxes or any other taxes not levied directly on the Bonds and the receipt of interest thereon.

Defaults and Remedies

If the City should fail to pay the principal of or interest on any Bond when the same shall be due and payable, the remedy provisions of the Act permit the holder of such Bond, subject to the limitations described below, to recover the amount due in an action in Philadelphia Common Pleas Court; but a

judgment rendered in favor of the Bondholder in such an action is collectible only from Pledged Amounts. The holders of 25% or more in aggregate principal amount of the Bonds of such series then outstanding which are in default, whether because of failure of timely payment which is not cured in 30 days, or failure of the City to comply with any other provisions of the Bonds or any Bond ordinance, may appoint a trustee to represent them. On being appointed, the trustee shall be the exclusive representative for the affected Bondholders and the individuals rights of action described above shall no longer be available. The trustee may, and upon written request of the holders of 25% or more in aggregate principal amount of Bonds in default, and on being furnished with indemnity satisfactory to it, shall, take one or more of the following actions, which, if taken, shall preclude similar action, whether previously or subsequently initiated, by individual holders of Bonds; enforce, by proceedings a law or in equity, all rights of the holders of the Bond; bring suit on the Bonds; bring in suit in equity to require the City to make an accounting for all pledged Project Revenues received and to enjoin unlawful action or action in violation of the holders' rights; and, after 30 days' written notice to the City, and subject to any limitations in the Bond ordinance, declare the unpaid principal of the Bonds to be immediately due and payable, together with interest thereon at the rates stated in the Bonds until final payment, and upon the curing of all defaults, to annual such declaration. In any suit, action or proceeding by or on behalf of holders of defaulted Bonds, trustee fees and expenses, including operating costs of a project and reasonable counsel fees, shall constitute taxable costs, and all such costs and expenses allowed by the Court shall be deemed additional principal due on the Bonds and shall be paid in full from any recovery prior to any distribution to the holders of the Bonds. The General Ordinance limits any such recovery to Pledged Amounts. The trustee shall make distribution of any sums so collected in accordance with the Act.

Refunding with General Obligation Bonds

Upon certification by the City's chief fiscal officer that Project Revenues pledged for the payment of Bonds have become insufficient to meet the requirements of the ordinance or ordinances under which the Bonds were issued, the City Council is empowered, but not required, subject to applicable Pennsylvania constitutional debt limitations, to authorize the issuance and sale of general obligation refunding bonds of the City, without limitation as to rate of interest and in such principal amount (subject to the aforesaid limitations on indebtedness) as may be required, together with other available funds, to pay and redeem such Bonds including principal, interest to the date fixed for redemption or payment and premium, whether or not the principal of or interest on the refunding bonds shall exceed the principal of or interest on the bonds to be refunded.

THE RESTATED GENERAL WATER AND WASTEWATER REVENUE BOND ORDINANCE OF 1989

(Ordinance of the City Council approved June 24, 1993 - Bill No. 544)

The following is a summary of certain terms defined in the Restated General Water and Wastewater Revenue Bond Ordinance of 1989 (the "General Ordinance") used in this Official Statement. Reference should be made to the General Ordinance for a full and complete statement of its terms and any capitalized terms used herein but not otherwise defined. The Series 2013A Bonds are being issued under the terms of the General Ordinance and pursuant to the Fourteenth Supplemental Ordinance. The Fourteenth Supplemental Ordinance (see below) sets forth the specific terms of the Series 2013A Bonds. The following summarizes the terms of the General Ordinance, prior to being supplemented pursuant to Fourteenth Supplemental Ordinance. All capitalized terms used in the following summary of the General Ordinance are defined as in the General Ordinance, prior to being supplemented pursuant to the

Fourteenth Supplemental Ordinance, and may be differently referenced in other portions of this Official Statement.

Certain Definitions

Accredited Value means, with respect to Capital Appreciation Bonds, the amount to which, as of any specified time, the Original Value of any such Bond has been increased by accretion, all as may be provided in an applicable Supplemental Ordinance.

Act means The First Class City Revenue Bond Act, approved October 18, 1972 (Act No. 234, 53 P.S. §15901 to 15924), as from time to time amended.

Bond or *Bonds* means, upon and after issuance of the first series of bonds under the General Ordinance, if and to the extent Outstanding at any time, (i) the Existing Bonds and (ii) all series of bonds authorized and issued under one or more supplemental ordinances amending and supplementing the General Ordinance.

Bond Committee means the Mayor, City Controller and City Solicitor or a majority thereof.

Bond Counsel means a firm of nationally recognized bond counsel selected by the City.

Bondholder or *Holder* means any registered owner of Bonds or holder of Bonds issued in coupon form at the time Outstanding.

Capital Account means the Capital Account within the Construction Fund.

Capital Account Deposit Amount means an amount equal to one percent (1%) of the depreciated value of property, plant and equipment of the System or such greater amount as shall be annually certified to the City in writing by a Consulting Engineer as sufficient to make renewals, replacements and improvements in order to maintain adequate water and wastewater service to the areas served by the System.

Capital Appreciation Bonds means any Bonds issued under the General Ordinance which do not pay interest either until maturity or until a specified date prior to maturity, but whose Original Value increases periodically by accretion to a final Maturity Value.

Charges Account means the Charges Account established within the Sinking Fund to provide for the payment of fees under any Credit Facility to the extent payment of such fees are not otherwise provided.

City Controller means the head of the City's auditing department as provided by the Philadelphia Home Rule Charter.

City Solicitor means the head of the City's law department as provided by the Philadelphia Home Rule Charter.

Code means the Internal Revenue Code of 1986, as amended.

Construction Fund means the Construction Fund established pursuant to the General Ordinance.

Consulting Engineer means a nationally recognized Independent registered consulting engineer or a nationally recognized Independent firm of registered consulting engineers, in either case having

experience in the design and analysis of the operation of water and wastewater systems of the magnitude and scope of the System.

Credit Facility means any letter of credit, standby bond purchase agreement, line of credit, surety bond, insurance policy or other insurance commitment or similar agreement (other than a Qualified Swap or an Exchange Agreement) that is provided by a commercial bank, insurance company or other institution, with a current long term rating (or whose obligations thereunder are guaranteed by a financial institution with a long term rating) from Moody's and S&P not lower than the credit rating of any Series of Bonds which has no Credit Facility, to provide support for a Series of Bonds or for any issue of Subordinated Bonds, and shall include any Substitute Credit Facility.

Debt Reserve Account means the Debt Reserve Account of the Sinking Fund established in the General Ordinance.

Debt Reserve Requirement means with respect to all Bonds, an amount equal to the lesser of (i) the greatest amount of Debt Service Requirements payable in any one Fiscal Year (except that such Debt Service Requirement will be computed as if any Qualified Swap did not exist and the Debt Service Requirements attributable to any Variable Rate Bonds may be based upon the fixed rate of interest as set forth in the Supplemental Ordinance or Determination for such Bonds), determined as of any particular date or (ii) the maximum amount to be financed with proceeds of Bonds permitted by Section 148(d)(1) of the Code (or any successor provision).

Debt Service Account means the Debt Service Account of the Sinking Fund established in the General Ordinance.

Debt Service Requirements, with reference to a specified period, means:

(a) amounts required to be paid into any mandatory sinking fund established for the benefit of Bonds during the period;

(b) amounts needed to pay the principal or redemption price of Bonds maturing during the period and not to be redeemed at or prior to maturity through any sinking fund established for the benefit of Bonds;

(c) interest payable on Bonds during the period, with adjustment for capitalized interest or redemption through any sinking fund established for the benefit of Bonds; and

(d) all net amounts, if any, due and payable by the City under a Qualified Swap during such period.

For purposes of estimating Debt Service Requirements for any future period, (i) any Option Bond outstanding during such period shall be assumed to mature on the stated maturity date thereof, except that the principal amount of any Option Bond tendered for payment and cancellation before its stated maturity date shall be deemed to accrue on the date required for payment pursuant to such tender; and (ii) Debt Service Requirements on Bonds for which the City has entered into a Qualified Swap shall be calculated assuming that the interest rate on such Bonds shall equal the stated fixed or variable rate on the Qualified Swap or, if applicable and if greater than such stated rate, the applicable rate for any Bonds issued in connection with the Qualified Swap adjusted, in the case of a variable rate obligation, as provided in the General Ordinance. Calculation of Debt Service Requirements with respect to Variable Rate Bonds shall be subject to adjustment.

Debt Service Withdrawal means the aggregate amount withdrawn from the Capital Account during a Fiscal Year and applied toward the payment of principal or redemption price of or interest on Bonds or toward the elimination of a deficiency in any reserve fund established for the benefit of Bonds.

Determination means a determination by the Bond Committee regarding certain matters relating to the issuance of a Series of Bonds, made pursuant to the General Ordinance or the Supplemental Ordinance providing for the issuance of such Series of Bonds.

Director of Finance means the chief financial officer of the City as established by the Philadelphia Home Rule Charter.

Effective Date means when (but only when) all Prior Bonds issued under the Prior Ordinance have been paid or defeased as set forth in Section 10 of the Act.

Exchange Agreement means, to the extent from time to time permitted by applicable law, any interest exchange agreement, interest rate swap agreement, currency swap agreement or other contract or agreement, other than a Qualified Swap, authorized, recognized and approved by a Supplemental Ordinance or Determination as an Exchange Agreement and providing for (i) certain payments by the City from the Residual Fund and (ii) payments by an entity whose senior long term debt obligations, other senior unsecured long term obligations or claims paying ability, or whose obligations under an Exchange Agreement are guaranteed by an entity whose senior long term debt obligations, other senior unsecured long term obligations or claims paying ability are rated not less than A3 by Moody's, A- by S&P or A- by Fitch, or the equivalent thereof by any successor thereto as of the date the Exchange Agreement is entered into; which payments by the City and counterparty are calculated by reference to fixed or variable rates and constituting a financial accommodation between the City and such counterparty.

Existing Bonds means the bonds originally issued under the Prior Ordinance other than Prior Bonds, which Existing Bonds shall be specified in a certificate of the Director of Finance on the Effective Date and thereafter shall be secured by the General Ordinance.

Financial Consultant means a firm of investment bankers, a financial consulting firm, a firm of certified public accountants or any other firm which is qualified to calculate amounts required to be rebated to the United States pursuant to Section 148(f) of the Code.

Fiscal Agent means a bank or other entity designated as such pursuant to the General Ordinance or its successor.

Fiscal Year means the fiscal year of the City.

Fitch means Fitch Ratings and any successor thereto.

General Obligation Bonds means the general obligation bonds of the City issued and outstanding from time to time to finance improvements to the System and adjudged, pursuant to the Constitution and laws of the Commonwealth of Pennsylvania, to be self-sustaining on the basis of expected Project Revenues.

General Ordinance means the Restated General Water and Wastewater Revenue Bond Ordinance of 1989.

Government Obligations means direct obligations of, or obligations the principal of and interest on which are unconditionally guaranteed by, the United States of America, including but not limited to interest obligations of the Resolution Funding Corporation or any successor thereto.

Independent means a person who is not a salaried employee or elected or appointed official of the City; provided, however, that the fact that such person is retained regularly by or transacts business with the City shall not make such person an employee within the meaning of this definition.

Initial Deposit means the initial, one time, deposit to be made by the City from any source into the Rate Stabilization Fund upon the establishment of such Rate Stabilization Fund.

Interdepartmental Charges means the proportionate charges for services performed for the Water Department by all officers, departments, boards or commissions of the City which are required by the Philadelphia Home Rule Charter to be included in the computation of operating expenses of the Water Department.

Interim Debt means any bond anticipation notes or other temporary borrowing which the City anticipates permanently financing with Bonds or other long term indebtedness under the General Ordinance or otherwise.

Maturity Value with respect to Capital Appreciation Bonds means the amount due on the maturity date.

Moody's means Moody's Investors Service and any successor thereto.

Net Revenues for any period means the Project Revenues collected during such period and deposited into the Revenue Fund plus (x) the amounts, if any, transferred from the Rate Stabilization Fund into the Revenue Fund during, or as of the end of, such period and (y) interest earnings during such period on moneys in any of the funds or accounts established under the General Ordinance to the extent such interest earnings are credited to the Revenue Fund pursuant to the General Ordinance minus the sum of (a) Operating Expenses incurred during such period and (b) the amounts, if any, transferred from the Revenue Fund to the Rate Stabilization Fund during, or as of the end of, such period; provided, however that in determining such Net Revenues the Initial Deposit shall not reduce such Net Revenues.

Operating Expense Withdrawal means the aggregate amount withdrawn from the Capital Account during a Fiscal Year and applied toward the payment of Operating Expenses.

Operating Expenses for any period means all costs and expenses of the Water department necessary and appropriate to operate and maintain the System in good operating condition, and shall include, without limitation, salaries and wages, purchases of services by contract, costs of materials, supplies and expendable equipment, maintenance costs, costs of any property or the replacement thereof or for any work or project, related to the System, which is not properly chargeable to property, plant and equipment, pension and welfare plan and worker's compensation requirements, provisions for claims, refunds and uncollectible receivables and for Interdepartmental Charges, all in accordance with generally accepted accounting principles consistently applied, but Operating Expenses shall exclude depreciation, amortization, interest and sinking fund charges.

Option Bond means any Bond which by its terms may be tendered by and at the option of the Holder thereof for payment by the City prior to its stated maturity date or the maturity date of which may be extended by and at the option of the Holder thereof.

Ordinance means the General Ordinance, as amended from time to time in accordance with the provisions of the General Ordinance.

Original Value with respect to Capital Appreciation Bonds means the principal amount paid by the initial purchasers on the date of original issuance.

Outstanding, when used with reference to Bonds, means, as of any date, all Bonds theretofore or thereupon being authenticated and delivered under the General Ordinance except (i) any Bonds cancelled by the Fiscal Agent at or prior to such date; (ii) Bonds (or portion of Bonds) for the payment or redemption of which moneys, equal to the principal amount, Accredited Value or redemption price thereof, as the case may be, with interest (except to the extent of any Capital Appreciation Bonds) to the date of maturity or redemption date, shall be held in trust under the General Ordinance and set aside for such payment or redemption (whether at or prior to the maturity or redemption date), provided that if such Bonds (or portions of Bonds) are to be redeemed, notice of such redemption shall have been given as provided in the General Ordinance or provision satisfactory to the Fiscal Agent shall have been made for the giving of such notice; (iii) Bonds in lieu of or in substitution for which other Bonds shall have been authenticated and delivered pursuant to the General Ordinance; and (iv) Bonds deemed to have been paid as provided in the General Ordinance.

Philadelphia Home Rule Charter means the Philadelphia Home Rule Charter, as amended or superseded by any new home rule charter, adopted pursuant to authorization of the First Class City Home Rule Act approved April 21, 1949, P.L. 665 § l et seq. (53 P.S. §13101 et seq.).

Prior Bonds means the bonds issued under the Prior Ordinance designated as Water and Sewer Revenue Bonds (i) the First Series through Ninth Series, and the Eleventh Series and Twelfth Series, and (ii) to the extent the following bonds are defeased on the Effective Date, the Tenth Series and the Thirteenth Series through Sixteenth Series.

Prior Ordinance means the General Water and Sewer Revenue Bond Ordinance of 1974 approved May 16, 1974, as amended and supplemented from time to time.

Project Revenues means all rents, rates, fees and charges imposed or charged for the connection to, or use or product of or services generated by the System to the ultimate users or customers thereof, all payments under bulk contracts with municipalities, governmental instrumentalities or other bulk users, all subsidies or payments payable by Federal, State or local governments or governmental agencies on account of the cost of operation of, or the payment of the principal of or interest on moneys borrowed to finance costs chargeable to the System, all grants, payments and contributions made in aid or on account of the System exclusive of grants and similar payments and contributions solely in aid of construction and all accounts, contract rights and general intangibles representing the foregoing.

Purchase and Remarketing Fund means, with respect to each Series of Bonds subject to tender for purchase pursuant to an applicable Supplemental Ordinance or Determination, the Fund so designated in such Supplemental Ordinance.

Qualified Escrow Securities means funds which are represented by (a) demand deposits, interest-bearing time accounts, savings deposits or certificates of deposit, but only to the extent such deposits or accounts are fully insured by the Federal Deposit Insurance Corporation or any successor United States governmental agency, or to the extent not insured, fully secured and collateralized by Government Obligations having a market value (exclusive of accrued interest) at all times at least equal to the principal amount of such deposits or accounts, (b) if at the time permitted under the Act, obligations of any state or political subdivision thereof or any agency or instrumentality of such state or political subdivision for

which cash, Government Obligations or a combination thereof have been irrevocably pledged to or deposited in a segregated escrow account for the payment when due of principal or redemption price of and interest on such obligations, and any such cash or Government Obligations pledged and deposited are payable as to principal or interest in such amounts and on such dates as may be necessary without reinvestment to provide for the payment when due of the principal or redemption price of and interest on such obligations, and such obligations are rated by any Rating Agency in the highest rating category assigned by each such rating service to obligations of the same type, or (c) noncallable Government Obligations. In each case such funds (i) are subject to withdrawal, maturing or payable at the option of the holder, at or prior to the dates needed for disbursement, provided such deposits or accounts, whether deposited by the City or by such depository, are insured or secured as public deposits with securities having at all times a market value exclusive of accrued interest equal to the principal amount thereof, (ii) are irrevocably pledged for the payment of such obligations and (iii) are sufficient, together with the interest to disbursement date payable with respect thereto, if also pledged, to meet such obligations in full.

Qualified Rebate Fund Securities means either: (a) Government Obligations; or (b) rights to receive the principal of or the interest on Government Obligations through (i) direct ownership, as evidenced by physical possession of such Government Obligations or unmatured interest coupons or by registration as to ownership on the books of the issuer or its duly authorized paying agent or transfer agent, or (ii) purchase of certificates or other instruments evidencing an undivided ownership interest in payments of the principal of or interest on Government Obligations.

Qualified Swap or *Swap Agreement* means, with respect to a Series of Bonds, any financial arrangement that (i) is entered into by the City with an entity that is a Qualified Swap Provider at the time the arrangement is entered into; (ii) provides that (a) the City shall pay to such entity an amount based on the interest accruing at a fixed rate on an amount equal to the principal amount of the Outstanding Bonds of such Series, and that such entity shall pay to the City an amount based on the interest accruing on a principal amount initially equal to the same principal amount as such Bonds, at either a variable rate of interest or a fixed rate of interest computed according to a formula set forth in such arrangement (which need not be the same as the actual rate of interest borne by the Bonds) or that one shall pay to the other any net amount due under such arrangement or (b) the City shall pay to such entity an amount based on the interest accruing on the principal amount of the Outstanding Bonds of such Series at a variable rate of interest as set forth in the arrangement and that such entity shall pay to the City an amount based on interest accruing on a principal amount equal to the Outstanding Bonds of such Series at an agreed fixed rate (which shall not be the same as the rate on the Bonds) or that one shall pay to the other any net amount due under such arrangement; and (iii) which has been designated in writing to the Fiscal Agent by the City as a Qualified Swap with respect to the Bonds.

Qualified Swap Provider means, with respect to a Series of Bonds, an entity whose senior long term debt obligations, other senior unsecured long term obligations or claims paying ability, or whose payment obligations under a Qualified Swap are guaranteed by an entity whose senior long term debt obligations, other senior unsecured long term obligations or claims paying ability, are rated (at the time the subject Qualified Swap is entered into) at least as high as Aa by Moody's, and AA by S&P, or the equivalent thereof by any successor thereto.

Rate Covenant means the rate covenant contained in the General Ordinance.

Rate Stabilization Fund means the Rate Stabilization Fund established pursuant to the General Ordinance.

Rating Agency means Moody's, S&P or Fitch, to the extent that any of such rating services have issued a credit rating on the Bonds or, upon discontinuance of any of such rating services, such other

nationally recognized rating service or services if any such rating service has issued a credit rating on the Bonds.

Rebate Bond Year, for purposes of the General Ordinance and in order to facilitate compliance with the arbitrage rebate requirements of the Code, shall mean the period or periods specified in a Supplemental Ordinance or Determination for a Series of Bonds.

Rebate Fund means the Rebate Fund established pursuant to the General Ordinance.

Remarketing Agent means a Remarketing Agent appointed in the manner provided in the applicable Supplemental Ordinance or Determination authorizing the issuance of Variable Rate Bonds.

Remarketing Agreement means an agreement providing for the remarketing of tendered Variable Rate Bonds by a Remarketing Agent, as more fully set forth and defined in the Supplemental Ordinance authorizing any Series of Variable Rate Bonds.

Residual Fund means the Residual Fund established pursuant to the General Ordinance.

Revenue Fund means the Revenue Fund established pursuant to the General Ordinance.

S&P means Standard & Poor's Ratings Services and any successor thereto.

Series when applied to Bonds means, collectively, all of the Bonds of a given issue authorized by Supplemental Ordinance, as provided in the General Ordinance, and may also mean, if appropriate, a subseries of any Series if, for any reason, the City should determine to divide any Series into one or more subseries of Bonds.

Sinking Fund means the Sinking Fund established pursuant to the General Ordinance.

Sinking Fund Installment means an amount so designated which is established pursuant to the General Ordinance.

Special Water Infrastructure Account means the Special Water Infrastructure Account of the Residual Fund established in the General Ordinance.

Standby Agreement with respect to a Series of Bonds, means an irrevocable letter of credit and related reimbursement agreement, line of credit, standby bond purchase agreement or similar agreement providing for the purchase of all or a portion of the Bonds of such Series, as amended, supplemented or extended from time to time.

Standby Purchaser, with respect to a Series of Bonds, means the provider of the Standby Agreement for such Series of Bonds.

Subordinated Bond means any Bond referred to in, and complying with the provisions of the General Ordinance with respect to Subordinated Bonds.

Subordinated Bond Fund means the Subordinated Bond Fund established in the General Ordinance.

Substitute Credit Facility means any letter of credit, standby bond purchase agreement, line of credit, surety bond, insurance policy or other insurance commitment or similar agreement (other than a Qualified Swap or an Exchange Agreement) that replaces a Credit Facility and is provided by a

commercial bank, insurance company or other financial institution with a current long term credit rating (or whose obligations thereunder are guaranteed by a financial institution with a long term rating) from Moody's and S&P not lower than the credit rating of any Series of Bonds which has no Credit Facility.

Supplemental Ordinance means an ordinance supplemental to the General Ordinance enacted pursuant to the Act and the General Ordinance by the Council of the City.

System means the entire combined water system and wastewater system of the City, now Outstanding and hereafter acquired by lease, direct control, purchase or otherwise or constructed by the City, including any interest or participation of the City in any facilities in connection with said System, together with all additions, betterments, extensions and improvements to said System or any part thereof hereafter constructed or acquired and together with all lands, easements, licenses and rights of way of the City and all other works, property or structures of the City and contract rights and other tangible and intangible assets of the City now or hereafter owned or used in connection with or related to said System.

Tender Agent, with respect to a Series of Bonds, means any commercial bank or trust company organized under the laws of any state of the United States or any national banking association designated as a tender agent for such Series of Bonds, and its successor or successors hereafter appointed in the manner provided in the applicable Supplemental Ordinance or Determination.

Uncertificated Bond means any Bond which is fully registered as to principal and interest and which is not represented by an instrument.

Variable Rate Bond means any Bond, the rate of interest on which is subject to change prior to maturity and cannot be determined in advance of such change.

Water and Wastewater Funds means, collectively, the Revenue Fund, the Sinking Fund, the Subordinated Bond Fund, the Rate Stabilization Fund, the Residual Fund and the Construction Fund.

Water Commissioner means the head of the Water Department as provided by the Philadelphia Home Rule Charter.

Water Department means the Water Department of the City created pursuant to Section 3-100 of the Philadelphia Home Rule Charter.

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SUMMARY OF OPERATIVE PROVISIONS OF THE GENERAL ORDINANCE

The following is a summary of certain operative provisions of the General Ordinance. Reference should be made to the General Ordinance for a full and complete statement of its provisions and the meaning of any capitalized terms used herein but not otherwise defined.

Form and Terms of Bonds

All Bonds shall be in substantially such form as may be approved by the City and set forth in the Supplemental Ordinance or Determination providing for the issuance thereof. Bonds shall be generally designated as Water and Wastewater Revenue Bonds of the City and shall be issued in such Series and within such Series in such subseries as the City may from time to time determine. The aggregate principal amount of Bonds which may be issued, authenticated and delivered under the General Ordinance is unlimited, but prior to the issuance of such Series of Bonds, the City shall enact a Supplemental Ordinance authorizing such Series and the maximum aggregate principal amount of such Series.

The Bonds shall be issued in fully registered form, except as provided in the General Ordinance and, such Bonds shall be issued upon and contain such additional terms as may be set forth in the supplemental Ordinance and Determination providing for the issuance of the Bonds in question. As required by Section 5 of the Act, all Bonds shall contain a brief statement of the Project Revenues pledged as security therefor and the priority or priorities, if any, in the application of such pledged Project Revenues and shall contain a covenant of the City to pay from the pledged Project Revenues on the respective due dates the amounts required to pay the interest on and principal or redemption price of the Bonds. Bonds may be designated as of such Series by date, number, letter or otherwise and may also have such individual letters, identifying numbers or other marks, and such descriptive panels, registration panels, legends or endorsements placed thereon as may, consistent with The General Ordinance and the Act, be determined by a Supplemental Ordinance, Determination or the Director of Finance. The Bonds may also have printed thereon or on the reverse thereof the text of an approving legal opinion with respect thereto. Any portion of the text of any Bond may be set forth on the reverse thereof with an appropriate reference on the face of the Bond.

The Bonds of each Series shall be issued in such aggregate principal amount, shall be in such denominations, shall mature or be subject to mandatory redemption in such principal amounts, on such dates and at such places, shall have such Sinking Fund Installments for Bonds of like maturity and interest rate, shall bear interest from such date or dates and at such rate or rates (including variable, adjustable, convertible or other rates), shall be subject to optional redemption at such times and upon such terms, shall (if such Bonds are Option Bonds) be subject to optional or mandatory tender, and shall contain such other terms and conditions not inconsistent with the General Ordinance or the Act, all as shall be determined by the City and set forth in the Supplemental Ordinance or Determination under which such Bonds are issued, or as shall be determined by a designated officer or officers of the City thereunto authorized by the Supplemental Ordinance, or in the absence of such provisions or designation, as shall be determined by the Director of Finance as specified below.

If permitted by applicable law, any Series of Bonds may be issued as Uncertificated Bonds and the foregoing provisions specifying the form of Bonds shall be inapplicable to such Series.

A Series of Bonds may be secured by a Credit Facility meeting the requirements of the General Ordinance and the applicable Supplemental Ordinance. In connection with the issuance of its Bonds or at any time thereafter so long as a Series of Bonds remains Outstanding, the City also may enter into

Qualified Swaps or Exchange Agreements if the Bond Committee determines that such Qualified Swap or Exchange Agreement will assist the City in more effectively managing its interest costs. The City's payment obligation under any Qualified Swap shall be made from the Sinking Fund and its payment obligation under any such Exchange Agreement shall be made from the Residual Fund created pursuant to the General Ordinance. Unless otherwise acknowledged by each Rating Agency by virtue of its confirmation of the existing credit ratings on the City's Outstanding Bonds, the City will not enter into any Qualified Swap or Exchange Agreement unless it gives at least fifteen (15) day's advance notice of its intention to do so to each of the Rating Agencies, which notice shall specify the identity of the Qualified Swap Provider or Exchange Agreement counterparty, as the case may be.

Sale of Bonds; Taxes Not to be Assumed; Authority of Director of Finance

Bonds may be sold by the City at public, private, or invited sale upon such terms not inconsistent with the Act and at such prices as the City may determine. To the extent that the Supplemental Ordinance authorizing any Series of Bonds and the Determination relating to such Series shall not otherwise provide:

(a) all Bonds shall be sold at competitive public sale to the purchaser or purchasers submitting the highest and best bid upon such terms and conditions of the bidding as shall be specified in an official notice of sale issued in the name of the City by the Director of Finance;

(b) no covenant to pay or assume any taxes shall be included in such Bonds; and

(c) subject to the foregoing, the terms upon which are the prices for which the Bonds are to be sold or exchange, and the form, terms or provisions of the Bonds including, without limitation, the matters referred to in Section 5 of the Act, shall be determined by the Director of Finance who is designated in the General Ordinance as the officer of the City authorized to make such determinations based, to the extent applicable, on the prices, interest rates or other terms set forth in the highest and best proposal conforming to the bidding specifications, as ascertained and accepted on behalf of the City by the Director of Finance.

Payments of Principal, Redemption Price and Interest; Date of Bonds

Unless otherwise provided in any Bond or the Supplemental Ordinance or Determination relating thereto:

(a) The principal or redemption price of each Bond shall be payable upon surrender thereof at the principal Philadelphia office of the Fiscal Agent in Philadelphia, Pennsylvania or at the principal office of a paying agent designated in such Bonds.

(b) The interest due on any Bond in fully registered form shall be payable by check or draft mailed to the Holder thereof, or at the request of a Holder of $1,000,000 or more in principal amount or maturity value of Bonds by wire transfer to an account at a financial institution in the United States, designated in writing to the Fiscal Agent or the paying agent, subject to such provisions concerning record dates as may be contained in such Bond and in the Supplemental Ordinance and Determination providing for the issuance and terms thereof.

(c) The principal or redemption price of and the interest on each Bond shall be payable in any coin or currency of the United States of America or Bonds of a Series may be payable in such foreign currency as may be specified in the Supplemental Ordinance authorizing such Series of Bonds, if applicable law permits.

(d) Fully registered Bonds of each Series shall be dated as of the date six months preceding the interest payment date next following the date of execution thereof by the Fiscal Agent, unless such date of execution shall be an interest payment date, in which case they shall be dated as of such date of execution; provided, however, that if, as shown by the records of the Fiscal Agent, interest on the Bonds of any Series shall be in default, fully registered Bonds of such Series issued in lieu of Bonds surrendered for transfer or exchange may be dated as of the date to which interest has been paid in full on the Bonds surrendered. Fully registered Bonds of each Series shall bear interest from their date.

Notwithstanding any other provision in the General Ordinance to the contrary, the foregoing provisions of this Section are subject to the express understanding that the principal of and interest on all Bonds issued hereunder and the premium, if any, payable on redemption thereof, shall be payable only from Project Revenues and other funds provided for the payment of Bonds. The Bonds are not general obligations of the City and do not pledge the general credit or taxing power or create any debt or charge against the general revenues of the City, or create any lien against any property of the City other than pledged Project Revenues.

Execution of Bonds

The Bonds shall be executed on behalf of the City by the Fiscal Agent by the manual signatures of two of its duly authorized officers or signers, under the seal of the City which shall be either affixed or reproduced thereon in facsimile and shall be countersigned and attested by the manual or facsimile signature of the City Controller, or in such other manner as shall be authorized by law and prescribed by Supplemental Ordinance. Any such Bonds may be executed, issued and delivered notwithstanding that one or more of the officers or signers signing such Bonds or whose facsimile signature shall be upon such Bonds shall have ceased to be such officers or signers at the time when such Bonds shall actually be delivered, and although at the nominal date of the Bond any such person shall not have been such officer or signer.

Bond Registrar and Bond Register

The City shall designate one or more persons to act as "Bond Registrar" for the Bonds provided that the Bond Registrar appointed for the Bonds shall be either the Fiscal Agent or a person which would meet the requirements for qualification as a Fiscal Agent imposed by the General Ordinance. Any person other than the Fiscal Agent undertaking to act as Bond Registrar shall first execute a written agreement, in form satisfactory to the City and the Fiscal Agent, to perform the duties of a Bond Registrar under the General Ordinance, which agreement shall be filed with the Fiscal Agent.

The Bond Registrar shall act as registrar and transfer agent for the Bonds. The City shall cause the Bond Registrar to designate, by a written notification to the Fiscal Agent, a specific office location at which the Bond Register is kept. The principal corporate trust office of the Fiscal Agent shall be such office in respect of the Bonds for which the Fiscal Agent is acting as Bond Registrar.

The Bond Registrar shall, in any case where it is not also the Fiscal Agent, forthwith following each regular record date and at any other time as reasonably requested by the Fiscal Agent, certify and furnish to the Fiscal Agent and any paying agent as the Fiscal Agent shall specify, the names, addresses, and holdings of Bondholders and any other relevant information reflected in the Bond Register, and the Fiscal Agent and any such paying agent shall for all purposes be fully entitled to rely upon the information so furnished to it and shall have no liability or responsibility in connection with the preparation thereof.

Interchangeability of Bonds

Fully registered Bonds, upon surrender thereof at the office of Bond Registrar with a written instrument of transfer satisfactory to the Bond Registrar, duly executed by the registered owner or his duly authorized attorney may at the option of the registered owner thereof, and upon payment by such registered owner of any charges, which the City or Bond Registrar may make, be exchanged for an equal aggregate principal amount of fully registered Bonds of the same Series, maturity and interest rate of any other authorized denominations.

Negotiability, Transfer and Registry

Fully registered Bonds shall be transferable only by the registered owner thereof in person or by his attorney duly authorized in writing, upon surrender thereof together with a written instrument of transfer satisfactory to the Bond Registrar duly executed by the registered owner or his duly authorized attorney. Upon the transfer of any such fully registered Bonds the City shall issue and the Bond Registrar shall execute in the name of the transferee a new fully registered Bond or Bonds of the same aggregate principal amount and Series, maturity and interest rate as the surrendered Bonds.

The City, the Fiscal Agent and any paying agent designated in the Bonds may deem and treat the person in whose name any Bond shall be registered in the Bond Register as the absolute owner of such Bond, whether such Bond shall be overdue or not, for the purpose of receiving payment of, or on account of, the principal and redemption price of and interest on such Bond and for all other purposes, and all such payments so made to any such registered owner or upon his order shall be valid and effectual to satisfy and discharge the liability upon such Bond to the extent of the sum or sums so paid, and neither the City, the Fiscal Agent nor any paying agent designated in the Bond shall be affected by any notice to the contrary.

Any consent, waiver or other action taken by the registered owner of any Bond pursuant to the provisions of the General Ordinance shall be conclusive and binding upon such Holder, his heirs, successors or assigns, and upon all transferees of such Bond whether, or not notation of such consent, waiver or other action shall have been made on such Bond or on any Bond issued in exchange therefor.

Regulations With Respect to Exchanges and Transfers

In all cases in which the privilege of exchanging Bonds or transferring registered Bonds is exercised, the City shall execute and deliver Bonds in accordance with the General Ordinance. All Bonds surrendered in any such exchanges or transfers shall forthwith be delivered to the Bond Registrar and cancelled or retained by the Bond Registrar. For every such exchange or transfer of Bonds, whether temporary or definitive, the City or the Bond Registrar may make a charge sufficient to reimburse it for any tax, fee or other governmental charge imposed by a governmental unit other than the City in connection with said exchange, transfer or registration and for any charge of insuring Bonds during the delivery thereof. Neither the City nor the Bond Registrar shall be required to transfer or exchange Bonds of any Series for a period of 20 days next preceding any selection of Bonds to be redeemed or thereafter until after the first mailing of any notice of redemption, or to transfer, exchange or register any Bonds called for redemption.

Credit Enhancement; Exchange Agreements; Qualified Swaps

As provided by Supplemental Ordinance or Determination relating to any Series of Bonds and subject to the requirements of the General Ordinance, the City may provide for a Credit Facility, Exchange Agreement or Qualified Swap with respect to any Series of Bonds.

Purpose of Bonds; Combination or Projects for Financing Purposes

The Bonds issued under the General Ordinance shall be issued for the purpose (i) of paying the costs of Projects (as such term is defined in the Act) relating to the System, (ii) of reimbursing any fund of the City from which such costs shall have been paid or advanced, (iii) of funding any of such costs for which the City shall have outstanding bond anticipation notes or other obligations, (iv) of refunding any Bonds or bonds of the City issued for the foregoing purposes or (v) of financing anything else relating to the System permitted under the Act. The water and wastewater systems of the City (referenced in the definition of "System" above) are combined as a Project for the purpose of capital financing but the separate accounts or subaccounts required by the Philadelphia Home Rule Charter shall be maintained within the funds and accounts established under the General Ordinance in accordance with the Philadelphia Home Rule Charter.

Pledge or Revenues; Grant of Security Interest; Limitation on Recourse

The City pledges, and assigns to the Fiscal Agent, its successors in trust and its assigns, for the security and payment of all Bonds (other than Subordinated Bonds) and grants to said Fiscal Agent, its successors in trust and its assigns, a lien on and security interest in (i) all Project Revenues and (ii) all amounts on deposit in or standing to the credit of the funds and accounts (other than the Rebate Fund) established in the General Ordinance together with interest earnings on amounts in such funds and accounts (other than the Rebate Fund). The Fiscal Agent shall hold and apply the security interest granted in the General Ordinance and the pledged revenues and funds described therein, in trust, for the equal and ratable benefit and security of all present and future Holders of Bonds (other than Subordinated Bonds) issued pursuant to the provisions of the General Ordinance and each Supplemental Ordinance, without preference, priority or distinction of any one Bond over any other Bond (other than Subordinated Bonds); provided however, that the pledge of the General Ordinance may also be for the benefit of a Credit Facility and Qualified Swap, or any other person who undertakes to provide moneys for the account of the City for the payment of principal or redemption price of and interest on any Series of Bonds (other than Subordinated Bonds), on an equal and ratable basis with Bonds, to the extent provided by any Supplemental Ordinance or Determination.

Neither the Bonds nor the City's reimbursement or other contractual obligations under any Credit Facility, Qualified Swap or Exchange Agreement shall constitute a general indebtedness or a pledge of the full faith and credit of the City within the meaning of any constitutional or statutory provision or limitation of indebtedness. No Bondholder or beneficiary of any of the foregoing agreements shall ever have the right, directly or indirectly, to require or compel the exercise of the ad valorem taxing power of the City for the payment of the principal and redemption price of or interest on the Bonds or the making of any payments under the General Ordinance. The Bonds and the obligations evidenced thereby and by the foregoing agreements, shall not constitute a lien on any property of or in the City, other than the Project Revenues and amounts on deposit in or standing to the credit of the Water and Wastewater Funds and interest earnings on amounts in such funds.

Parity Bonds

All Bonds issued under the General Ordinance (other than Subordinated Bonds) shall be parity Bonds equally and ratably secured by the pledge of and grant of the security interest in the Project Revenues and the amounts on deposit in or standing to the credit of the funds and accounts (other than the Rebate Fund), together with interest earnings on amounts in such funds and accounts (other than the Rebate Fund) without preference, priority or distinction as to lien or otherwise, except as otherwise provided, of any one Bond over any other Bond or as between principal and interest.

The City reserves the right, and nothing in the General Ordinance shall be construed to impair such right, to finance improvements to the System by the issuance of its general obligation bonds or by the issuance, under ordinances other than Supplemental Ordinances, of water and/or wastewater revenue bonds or notes for the payment of which Project Revenues may be used or pledged subject and subordinate to the payment from such Project Revenues of the payments described below under "Transfers From Revenue Fund" and subject to the elimination of any deficiency in any fund or account established under the General Ordinance or under any Supplemental Ordinance.

Establishment of Funds and Accounts

The following funds and accounts are established by the General Ordinance and shall be held by the Fiscal Agent:

(a) Revenue Fund;

(b) Sinking Fund and within such Fund a Debt Service Account, a Charges Account and a Debt Reserve Account;

(c) Subordinated Bond Fund;

(d) Rate Stabilization Fund;

(e) Residual Fund and within such Fund a Special Water Infrastructure Account;

(f) Construction Fund, and within the Construction Fund, separate accounts designated as follows:

(i) the Existing Projects Account, into which existing proceeds, if any, of revenue bonds heretofore issued under the Act in respect of the System shall be deposited,

(ii) the Bond Proceeds Account, into which proceeds of Bonds issued under the General Ordinance shall be deposited, and

(iii) the Capital Account;

(g) Rebate Fund.

Nothing in the General Ordinance shall be construed to prevent the City from establishing, in connection with the issuance of one or more Series of Bonds, additional funds or accounts to be held for the benefit of one or more Series of Bonds issued under the General Ordinance, as set forth in Supplemental Ordinances; provided that, no such additional funds or accounts shall be established unless, in the opinion of Bond Counsel, establishment of additional funds or accounts would not adversely affect the exclusion of interest on Bonds, if any, from gross income for federal income tax purposes.

Segregation of Water and Wastewater Funds; Deposit of Project Revenues into Revenue Fund

(a) The Water and Wastewater Funds shall be held separate and apart from all other funds and accounts of the City and the Fiscal Agent and the funds and accounts therein shall not be commingled with, loaned or transferred among themselves or to any other City funds or accounts except as expressly permitted by the General Ordinance.

(b) The City shall cause all Project Revenues received by it on any date to be deposited into the Revenue Fund upon receipt thereof by the City and the Fiscal Agent shall, upon receipt of Project Revenues, deposit such Project Revenues into the Revenue Fund. The City and Fiscal Agent also shall cause to be deposited into the Revenue Fund such portion of proceeds of Bonds as designated by Supplemental Ordinance or Determination and any other funds directed to be deposited into the Revenue Fund by the City. The Fiscal Agent shall, at the written direction of the City, disburse from the Revenue Fund the amounts and at the times specified below under "Transfers From Revenue Fund."

(c) If at any time sufficient moneys are not available in the Revenue Fund to pay Operating Expenses and to make transfers required pursuant to the General Ordinance, then amounts on deposit in the Construction Fund, Rate Stabilization Fund and Residual Fund may be loaned temporarily, at the written direction of the City, to the Revenue Fund for the payment of such Operating Expenses to the extent of the deficiency, until such loaned amounts are required by the Water Department for purposes of the Fund making the loan. If a similar deficiency exists in the Construction Fund, amounts on deposit in the Revenue Fund, Rate Stabilization Fund and Residual Fund may be loaned temporarily, at the written direction of the City, to the Construction Fund, to the extent of the deficiency, until required by the Water Department for purposes of the Fund making the loan.

Transfers From Revenue Fund

Amounts on deposit in the Revenue Fund shall be applied by the Fiscal Agent, at the written direction of the City, in the following manner and in the following order of priority:

(a) to the City or its designees to pay such sums as are necessary to meet Operating Expenses in a timely manner;

(b) (i) on or before the dates that the principal or redemption price of and interest on Bonds (other than Subordinated Bonds) or payments under a Swap Agreement or Credit Facility are due, to deposit in the Debt Service Account of the Sinking Fund the amount necessary to provide for the timely payment of the principal or redemption price of and interest on such Bonds (other than Subordinated Bonds), any payments under any Swap Agreement and any amounts under a Credit Facility to repay advances thereunder to pay any of the foregoing, and (ii) on or before the dates that other payments are due under any Credit Facility with respect to Bonds (other than Subordinated Bonds) to deposit in the Charges Account of the Sinking Fund the amount necessary to make such payments;

(c) if the transfers in paragraphs (a) and (b) above are being made according to schedule, for deposit in the Debt Reserve Account, the amount, if any, required to eliminate any deficiency therein;

(d) if the transfers in paragraphs (a) and (b) above are being made according to schedule, and following any transfer required pursuant to paragraph (c) above, to deposit in any debt reserve account established within the Sinking Fund and not held for the equal and ratable benefit of all Bonds (other than Subordinated Bonds), the amount, if any, required to eliminate any deficiency therein;

(e) if the transfers in paragraphs (a) and (b) above are being made according to schedule, and following any transfer then required to be made pursuant to paragraphs (c) and (d) above, to deposit in the Subordinated Bond Fund the amount necessary to provide for the timely payment of the principal or redemption price of and interest on Subordinated Bonds, and forward to the paying agent in respect of bond anticipation notes (payable by exchange for, or out of the proceeds of the sale of Subordinated Bonds) the amount necessary to provide for the timely payment of interest thereon (to the extent not capitalized);

(f) if the transfers in paragraphs (a) and (b) above are being made according to schedule, and following any transfer then required to be made pursuant to paragraphs (c), (d) and (e) above to pay to the City the amount necessary to provide for the timely payment of the principal or redemption price of and interest on General Obligation Bonds;

(g) if the transfers in paragraphs (a) and (b) above are being made according to schedule, and following any transfer then required to be made pursuant to paragraphs (c), (d), (e) and (f) above, to transfer to the Rate Stabilization Fund such amount as the Water Commissioner may determine, the first such determination to be made on the Effective Date and to include the balance on that date in the Renewal and Replacement Fund created under the Prior Ordinance and the unencumbered operating balance of the Water Department as of the end of the Fiscal Year immediately preceding the Effective Date;

(h) if the transfers in paragraphs (a) and (b) above are being made according to schedule, and following any transfer then required to be made pursuant to paragraphs (c) , (d) , (e), (f) and (g) above, to transfer to the Capital Account of the Construction Fund on June 20 of each Fiscal Year (or the first business day following June 20 if June 20 is not a business day) an amount equal to the sum of (i) the Capital Account Deposit Amount, (ii) the Debt Service Withdrawal for the preceding Fiscal Year and (iii) the Operating Expense Withdrawal for the preceding Fiscal Year, less any amounts transferred during the Fiscal Year to such Capital Account from the Residual Fund; and

(i) if the transfers in paragraphs (a) and (b) above are being made according to schedule, and following any transfer then required to be made pursuant to paragraphs (c), (d), (e), (f), (g) and (h) above and after providing for the repayment of any inter-Fund loans, to transfer as of June 30 of each year all remaining amounts to the Residual Fund.

Notwithstanding the foregoing, nothing in the General Ordinance shall prevent the City from directing the transfer of amounts on deposit in any fund or account established under the General Ordinance into the Rebate Fund in the amounts and at the times specified below under "Funds and Accounts — Rebate Fund."

Sinking Fund

The Sinking Fund is to be a consolidated fund for the equal and proportionate benefit of the Holders of all Bonds (other than Subordinated Bonds) from time to time Outstanding and each account therein may be invested and reinvested on a consolidated basis.

The Fiscal Agent, as directed by the City by Supplemental Ordinance, Determination or other written direction, shall pay out of the Debt Service Account of the Sinking Fund to the designated paying agent or agents (i) on or before each interest payment date for any of the Bonds (other than Subordinated Bonds) the amount required for the interest payable on such date; and (ii) on or before each principal, redemption or prepayment date for any Bonds (other than Subordinated Bonds), the amount required for the principal, redemption or prepayment payable on such date, and (iii) on or before the respective due dates the amounts, if any, due under any Swap Agreements. Such amounts shall be applied by the designated paying agent or agents on the due dates thereof. The Fiscal Agent shall also pay out of the Debt Service Account of the Sinking Fund the accrued interest included in the purchase price of Bonds purchased for retirement and on or before the due dates any amounts owing by the City under any Credit Facility on account of advances to pay principal of or interest or redemption premium on Bonds (other than Subordinated Bonds).

Amounts accumulated in the Debt Service Account with respect to any Sinking Fund Installment (together with amounts accumulated therein with respect to interest on the Bonds for which such Sinking Fund Installment was established) if so directed by the City, shall be applied by the Fiscal Agent, on or prior to the 60th day preceding the due date of such Sinking Fund Installment, to the purchase of Bonds of the Series, maturity and interest rate within each maturity for which such Sinking Fund Installment was established. All purchases of Bonds pursuant to this provision shall be made at prices not exceeding the applicable sinking fund redemption price of such Bonds plus accrued interest, and such purchases shall be made by the Fiscal Agent as directed by the City. As soon as practicable after the 42nd day preceding the due date of any such Sinking Fund Installment, the Fiscal Agent shall proceed to call for redemption, by giving notice as provided in the General Ordinance, on such due date Bonds of the Series, maturity and interest rate within each maturity for which such Sinking Fund Installment was established (except in the case of Bonds maturing on a Sinking Fund Installment date) in such amount as shall be necessary to complete the retirement of the unsatisfied balance of such Sinking Fund Installment after making allowance for any Bonds purchased with moneys held in the Subordinated Bond Fund which the City has directed the Fiscal Agent to apply as a credit against such Sinking Fund Installment. The Fiscal Agent shall pay out of the Sinking Fund to the appropriate paying agent or agents, on or before such redemption date (or maturity date) the amount required for the redemption of the Bonds so called for redemption (or for the payment of such Bonds then maturing) and such amount shall be applied by such paying agent or agents to such redemption (or payment). All expenses in connection with the purchase or redemption of Bonds shall be paid by the City from Project Revenues.

In the event of the refunding of any Bonds, the Fiscal Agent shall, if the City so directs, withdraw from the Sinking Fund all, or any portion of, the amounts accumulated therein with respect to principal or interest on the Bonds being refunded and deposit such amounts with itself or another financial institution serving as escrow agent to be held for the payment of the principal or redemption price, if applicable, and interest on the Bonds being refunded; provided that such withdrawal shall not be made unless immediately thereafter the Bonds being refunded shall be deemed to have been paid as described below under "Deposit of Funds for Payment of Bonds." In the event of a refunding, the City may also direct the Fiscal Agent to withdraw from the Sinking Fund all, or a portion of, the amounts accumulated therein with respect to principal and interest on the Bonds being refunded and deposit such amounts in any fund or account established under the General Ordinance.

If any Bond shall not be presented for payment when the principal thereof becomes due, either at maturity or otherwise or at the date fixed for redemption thereof, if moneys sufficient to pay such Bond shall have been deposited with the Fiscal Agent, it shall be the duty of the Fiscal Agent to hold such moneys, without liability to the City, any Bondholder or any other person for interest thereon, for the benefit of the owner of such Bond. Notwithstanding the foregoing, any moneys in the Sinking Fund for the payment of the interest, principal or redemption premium of Bonds unclaimed for two (2) years after the due date shall be repaid to the City but such repayment shall not discharge the obligation, if any, for which such moneys were previously held in the Sinking Fund; provided, however, that such repayment shall not be made unless, at the time of such repayment, there shall exist no deficiency in any fund or account established under the General Ordinance or any Supplemental Ordinance.

The Fiscal Agent shall pay out of the Charges Account to the appropriate payees any fees, expenses and other amounts due under any Credit Facility with respect to Bonds (other than Subordinated Bonds), to the extent such amounts are not paid from the Debt Service Account.

Credits Against Sinking Fund Installments

If at any time Bonds of any Series or maturity for which Sinking Fund Installments shall have been established are purchased or redeemed other than (i) from amounts accumulated in the Debt Service

Account or (ii) Bonds deemed to have been paid as described under "Deposit of Funds for Payment of Bonds" below, and, with respect to such Bonds which have been deemed paid, irrevocable instructions have been given to the Fiscal Agent to redeem or purchase the same on or prior to the due date of the Sinking Fund Installment to be credited under this paragraph, the City may from time to time and at any time by written notice to the Fiscal Agent specify the portion, if any, of such Bonds so purchased, redeemed or deemed to have been paid and not previously applied as a credit against any Sinking Fund Installment which are to be credited against future Sinking Fund Installments. Such notice shall specify the amounts of such Bonds to be applied as a credit against such Sinking Fund Installment or Installments and the particular Sinking Fund Installment or Installments against which such Bonds are to be applied as a credit; provided, however that none of such Bonds may be applied as a credit against a Sinking Fund Installment to become due less than 42 days after such notice is delivered to the Fiscal Agent. All such Bonds to be applied as a credit shall be surrendered to the Fiscal Agent for cancellation on or prior to the due date of the Sinking Fund Installment against which they are being applied as a credit. The portion of any such Sinking Fund Installment remaining after the deduction of any such amounts credited toward the same (or the original amount of any such Sinking Fund Installment if no such amounts shall have been credited toward the same) shall constitute the unsatisfied balance of such Sinking Fund Installment for the purpose of calculation of Sinking Fund Installments due on a future date.

Debt Reserve Account

Unless otherwise provided in the applicable Supplemental Ordinance, the City is required, under direction of the Director of Finance, to deposit in the Debt Reserve Account from the proceeds of sale of each Series of Bonds issued under the General Ordinance, an amount which, when added to the Outstanding balance in the Debt Reserve Account, will be equal to the Debt Reserve Requirement immediately after the issuance of such Series of Bonds. The money and investments in the Debt Reserve Account shall be held and maintained in an amount equal at all times to the Debt Reserve Requirement provided that if the Supplemental Ordinance authorizing a Series of Bonds shall authorize the accumulation from Project Revenues of a reserve of such amount in respect of such Bonds over a period of not more than three Fiscal Years after the issuance and delivery of such Bonds, then the full payment of the annual deposits required under such Supplemental Ordinance will meet the Debt Reserve Requirements of the General Ordinance in respect of such Bonds.

If at any time and for any reason, the moneys in the Debt Service Account of the Sinking Fund are insufficient to pay as and when due, the principal of (and premium, if any) or interest on any Bond or Bonds or other obligations payable from the Debt Service Account then due (including under Swap Agreements and Credit Facilities), the Fiscal Agent is authorized and directed to withdraw from the Debt Reserve Account and pay over the amount of such deficiency for deposit in the Debt Service Account. If by reason of such withdrawal or for any other reason there shall be a deficiency in the Debt Reserve Account, the City covenants to restore such deficiency promptly from Net Revenues.

Any moneys in the Debt Reserve Account in excess of the Debt Reserve Requirement are required to be transferred to the Revenue Fund at the written direction of the City.

Notwithstanding the foregoing provisions, in lieu of the required deposits into the Debt Reserve Account, the City may cause to be deposited into the Debt Reserve Account a surety bond or an insurance policy payable to the Fiscal Agent for the account of the Bondholders and any Qualified Swap or an irrevocable letter of credit in an amount equal to the difference between the Debt Reserve Requirement and the remaining sums, if any, then on deposit in the Debt Reserve Account. The surety bond, insurance policy or letter of credit shall be payable (upon the giving of notice as required thereunder) on any interest payment date on which moneys will be required to be withdrawn from the Debt Reserve Account and applied to the payment of debt service on the Bonds and such withdrawal cannot be met by amounts on

deposit in the Debt Reserve Account or provided from any other Fund under the General Ordinance. The insurer providing such surety bond or insurance policy shall be an insurer whose municipal bond insurance policies insuring the payment, when due, of the principal of and interest on municipal bond issues results in such issues being rated in not lower than the second highest rating category (without regard to rating subcategories) by either Moody's or S&P. The letter of credit issuer shall be a bank or trust company which is rated not lower than the second highest rating category (without regard to ratings sub-categories) by either Moody's or S&P. If a disbursement is made pursuant to a surety bond, an insurance policy or a letter of credit provided pursuant to this paragraph, the City shall be obligated either (i) to reinstate the maximum limits of such surety bond, insurance policy or letter of credit or (ii) to deposit into the Debt Reserve Account, funds in the amount of the disbursement made under such surety bond, insurance policy or letter of credit, or a combination of such alternatives, as shall provide that the amount in the Debt Reserve Account equals the Debt Reserve Requirement within a time period not longer than would be required to restore the Debt Reserve Account by operation of this provision and from the same source of funds as provided in the General Ordinance. Upon the occurrence of any reduction or suspension or any credit rating with respect to such surety bond, insurance policy or letter of credit (or the provider thereof) required by the General Ordinance, the City shall so notify the provider of the surety bond, insurance policy or letter of credit and prior to the effective date of such cancellation shall either provide a substitute surety bond, insurance policy or letter of credit meeting the above-described requirements or shall deposit cash in the Debt Reserve Account so that the amount in such Account shall equal the Debt Reserve Requirement. The Director of Finance may use funds already held in the Debt Reserve Account to purchase appropriate surety bonds or insurance policies for deposit in the Debt Reserve Account in lieu of some or all of the current cash or other deposits therein, which surety bonds or insurance policies shall satisfy the requirements described in this paragraph.

Subordinated Bond Fund

Subject to the third paragraph under this heading, the Fiscal Agent shall apply amounts in the Subordinated Bond Fund to the payment of the principal of, redemption premium, if any, and interest on Subordinated Bonds of a Series and to payments due under any Credit Facilities and Exchange Agreements with respect to Subordinated Bonds in accordance with the provisions of, and subject to the priorities and limitations and restrictions provided in, the Supplemental Ordinance and Determination authorizing such Series of Subordinated Bonds.

At any time and from time to time the City may deposit in the Subordinated Bond Fund for the payment of the principal of, redemption premium, if any, and interest on Subordinated Bonds amounts received from any source other than Project Revenues which is not inconsistent with the General Ordinance or any Supplemental Ordinance or Determination.

If at any time the amounts in the Sinking Fund shall be less than the current requirement of such fund pursuant to paragraphs (b) and (c) under "Transfers from Revenue Fund" above and there shall not be on deposit in the Debt Reserve Account, the Capital Account or the Residual Fund available moneys sufficient to cure such deficiency, then the Fiscal Agent shall withdraw from the Subordinated Bond Fund and deposit in the Sinking Fund the amount necessary (or all the moneys in said fund, if less than the amount necessary) to eliminate such deficiency.

Any moneys in the Subordinated Bond Fund for the payment of the interest, principal or redemption premium of Subordinated Bonds unclaimed for two years after the due date are to be repaid to the City but such repayment shall not discharge the obligation, if any, for which such moneys were previously held in the Subordinated Bond Fund; provided, however, that such repayment shall not be made unless, at the time of such repayment, there shall exist no deficiency in any fund or account established under the General Ordinance or any Supplemental Ordinance.

Construction Fund

Proceeds of Bonds issued for capital purposes are to be deposited into the Bond Proceeds Account of the Construction Fund and disbursed according to established procedures of the City.

As described in paragraph (c) under "Segregation of Water and Wastewater Funds; Deposit of Project Revenues into Revenue Fund" above, the General Ordinance requires that, if at any time sufficient moneys are not available for the payment of Operating Expenses, then amounts on deposit in the Capital Account may be used for the payment of Operating Expenses to the extent of the deficiencies.

Residual Fund

Amounts on deposit in the Residual Fund may be used at the written direction of the City (i) to pay Operating Expenses; (ii) to fund transfers to any fund or account established under the General Ordinance or under a Supplemental Ordinance (other than the Revenue Fund and the Rate Stabilization Fund); (iii) to make payments required under any Exchange Agreement; (iv) for the payment of principal, redemption premium, if any, and interest on any revenue bonds or notes (the proceeds of which were applied in respect of the System) issued under the Act but not under the General Ordinance; (v) for the payment of principal, redemption premium, if any, and interest on any General Obligation Bonds; (vi) for the payment of principal, redemption premium, if any, and interest on other general obligation debt issued in respect of the System; (vii) for the payment of amounts due under capitalized leases or similar obligations relating to the System; and (viii) to fund a transfer to the City's "General Fund" in an amount not to exceed the lower of (A) all "Net Reserve Earnings" as defined below or (B) $4,994,000. "Net Reserve Earnings" shall mean the amount of interest earnings during the Fiscal Year on amounts in the Debt Reserve Account and the Subordinated Bond Fund less the amount of interest earnings during the Fiscal Year on amounts in any such reserve funds and accounts giving rise to a rebate obligation pursuant to Section 148(f) of the Code.

The General Ordinance provides that the City establish expenditure authority from the Residual Fund to enable it to pay Operating Expenses and the other items permitted by the General Ordinance. In the event that there is a substitution of appropriate surety bonds or insurance policies from some or all of the deposits held in the Debt Reserve Account, a transfer of resulting excess money in the Debt Reserve Account to the Revenue Fund and, following compliance with the provisions described under "Transfers From Revenue Fund" in this Appendix III, a transfer of remaining amounts of such excess to the Residual Fund, such remaining amount shall be deposited into the Special Water Infrastructure Account. Any amounts deposited in the Special Water Infrastructure Account may be used to finance water-related infrastructure projects.

Rate Stabilization Fund

Pursuant to the General Ordinance, as of the effective date of the General Ordinance and as of June 30 of each Fiscal Year, the City may transfer (i) from the Rate Stabilization Fund to the Revenue Fund or (ii) from the Revenue Fund to the Rate Stabilization Fund, the amount determined by the Water Commissioner to be transferred for such Fiscal Year.

Rebate Fund

The General Ordinance provides that the Rebate Fund shall be maintained for so long as any Series of Bonds is Outstanding, and for 60 days thereafter (or such other period as may be specified by the Code and applicable regulations), for the purpose of paying to the United States Treasury the amount required to be rebated pursuant to Section 148(f) of the Code. All amounts in the Rebate Fund, including

income earned from investment of amounts in the Rebate Fund, shall be held by the City free and clear of the lien created by the General Ordinance.

Management of Funds and Accounts

The General Ordinance provides that the moneys on deposit in the funds and accounts established under the General Ordinance, to the extent not currently required, shall be invested and secured as required by Section 9 of the Act, all at the direction and under the management of the Director of Finance or such other chief fiscal officer of the City as may hereinafter be established.

Investment of Funds and Accounts

All moneys deposited in any fund or account established under the General Ordinance or under any Supplemental Ordinance may be invested by the City or by the Fiscal Agent, at the oral or written direction of the City, in any investments permitted by law (except as otherwise provided in the General Ordinance with respect to the Debt Reserve Account and Rebate Fund); provided that any investments with respect to amounts on deposit in the funds (other than the Debt Reserve Account) and accounts established under the General Ordinance shall mature or shall be subject to redemption by the holder thereof upon demand at par no later than the date when such amounts are needed for the purposes of such funds or accounts. Interest earnings on amounts on deposit (i) in the Revenue Fund are to be credited to the Revenue Fund; (ii) in the Sinking Fund (except as provided in (iii) below) are to be credited to the Sinking Fund to the extent needed to meet Debt Service Requirements in respect of Bonds (other than Subordinated Bonds) and additional interest earnings shall be credited to the Revenue Fund; (iii) in the Debt Reserve Account shall be credited to the Debt Reserve Account until such account is fully funded and shall then be credited to the Residual Fund up to the maximum amount to be transferred to the City's General Fund and any excess is to then be transferred to the Revenue Fund; (iv) in the Subordinated Bond Fund are to be credited to the Subordinated Bond Fund to the extent needed to meet Debt Service Requirements in respect of Subordinated Bonds and additional interest earnings shall be credited to the Revenue Fund or to such other fund or account established under the General Ordinance as the City may direct pursuant to a Supplemental Ordinance; (v) in the Residual Fund, shall be credited to the Residual Fund; (vi) in the Rate Stabilization Fund shall be credited to the Revenue Fund; (vii) in the Construction Fund shall be credited to the appropriate account of the Construction Fund or to the Revenue Fund, as the City shall direct; and (viii) in the Rebate Fund shall be credited to the Rebate Fund.

Valuation of Funds and Accounts

In computing the assets of any fund or account established under the General Ordinance, investments and accrued interest thereon are to be deemed a part thereof. Such investments shall be valued on June 30 of each Fiscal Year at the lower of the cost or current market value thereof if the applicable maturity is more than one year and at par if the applicable maturity is equal to or less than one year plus accrued interest, or at the redemption price thereof, if then redeemable at the option of the holder; provided that investments in any reserve fund or reserve account of the Sinking Fund established pursuant to a Supplemental Ordinance may be valued as provided in the Supplemental Ordinance establishing it. The annual valuation is to apply for all purposes of the General Ordinance except if Bonds are issued or a fund deficit occurs based on the annual valuation, in which cases a valuation is to be made on the date Bonds are issued or the deficit is eliminated, as the case may be.

Covenants of the City

Rate Covenant: Pursuant to the General Ordinance, the City covenants with the Bondholders that it will, at a minimum, impose, charge and collect in each Fiscal Year such water and wastewater rents,

rates, fees and charges as shall yield Net Revenues which shall be equal to at least 1.20 times the Debt Service Requirements for such Fiscal Year (recalculated to exclude therefrom principal and interest payments in respect of Subordinated Bonds); provided that such water and wastewater rents, rates, fees and charges shall yield Net Revenues which shall be at least equal to 1.00 times (i) the Debt Service Requirements for such Fiscal Year (including Debt Service Requirements in respect of Subordinated Bonds); (ii) amounts required to be deposited into the Debt Reserve Account during such Fiscal Year; (iii) the principal or redemption price of and interest on General Obligation Bonds payable during such Fiscal Year; (iv) debt service requirements on Interim Debt payable during such Fiscal Year; and (v) the Capital Account Deposit Amount for such Fiscal Year (less any amounts transferred from the Residual Fund to the Capital Account during such Fiscal Year). In estimating debt service requirements on any Interim Debt for the purposes of projecting compliance with this covenant, the City is entitled to assume that such Interim Debt will be amortized over a period of up to the maximum term permitted by the Act, provided however, such period shall not be in excess of the useful life of the assets to be financed, on an approximately level debt service basis and bear interest at the average interest rate on bonds of a similar maturity and credit rating (without any credit enhancement) as the Bonds outstanding under the General Ordinance. Promptly upon any material change in the circumstances which were contemplated at the time such rents, rates, fees and charges were most recently reviewed, but not less frequently than once in each Fiscal Year, the City is required to review the rents, rates, fees and charges as necessary to enable the City to comply with the foregoing requirements; provided that such rents, rates, fees and charges shall in any event produce moneys sufficient to enable the City to comply with its covenants in the General Ordinance.

In estimating Debt Service Requirements on any Variable Rate Bonds for purposes of projecting compliance with this covenant or funding the Debt Reserve Account, the City is entitled to assume that such Variable Rate Bonds will bear interest at a rate equal to (i) the average interest rate on the Variable Rate Bonds during the period of 24 consecutive calendar months preceding the date of calculation or (ii) if the Variable Rate Bonds were not Outstanding during the entire 24-month period, the average interest rate on the Variable Rate Bonds since their date of issue or (iii) such other rate as may be specified in a Supplemental Ordinance or Determination.

Pursuant to the General Ordinance, the City represents that it has, by its Code of General Ordinances, as amended, authorized the imposition of rents, rates, fees and charges by the Water Department sufficient from time to time to comply with the Rate Covenant and covenants with the Holders of Bonds that it will not repeal or materially adversely dilute or impair such authorization.

Timely Payment of Principal, Redemption Premium and Interest: Pursuant to the General Ordinance, the City covenants with the Holders of all Bonds Outstanding under the General Ordinance that so long as such Bonds shall remain Outstanding it will pay or cause the Fiscal Agent or a paying agent to pay from the Project Revenues deposited in the Sinking Fund and the Subordinated Bond Fund the principal of, redemption premium, if any, and interest on all Bonds as the same shall become due and payable and as more particularly set forth in the Bonds and to pay the amounts due with respect to any and all Credit Facilities (including the reimbursement agreement or similar related agreement) and Qualified Swaps.

Operation of System: Pursuant to the General Ordinance, the City covenants with the Holders of all Bonds Outstanding under the General Ordinance that so long as such Bonds shall remain Outstanding it will continuously maintain the System or cause the System to be maintained in good condition and will continuously operate the System or cause the System to be operated.

Conditions of and Provisions Relating to Issuing Bonds: The City covenants with the Holders of all Bonds Outstanding under the General Ordinance that so long as any such Bonds shall remain

Outstanding it will not issue any Series of Bonds under the General Ordinance without first complying with certain conditions stated in the General Ordinance including, without limitation, (a) the enactment of a Supplemental Ordinance, (b) the filing with the Fiscal Agent of a transcript of the proceedings relating to the issuance of such Series of Bonds, (c) the delivery to the City Council of a Consulting Engineer's Report, (d) the filing with the Fiscal Agent of certain opinions of counsel and (e) the execution of appropriate documents.

The Consulting Engineer's Report referred to in the preceding paragraph shall state that the Net Revenues are currently sufficient to comply with the Rate Covenant and are projected to be sufficient to comply with the Rate Covenant for each of the two Fiscal Years following the Fiscal Year in which the Bonds are to be issued; provided that if interest on such Bonds or a portion thereof has been capitalized, the projection shall extend to the two Fiscal Years following the Fiscal Year up to which interest has been capitalized on the Bonds or a portion thereof.

The General Ordinance provides that upon compliance with the conditions enumerated in the preceding paragraph and unless otherwise provided in the applicable Supplemental Ordinance or Determination, accrued interest on Bonds (other than Subordinated Bonds) shall be deposited in the Sinking Fund, accrued interest on Subordinated Bonds shall be deposited in the Subordinated Bond Fund, an amount sufficient to satisfy the requirements concerning the Debt Reserve Account shall be deposited in the Debt Reserve Account and the balance of the proceeds of the Bonds shall be deposited in the Bond Proceeds Account of the Construction Fund and shall be disbursed therefrom, in accordance with established procedures of the City; provided, however, that if such Bonds shall be issued for the purpose of funding or refunding Bonds previously issued by the City such proceeds shall, unless otherwise directed by the Supplemental Ordinance, be deposited in a special fund or account to be established with and held by the Fiscal Agent or another entity acting as an escrow agent and invested (if appropriate) and disbursed under the direction of the Director of Finance for the purpose of retiring the Bonds being funded or refunded.

Refunding Bonds

If the City shall, by Supplemental Ordinance, authorize the issuance of refunding Bonds pursuant to Section 10 of the Act, in the absence of specific direction or inconsistent authorization in the Supplemental Ordinance, the Director of Finance is authorized in the name and on behalf of the City to take all such action, including the irrevocable pledge of proceeds and the income and profit from the investment thereof for the payment and redemption of the funded or refunded Bonds, bonds or notes and, if there shall have been provided a Qualified Swap with respect to the Bonds to be refunded, provision for the payment, if any, of all amounts due and payable by the City under such Qualified Swap, and including the publication of all required redemption notices or the giving of irrevocable instructions therefor, as may be necessary or appropriate to accomplish the funding or refunding and to comply with the requirements of Section 10 of the Act.

Subordinated Bonds

The City may, at any time, or from time to time, issue Subordinated Bonds for any purpose permitted under the General Ordinance and under the Act. Subordinated Bonds shall be payable out of, and may be secured by a security interest in and a pledge and assignment of, Project Revenues and amounts on deposit in the Subordinated Bond Fund; provided, however, that any such security interest in and pledge and assignment of Project Revenues and amounts on deposit in the Subordinated Bond Fund shall be, and shall be expressed to be, subordinate in all respects to the security interest in, and pledge and assignment of, the Project Revenues and the amounts on deposit in the funds and accounts (other than the

Rebate Fund but including the Subordinated Bond Fund) established under the General Ordinance for the security of the Bonds (other than Subordinated Bonds).

Annual Reports

The City covenants with the Holders of all Bonds Outstanding under the General Ordinance that so long as such Bonds shall remain Outstanding it will, within 120 days following the close of each Fiscal Year of the City or as soon thereafter as is practicable (not exceeding 150 days following the close of each Fiscal Year), file with the Fiscal Agent a report of the operation of the System, setting forth, among other things, in reasonable detail financial data concerning, and consolidated for, the water and wastewater components of the System for such Fiscal Year, including a balance sheet and a statement of income, expenses, and surplus (in each case not inconsistent with the statement of income, expenses, and other accounts of the City audited by the City Controller) prepared by the Water Department in accordance with generally accepted accounting principles consistently applied, showing compliance with the Rate Covenant, accompanied by a certificate of the Water Commissioner that the water and wastewater components of the System are in good operating condition and by a certificate of the Director of Finance that as of the date of such report the City has complied with all of the covenants in the General Ordinance and in all Supplemental Ordinances on its part to be performed. Such report shall be furnished to the Fiscal Agent in such reasonable number of copies as shall be required to meet the written requests of Bondholders therefor on a first come first served basis.

Disposition of Insurance Proceeds and Proceeds from the Sale of Assets

In the event that any assets of the System are destroyed or the City shall sell any assets of the System (except in the event of the sale or transfer of all or substantially all of the assets of the System to a municipal authority), the City shall, if the insurance proceeds or the proceeds from the sale of assets exceed 1.5% of the depreciated value of property, plant and equipment of the System, as shown on the financial statements of the City for the preceding Fiscal Year, apply such amounts, at the direction .of the Director of Finance or such other chief fiscal officer of the City as may hereinafter be established (i) to the retirement of the principal amount of debt incurred in respect to the System; (ii) to the reconstruction, repair or replacement of assets of the System; or (iii) to the making of capital additions or improvements to the System.

Bonds Not to Become Arbitrage Bonds

The General Ordinance provides that the City covenants for the benefit of the Bondholders that, notwithstanding any other provision of the General Ordinance or any other instrument, it will neither make nor instruct the Fiscal Agent to make any investment or other use of amounts on deposit in the funds and accounts established by the General Ordinance or other proceeds of the Bonds which would cause any Series of Bonds issued under the General Ordinance as tax-exempt to be arbitrage bonds under Section 148 of the Code and the regulations thereunder to the extent that the same are applicable at the time of such investment; it will file any reports required to be filed pursuant to the Code; and it will not take or fail to take any action so as to render any Series of Bonds issued under the General Ordinance as tax-exempt to be arbitrage bonds under Section 148 of the Code.

Prohibition Against Certain Uses of Funds; Enforcement

The City covenants that while any Bonds are Outstanding under the General Ordinance, it will not direct the Fiscal Agent to transfer, loan or advance proceeds of the Bonds or Project Revenues from the Water and Wastewater Funds to any City account for application other than for Water Department purposes.

If, on any date when a deposit is required to be made of the Project Revenues, the City fails to comply with any provision of the General Ordinance, the Fiscal Agent is authorized to and shall seek, by mandamus or other suit, action or proceeding at law or in equity, the specific enforcement or performance of the obligation of the City to cause the Project Revenues to be transferred to the Revenue Fund, and shall have any and all other rights and remedies of a fiscal agent under the General Ordinance, any Supplemental Ordinance, the Act or otherwise at law or in equity.

Credit Facilities and Qualified Swaps

All or any of the foregoing covenants of the City for the benefit of the Bondholders may also be for the benefit of the providers of any Credit Facility and any Qualified Swap to the extent provided in a Supplemental Ordinance or Determination.

Bonds May Be Subject to Redemption

Bonds of any Series may be subject to either optional or mandatory redemption at the times, in the order, in the amounts, at the redemption prices, and under such terms, conditions and restrictions, ail as may be set forth in the Supplemental Ordinance authorizing the issuance of such Series of Bonds or in the Determination relating to such Series of Bonds or, in the absence of such provisions, as may be set forth in the Bonds of such Series, at the direction of the Director of Finance. Notwithstanding or in limitation of the foregoing, a Supplemental Ordinance or Determination for a Series of Bonds may contain provisions for optional redemption of a Series of Bonds which may be retained by the City as a call option or may be held by the City or sold simultaneously with such Series of Bonds or at future dates as determined by such Supplemental Ordinance or Determination.

Effect of Redemption, Payment

Upon compliance with certain notice requirements stated in the General Ordinance, or upon irrevocable instructions to give such notice having been delivered to the Fiscal Agent, irrevocable instruction having been delivered to the Fiscal Agent to pay said Bonds or portions thereof and to pay the amount, if any, due and payable under any Qualified Swap related to said Bonds, and funds having been deposited in the Sinking Fund or the Subordinated Bond Fund (as the case may be) prior to the date fixed for redemption, the Bonds or portions thereof so called for redemption shall become due and payable on the redemption date so designated, and interest on such Bonds or portions thereof shall cease from such redemption date, whether such Bonds be presented for redemption or not. The principal amount of all Bonds or portions thereof so called for redemption, together with the premium, if any, and accrued interest thereon, shall be paid by the Fiscal Agent or any other paying agent designated in the Bonds, upon presentation and surrender thereof in negotiable form.

Partial Redemption

Upon presentation of any Bond which is to be redeemed in part only, the City and the Fiscal Agent shall execute and deliver to the Holder thereof, at the expense of the City, a new Bond or Bonds of authorized denominations in a principal amount equal to and of the same Series and maturity as the unredeemed portion of the Bond or Bonds so presented.

Fiscal Agent

The Fiscal Agent under the Prior Ordinance or its successor, shall be Fiscal Agent as of the Effective Date for the General Ordinance. The City may appoint a successor Fiscal Agent by Supplemental Ordinance to act as Fiscal Agent under the General Ordinance, and in connection with the

Bonds issued under the General Ordinance. The Fiscal Agent shall also act as depository of the Sinking Fund and the Subordinated Bond Fund, and may act as paying agent and bonds registrar.

Nothing in the General Ordinance is to be construed to prevent the City, in accordance with law, from engaging other Fiscal Agents from time to time or to engage other paying agents of the Bonds or any Series thereof in addition to, or as a successor to the Fiscal Agent. Any entity appointed by the City as Fiscal Agent under the General Ordinance shall be a trust company or national or state bank having trust powers and combined capital and surplus of at least million $50,000,000 and be qualified to serve pursuant to the Act. Any entity appointed by the City as Fiscal Agent under the General Ordinance as a successor to the Fiscal Agent shall assume all rights and obligations of the Fiscal Agent under the General Ordinance.

Subject to the foregoing, the General Ordinance provides that the proper officers of the City are authorized to enter into contracts or to confirm existing agreements governing the maintenance of funds and accounts and records, the disposal of cancelled Bonds, the rights, duties, privileges and immunities of the Fiscal Agent, and such other matters as are authorized by the Act and as are customary and appropriate and to confirm the agreement of the Fiscal Agent, in its several capacities, to comply with the provisions of the Act and of the General Ordinance.

The Fiscal Agent shall keep on file a copy of each report and its accompanying certificates delivered to it pursuant to the General Ordinance for a period of ten years and shall exhibit the same to, and permit the copying thereof by, any Bondholder or his authorized representative at all reasonable times.

Resignation of Fiscal Agent

The Fiscal Agent may resign and be discharged of the duties created by the General Ordinance by written resignation filed with the Director of Finance not less than 60 days before the date when such resignation is to take effect. Such resignation shall take effect on the day specified in such notice provided that a successor Fiscal Agent is appointed. If a successor Fiscal Agent is appointed prior to the date specified in the notice, the resignation shall take effect immediately on the appointment of such successor, and the City shall give the required notices described under "Appointment of Successor Fiscal Agent" below.

Appointment of Successor Fiscal Agent

If the Fiscal Agent or any successor Fiscal Agent resigns, is replaced, or is dissolved or if its property or business is taken under the control of any state or federal court or administrative body, a vacancy shall exist in the office of the Fiscal Agent, and the City shall appoint a successor within 30 days of such vacancy and shall mail notice of such appointment to the Bondholders and to the registered depositories at their registered addresses by first class mail, postage prepaid, within 30 days of such appointment.

Defaults and Statutory Remedies; Notice to Bondholders

If the City shall fail or neglect to pay or to cause to be paid the principal of, redemption premium, if any, or interest on any Bond or any Series of Bonds issued under the General Ordinance, whether at stated maturity or upon call for prior redemption, or if the City, after written notice to it, shall fail or neglect to make any payment owed by it as a result of a Credit Facility or Qualified Swap entered into with respect to Bonds and the provider of the Credit Facility or the Qualified Swap Provider provides written notification to the Fiscal Agent of such failure or neglect, or if the City shall fail to comply with

any provision of any Bonds or with any covenant of the City contained in the General Ordinance, then, under and subject to the terms and conditions stated in the Act, the Holder or Holders of any Bond or Bonds shall be entitled to all of the rights and remedies, including the appointment of a trustee, provided in the Act; provided, however, that the remedy provided in Section 20(b)(4) of the Act may be exercised only upon the failure of the City to pay, when due, principal and redemption price (including principal due as a result of a scheduled mandatory redemption) and interest on a Series of Bonds.

Upon the occurrence of the event of default described above, or if an event occurs which could lead to a default with the passage of time and of which the Fiscal Agent has notice, the Fiscal Agent is required to, within 30 days, give written notice thereof by first-class mail to all Bondholders.

Remedies Not Exclusive; Effect of Delay in Exercise of Remedies

No remedy contained in the General Ordinance or in the Act conferred upon or reserved to the trustee, if any, or to the Holder of any Bond is intended to be exclusive (except as specifically provided in the Act) of any other remedy or remedies, and each and every such remedy shall be cumulative, and shall be in addition to every other remedy given under the General Ordinance or now or hereafter existing at law or in equity or by statute.

No delay or omission of a trustee, if one be appointed pursuant to Section 20 of the Act, or of any Holder of the Bonds to exercise any right or power accruing upon any default shall impair any such right or power or shall be construed to be a waiver of any such default, or an acquiescence therein; and every power and remedy provided with respect to an event of default under the General Ordinance, by the Act or otherwise may be exercised from time to time, and as often as may be deemed expedient.

Remedies to be Enforced Only Against Project Revenues

Any decree or judgment for the payment of money against the City by reason of default under the General Ordinance shall be enforceable only against the Project Revenues and the investments thereof and amounts on deposit in the funds and accounts (other than the Rebate Fund) established under the General Ordinance, and no decree or judgment against the City upon an action brought under the General Ordinance shall order or be construed to permit the occupation, attachment, seizure, or sale upon execution of any other property of the City.

Conveyance of System and Assignment, Assumption and Release

The General Ordinance provides that nothing in the General Ordinance is to prevent the City from conveying and assigning to a municipal authority created pursuant to the Municipality Authorities Act of 1945, as amended, or an authority created pursuant to any other applicable statute or to another entity (the "Authority") all or substantially all (or less than substantially all, as provided below) of its right, title and interest in the System and thereupon becoming released from all of its obligations under the General Ordinance, under any Supplemental Ordinance and under the Bonds and related obligations, including, but not limited to, Credit Facilities, Qualified Swaps and Exchange Agreements, (i) if the Authority assumes in writing the City's obligations (1) to operate or cause the System to be operated and to maintain or cause the System to be maintained in good condition; and (2) to pay the principal, redemption premium, if any, and interest on all Bonds issued, and all payments due under Credit Facilities, Qualified Swaps and Exchange Agreements entered into, pursuant to the General Ordinance and then outstanding according to the terms thereof; and (ii) if the instrument of assumption provides the Bondholders or the trustee or entity serving in a similar capacity and acting on behalf of the Bondholders with the substantial equivalent of all of the rights and remedies provided in the General Ordinance and the Act; provided, however, that before the City may consummate such a conveyance and assignment and

obtain a release of its obligations under the General Ordinance, under any Supplemental Ordinance and under the Bonds, certain conditions are required to have been satisfied, including, without limitation, (a) the receipt by the City and the Fiscal Agent of certain opinions of counsel, (b) the granting of a security interest by the Authority to the trustee or entity serving in a similar capacity on behalf of the Bondholders, (c) a report of a Consulting Engineer detailing, among other things, continued compliance with covenants relating to Debt Service Requirements and (d) the conveyance and assignment to the Authority of amounts in the funds and accounts established under the General Ordinance. Upon a conveyance of all or substantially all of the assets of the System to the Authority, the General Ordinance provides that the provisions of the General Ordinance are to cease being enforceable against the City.

Amendments and Modifications

In addition to the enactment of Supplemental Ordinances supplementing or amending the General Ordinance in connection with the issuance of successive Series of Bonds, the General Ordinance provides that the General Ordinance and any Supplemental Ordinance may be further supplemented, modified or amended: (a) to cure any ambiguity, formal defect or omission therein or to make such provisions in regard to matters or questions arising thereunder which shall not be inconsistent with the provisions thereof and which shall not adversely affect the interests of Bondholders; (b) to grant to or confer upon Bondholders, or a trustee, if any, for the benefit of Bondholders any additional rights, remedies, powers, authority, or security that may be lawfully granted or conferred; (c) to incorporate modifications requested by any Rating Agency to obtain or maintain a credit rating on any Series of Bonds; (d) to comply with any mandatory provision of state or federal law or with any permissive provision of such law or regulation which does not substantially impair the security or right to payment of the Bonds but no amendment or modification shall be made with respect to any Outstanding Bonds to alter the amount, rate or time of payment, respectively, of the principal thereof or the interest thereon or to alter the redemption provisions thereof without the written consent of the Holders of all affected Outstanding Bonds; and (e) except as aforesaid, in such other respect as may be authorized in writing by the Holders of 67% in principal amount or Original Value in the case of Capital Appreciation Bonds of the Bonds Outstanding and affected. In the case of a Credit Facility or Qualified Swap, if and to the extent provided in the Supplemental Ordinance and Determination of Bonds related thereto, the provider thereof may be the representative of the Bondholders of such Series or portion of such Series for purposes of Bondholder consent, approval or authorization. The written authorization of Bondholders of any supplement to or modification or amendment of the General Ordinance or any Supplemental Ordinance need not approve the particular form of any proposed supplement, modification or amendment but only the substance thereof. Bonds, the payment for which has been provided for upon the redemption thereof, are to be deemed to be not Outstanding.

Deposit of Funds for Payment of Bonds

When interest on, and principal or redemption price (as the case may be) of, all Bonds issued under the General Ordinance, and all amounts owed under any Credit Facility, Qualified Swap and Exchange Agreement entered into under the General Ordinance, have been paid, or there shall have been deposited with the Fiscal Agent or an entity which would qualify as a Fiscal Agent under the General Ordinance an amount, evidenced by moneys or Qualified Escrow Securities the principal of and interest on which, when due, will provide sufficient moneys to fully pay the Bonds at the maturity date or date fixed for redemption thereof, and all amounts owed under any Credit Facility, Qualified Swap and Exchange Agreement entered into under the General Ordinance, the pledge and grant of a security interest in the Project Revenues made under the General Ordinance shall cease and terminate, and the Fiscal Agent and any other depository of funds and accounts established under the General Ordinance shall turn over to the City or to such person, body or authority as may be entitled to receive the same all balances remaining in any such funds and accounts established under the General Ordinance.

If the City deposits with the Fiscal Agent or such other qualified entity moneys or Qualified Escrow Securities sufficient to pay the principal or redemption price of any particular Bond or Bonds becoming due, either at maturity or by call for redemption or otherwise, together with all interest accruing thereon to the due date, interest on the Bond or Bonds shall cease to accrue on the due date and all liability of the City with respect to such Bond or Bonds shall likewise cease, except as provided in the following paragraph. Thereafter such Bond or Bonds shall be deemed not to be outstanding under the General Ordinance and shall have recourse solely and exclusively to the funds so deposited for any claims of whatsoever nature with respect to such Bond or Bonds, and the Fiscal Agent or such other qualified entity shall hold such funds in trust for such Holder or Holders.

Moneys deposited with the Fiscal Agent or such other qualified entity pursuant to the preceding paragraphs which remain unclaimed two years after the date payment thereof becomes due shall, upon written request of the City, if the City is not at the time to the knowledge of the Fiscal Agent or such other qualified entity (the Fiscal Agent having no responsibility to independently investigate), in default with respect to any covenant in the General Ordinance or the Bonds contained, be paid to the City; and the Holders of the Bonds for which the deposit was made shall thereafter be limited to a claim against the City; provided, however, that before making any such payment to the City, the Fiscal Agent or such other qualified entity shall, at the expense of the City, publish in a newspaper of general circulation published in Philadelphia, Pennsylvania, a notice that said moneys remain unclaimed and that, after a date named in said notice, which date shall be not less than 30 days after the date of publication of such notice, the balance of such moneys then unclaimed will be paid to the City.

The provisions regarding the deposit of funds for the payment of Bonds stated above are not be construed to limit the procedure set forth in Section 10 of the Act for calculating the principal or redemption price of and interest on any Bonds for the purpose of ascertaining the sufficiency of revenues for the purpose of Sections 7(a)(5) and 8(a)(iii) of the Act and for the purpose of determining the outstanding net debt of the City if General Obligation Bonds of the City are refunded pursuant to the Act.

Maintenance of Tax Exempt Status of Bonds

No deposit of funds for the payment of bonds shall be made if, in the opinion of Bond Counsel, such action shall cause the interest on any Series of Bonds initially issued as tax exempt Bonds, to become subject to Federal income tax.

Nothing contained in the General Ordinance shall require any Series of Bonds to be structured so that interest on such Bonds will be excluded from income of the Holders thereof for the purpose of calculating Federal income tax; provided that the provisions contained in the General Ordinance are satisfied.

Interested Parties

The General Ordinance provides that nothing in the General Ordinance expressed or implied is intended or is to be construed to confer upon, or to give to, any person or corporation, other than the City, the Owners of the Bonds, the Fiscal Agent, each provider of a Credit Facility, and Qualified Swap, Standby Agreement and Remarketing Agreement, any right, remedy or claim under or by reason of the General Ordinance or any covenants, condition or stipulation thereof; and all the covenants, stipulations, promises and agreements in the General Ordinance contained by and on behalf of the City shall be for the sole and exclusive benefit of the City, the Fiscal Agent, the Owners of the Bonds, each provider of a Credit Facility, Qualified Swap, Standby Agreement and Remarketing Agreement.

Ordinances are Contracts With Bondholders

The General Ordinance and Supplemental Ordinances adopted pursuant to the General Ordinance are contracts with the Holders of all Bonds from time to time Outstanding thereunder and are enforceable in accordance with the provisions of the General Ordinance and the laws of Pennsylvania.

Effectiveness

The General Ordinance provides that it is to become effective as to the holders of Bonds only upon consent in writing of the owners of not less than 67% in principal amount of all Bonds outstanding at the time of such consent.

THE FOURTEENTH SUPPLEMENTAL ORDINANCE

The Series 2013A Bonds will be issued under and are subject to the Fourteenth Supplemental Ordinance, which supplements the provisions of the General Ordinance. Reference is made to the Fourteenth Supplemental Ordinance and the General Ordinance, which provide more complete details of the terms of the Series 2013A Bonds. All capitalized and defined terms used in the following summary of the Fourteenth Supplemental Ordinance which are not otherwise defined in this Official Statement are defined as in the General Ordinance.

The Fourteenth Supplemental Ordinance was enacted pursuant to the Act and constitutes a Supplemental Ordinance enacted for the purpose of authorizing one or more Series of Bonds within the meaning of the General Ordinance.

The Fourteenth Supplemental Ordinance authorizes the Bond Committee, or a majority of them, on behalf of the City, to borrow, from time to time, by the issuance and sale of one or more series or subseries of Bonds, a sum or sums which in aggregate principal amount shall not exceed $450,000,000, exclusive of original issue discount, and in the event such Bonds are issued with original issue discount, the Bond Committee, or a majority of them, is authorized to increase the aggregate principal amount of the Bonds so issued, by the amount of such original issue discount. In accordance with the General Ordinance, the Bond Committee, or a majority of them, shall approve final terms of the Series 2013A Bonds in its Bond Committee Determination (the "Determination") prior to, and as a condition of issuance of the Series 2013A Bonds. Such Determination shall be deemed a supplement to the Fourteenth Supplemental Ordinance.

The Bond Committee, or a majority of them, is authorized on behalf of the City to enter into agreements specified in the Determination (the "Enhancement Agreements") with any bank, insurance company or other appropriate entity providing credit enhancement or payment or liquidity sources (collectively a "Provider") for the account of the City for the Series 2013A Bonds, including, without limitation, letters of credit and bond insurance. Such Enhancement Agreements may provide for payment of the principal or purchase price of, or interest on, the Series of Bonds if the City does not pay the Bonds when due and may provide for repayment with interest to the Provider from the date of such payment.

The Fourteenth Supplemental Ordinance authorizes the Bond Committee, or a majority of them, or the Director of Finance, as appropriate, to make all such covenants and to take any and all such other actions on behalf of the City as may be necessary or appropriate in connection with the consummation of the transactions contemplated in the Fourteenth Supplemental Ordinance.

The Fourteenth Supplemental Ordinance provides that the Series 2013A Bonds shall be sold either at public competitive sale to the highest bidder or bidders or at a private negotiated sale, as the

Bond Committee, or a majority of them, shall determine to be in the best interest of the City. The Bonds may be sold in a single Series or in one or more subseries, as authorized by the General Ordinance and as specified by the Determination, each of which shall be deemed a Series for purposes of the General Ordinance and shall be designated by letter as Series 2013A Bonds, as appropriate and may include serial bonds, terms bonds, Capital Appreciation Bonds, as specified in the Determination.

The Fourteenth Supplemental Ordinance provides that the Series 2013A Bonds shall not pledge the credit or taxing power of the City, or create any debt, charge or lien against the tax, general revenues or property of the City other than the revenues pledged by the General Ordinance.

The Fourteenth Supplemental Ordinance provides that proceeds of the Series 2013A Bonds shall be used to finance: (a) constructing, acquiring, reconstructing and renovating wastewater treatment plants and related facilities and equipment for the sewer system; (b) constructing, acquiring, reconstructing and renovating water treatment plants and related facilities and equipment for the water system; (c) constructing, acquiring, reconstructing and replacing water, wastewater and stormwater pipes, pumping stations and related facilities; (d) constructing, acquiring, reconstructing and renovating stormwater management and mitigation improvements and facilities and other improvements and facilities in furtherance of the City's Combined Sewer Overflow (CSO) Long Term Control Plan Update (referred to as the Green City, Clean Waters Program) dated September 1, 2009, as permitted under the Act and the General Ordinance; (e) purchasing equipment and apparatus of a capital nature for the water and wastewater systems, all as included in the capital budgets of the City; (f) purchasing vehicles that serve the water and wastewater system; (g) if applicable, paying the costs of Enhancement Agreements; (h) paying any other "project costs" as such term is defined in the Act; (i) making the deposits required under the Fourteenth Supplemental Ordinance; and (j) paying the issuance costs of the 2013A Bonds.

Series 2013A Bond proceeds shall be deposited first in the Debt Reserve Account in an amount equal to the Debt Reserve Requirement to the extent that such requirement is not satisfied in whole or in part by available funds of the City or by a surety bond, insurance policy or letter of credit in accordance with the General Ordinance, and all other Series 2013A Bond proceeds and other monies currently on deposit under the General Ordinance, including current reserves and construction funds, shall be deposited or transferred as provided in a certificate of the Director of Finance.

The City covenants in the Fourteenth Supplemental Ordinance that, so long as any Series 2013A Bonds shall remain outstanding, it will make payments or cause payments to be made out of the Sinking Fund established pursuant to the General Ordinance or any of the other Water and Wastewater funds available therefor, at such times and in such amounts as shall be sufficient for the payment of the interest on the Series 2013A Bonds and the principal thereof when due. Prior to enactment of the Fourteenth Supplemental Ordinance by City Council, an opinion of the City Solicitor was filed with the City Council pursuant to the Act.

The Fourteenth Supplemental Ordinance authorizes the Director of Finance and any other applicable City officer to make such additional covenants and to take such other action with respect to the use and investment of the proceeds of the Series 2013A Bonds as may be necessary or advisable in order that the Series 2013A Bonds shall not be "arbitrage bonds" as defined in Section 148 of the Internal Revenue Code of 1986, as amended (the "Code"), that the City will comply with the requirements of Section 148 throughout the term of the Series 2013A Bonds as described in the Determination and in order to effect and maintain (a) the exclusion of interest on the Series 2013A Bonds from gross income for federal income tax purposes, and (b) the receipt of tax credits or subsidies in respect of interest on the Series 2013A Bonds, and further to establish such sub-accounts within the Sinking Fund and terms or restrictions to permit issuance of the Series 2013A Bonds.

The Fourteenth Supplemental Ordinance authorizes the Director of Finance to execute and deliver a Continuing Disclosure Agreement (the "Continuing Disclosure Agreement") meeting the requirements of Rule 15c2-12 promulgated under Securities Exchange Act of 1934. The City covenants and agrees that it will comply with and carry out all of the provisions of the Continuing Disclosure Agreement.

APPENDIX IV

GOVERNMENT AND FINANCIAL INFORMATION OF THE CITY OF PHILADELPHIA

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APPENDIX IV

GOVERNMENT AND FINANCIAL INFORMATION OF THE CITY OF PHILADELPHIA

THE GOVERNMENT OF THE CITY OF PHILADELPHIA

General

The City of Philadelphia, Pennsylvania (the "City" or "Philadelphia"), was incorporated in 1789 by an Act of the General Assembly of the Commonwealth of Pennsylvania (the "Commonwealth") (predecessors of the City under charters granted by William Penn in his capacity as proprietor of the colony of Pennsylvania may date to as early as 1684). In 1854, the General Assembly of the Commonwealth, by an act commonly referred to as the Consolidation Act, made the City's boundaries coterminous with the boundaries of Philadelphia County (the same boundaries that exist today) (the "County"), abolished all governments within these boundaries other than the City and the County and consolidated the legislative functions of the City and the County. Article 9, Section 13 of the Pennsylvania Constitution abolished all county offices in the City and provides that the City performs all functions of county government and that laws applicable to counties apply to the City.

Since 1952, the City has been governed under a Home Rule Charter authorized by the General Assembly of the Commonwealth (First Class City Home Rule Act, Act of April 21, 1949, P.L. 665, Section 17) and adopted by the voters of the City. The Home Rule Charter, as amended and supplemented to this date, provides, among other things, for the election, organization, powers and duties of the legislative branch (the "City Council"); the election, organization, powers and duties of the executive and administrative branch; and the basic rules governing the City's fiscal and budgetary matters, contracts, procurement, property and records. The Home Rule Charter, as amended, also provides for the governance of The School District of Philadelphia (the "School District") as a home rule school district. Certain other constitutional provisions and Commonwealth statutes continue to govern various aspects of the City's affairs, notwithstanding the broad grant of powers of local self-government in relation to municipal functions set forth in the First Class City Home Rule Act.

Under the Home Rule Charter, as currently in effect, there are two principal governmental entities in the City: (1) the City, which performs ordinary municipal functions as well as traditional county functions; and (2) the School District, which has boundaries coterminous with the City and has responsibility for all public primary and secondary education.

The court system in the City, consisting of Common Pleas and Municipal Courts, is part of the Commonwealth judicial system. Although judges are paid by the Commonwealth, most other court costs are paid by the City, with partial reimbursement from the Commonwealth.

Elected and Appointed Officials

The Mayor is elected for a term of four years and is eligible to succeed himself for one term. Each of the seventeen members of the City Council is also elected for a four-year term which runs concurrently with that of the Mayor. There is no limitation on the number of terms that may be served by members of the City Council. Of the members of the City Council, ten are elected from districts and seven are elected at-large, with a minimum of two of the seven representing a party or parties other than the majority party. The District Attorney and the City Controller are elected at the mid-point of the terms of the Mayor and City Council.

The City Controller's responsibilities derive from the Home Rule Charter, various City ordinances and state and federal statutes, and contractual arrangements with auditees. The City Controller must follow Generally Accepted Government Auditing Standards ("GAGAS") established by the federal Government Accountability Office (formerly known as the General Accounting Office), and GAAS, Generally Accepted Auditing Standards promulgated by the American Institute of Certified Public Accountants. As of June 11, 2013, the Office of the City Controller had 119 full time employees, 2 part time employees, and 3 interns for a total of 124 on staff. This includes 61 auditors, 21 of whom are certified public accountants.

The City Controller post-audits and reports on the City's and the School District's Comprehensive Annual Financial Reports, federal assistance received by the City and the performance of City departments. The City Controller also conducts a pre-audit program of expenditure documents required to be submitted for approval, such as invoices, payment vouchers, purchase orders and contracts. Documents are selected for audit by category and statistical basis. The Pre-Audit Division verifies that expenditures are authorized and accurate in accordance with the Home Rule Charter and other pertinent legal and contractual requirements before any moneys are paid by the City Treasurer. The Pre-Audit Technical Unit, consisting of auditing and engineering staff, inspects and audits capital project design, construction and related expenditures. Other responsibilities of the City Controller include investigation of allegations of fraud, preparation of economic reports, certification of the City's debt capacity and the capital nature and useful life of the capital projects, and opining to the Pennsylvania Intergovernmental Cooperation Authority ("PICA") on the reasonableness of the assumptions and estimates in the City's five-year financial plans.

The principal officers of the City's government appointed by the Mayor are the Managing Director of the City (the "Managing Director"), the Director of Finance of the City (the "Director of Finance"), the City Solicitor (the "City Solicitor"), the Deputy Mayor for Planning and Economic Development and Director of Commerce (the "Director of Commerce") and the City Representative (the "City Representative"). These officials, together with the Mayor and the other members of the Mayor's cabinet, constitute the major policy-making group in the City's government.

The Managing Director, in coordination with the Deputy Mayors for Public Safety, Health and Opportunity, Transportation and Utilities, Economic Development and Environmental and Community Resources, and the Director of Commerce, is responsible for supervising the operating departments and agencies of the City that render the City's various municipal services. The Director of Commerce is charged with the responsibility of promoting and developing commerce and industry. The City Representative is the Ceremonial Representative of the City and especially of the Mayor. The City Representative is charged with the responsibility of giving wide publicity to any items of interest reflecting the activities of the City and its inhabitants, and for the marketing and promotion of the image of the City.

The City Solicitor is head of the Law Department and acts as legal advisor to the Mayor, the City Council, and all of the agencies of the City government. The City Solicitor is also responsible for all of the City's contracts and bonds, for assisting City Council, the Mayor, and City agencies in the preparation of ordinances for introduction in City Council, and for the conduct of litigation involving the City.

The Director of Finance is the chief financial and budget officer of the City and is selected from three names submitted to the Mayor by a Finance Panel. The Director of Finance is responsible for the financial functions of the City including development of the annual operating budget, the capital budget, and capital program; the City's program for temporary and long-term borrowing; supervision of the operating budget's execution; the collection of revenues through the Department of Revenue; and the oversight of pension administration as Chairperson of the Board of Pensions and Retirement. The Director of Finance is also responsible for the appointment and supervision of the City Treasurer, whose office manages the City's debt program and serves as the disbursing agent for the distribution of checks and electronic payments from the City Treasury and the management of cash resources.

The following are brief biographies of Mayor Nutter, his Chief of Staff, the Director of Finance and the City Treasurer:

Michael A. Nutter, Mayor, was sworn in as the City's 98th Mayor on January 7, 2008. He won the Democratic nomination in a five-way primary election. He was reelected and was sworn in for his second term as Mayor on January 2, 2012. Elected to Philadelphia City Council in 1992, the Mayor represented the City's Fourth Council District for nearly fifteen years. During his time in City Council, he engineered groundbreaking ethics reform legislation, led successful efforts to pass a citywide smoking ban, worked to lower taxes for Philadelphians and to reform the City's tax structure, and labored to increase the number of Philadelphia police officers patrolling the streets and to create a Police Advisory Board to provide a forum for discussion between citizens and the Police Department. Mayor Nutter received his B.A. from the Wharton School of Business at the University of Pennsylvania in 1979.

Everett A. Gillison, Chief of Staff to the Mayor and Deputy Mayor for Public Safety, was appointed Chief of Staff by Mayor Nutter on October 19, 2011. Mr. Gillison has served as Deputy Mayor for Public Safety since January 7, 2008, and continues in his role as Deputy Mayor for Public Safety in addition to his role as the Mayor's Chief of Staff. Mr. Gillison previously served as a Senior Trial Lawyer for the Defender Association of Philadelphia where he worked for more than 30 years.

Rob Dubow, Director of Finance, was appointed on January 7, 2008. Prior to his appointment, Mr. Dubow was the Executive Director of PICA. He has also served as Chief Financial Officer of the Commonwealth, from 2004 to 2005 and as Budget Director for the City, from 2000 to 2004.

Nancy E. Winkler, City Treasurer, was appointed City Treasurer effective January 31, 2011. Prior to her tenure with the City, Ms. Winkler worked for over 28 years with Public Financial Management (the PFM Group), from 1990 to 2011 as Managing Director, with responsibility to manage the firm's municipal, state and authority practices in New York and Maryland.

Government Services

Municipal services provided by the City include: police and fire protection; health care; certain welfare programs; construction and maintenance of local streets, highways, and bridges; trash collection, disposal and recycling; provision for recreational programs and facilities; maintenance and operation of the water and wastewater systems (the "Water and Wastewater Systems"); the acquisition and maintenance of City real and personal property, including vehicles; maintenance of building codes and regulation of licenses and permits; maintenance of records; collection of taxes and revenues; purchase of supplies and equipment; construction and maintenance of airport facilities; and maintenance of a prison system. The City owns the assets that comprise the Philadelphia Gas Works ("PGW" or the "Gas Works"). PGW serves residential, commercial, and industrial customers in the City. PGW is operated by Philadelphia Facilities Management Corporation ("PFMC"), a non-profit corporation specifically organized to manage and operate PGW for the benefit of the City.

On February 13, 2012, Mayor Michael Nutter released an analysis prepared by Lazard Freres & Co., LLC ("Lazard"), the City's strategic advisor, recommending that the City "pursue a process to transfer ownership and operation of PGW to a private entity via a strategic sale." The City has engaged a team of legal and financial advisors, as well as brokers, to assist with such process. The team includes Lazard who was re-engaged to serve as financial advisor for the proposed sale. In its new role, Lazard is currently undertaking further financial review of the proposed transaction, including an analysis of the anticipated loss to the City of the $18 million annual payment from PGW and the potential increase in annual tax revenues for the City resulting from a sale to a private entity. The review is expected to be concluded in the third quarter of 2013. J.P. Morgan Securities LLC and Loop Capital, who have been selected as brokers for the process, will market PGW, manage a bidding process on behalf of the City and PGW, and present recommended bids to the City for consideration. A sale would require certain approvals, including those of City Council and also the Pennsylvania Public Utility Commission. No sale can be completed without providing for the defeasance of the City's outstanding Gas Works Revenue Bonds and Notes. The City is under no obligation to sell PGW, and the selection of the team of legal and financial advisors and brokers, as well as any subsequent invitation for bids, will not impose any obligation on the City to sell if the financial analysis and bid process do not produce the desired favorable results.

Local Government Agencies

There are a number of significant governmental authorities and quasi-governmental non-profit corporations that also provide services within the City. Certain of these entities are comprised of governing boards, the members of which are either appointed or nominated, in whole or part, by the Mayor, while others are independent of the Mayor's appointment or recommendation.

Mayoral-Appointed or Nominated Agencies

PIDC/PAID. The Philadelphia Industrial Development Corporation ("PIDC") and its affiliate, the Philadelphia Authority for Industrial Development ("PAID"), coordinate the City's efforts to maintain an attractive

business environment and to attract new businesses to the City and retain existing ones. Of the 30 members of the board of PIDC, seven are City officers or officials (the Mayor, the Director of Commerce, the President of City Council or a designee, the Chairman of the City Planning Commission, the City Solicitor, the Managing Director, and the Director of Finance), 15 are nominated jointly by the President of the Greater Philadelphia Chamber of Commerce and the Director of Commerce, and eight are nominated by the President of the Greater Philadelphia Chamber of Commerce. The five-member board of PAID is appointed by the Mayor.

PMA. The Philadelphia Municipal Authority (formerly The Equipment Leasing Authority of Philadelphia) ("PMA") was originally established for the purpose of buying equipment and vehicles to be leased to the City. PMA's powers have been expanded to include, without limitation, the construction and leasing of municipal solid waste disposal facilities, correctional facilities, and other municipal buildings. The PMA is governed by a five-member board appointed by City Council from nominations made by the Mayor.

PEA. The Philadelphia Energy Authority ("PEA") was established by the City and incorporated in 2011 for the purpose of facilitating and developing energy generation projects, facilitating and developing energy efficiency projects, the purchase or facilitation of energy supply and consumer energy education. The PEA is authorized to participate in projects on behalf of the City, other government agencies, institutions and businesses. The PEA is governed by a five-member board of energy professionals appointed by City Council from four nominations made by the Mayor and one nomination from City Council.

Redevelopment Authority. The Philadelphia Redevelopment Authority (formerly known as the Redevelopment Authority of the City of Philadelphia) (the "PRA"), supported by Federal funds through the City's Community Development Block Grant Fund and by Commonwealth and local funds, is responsible for the redevelopment of the City's blighted areas. The PRA is governed by a five-member board appointed by the Mayor and must submit its budgets to the City for review and approval.

Housing Authority. The Philadelphia Housing Authority (the "Housing Authority") is the fourth largest public housing authority in the United States and is responsible for developing and managing low and moderate income rental units and limited amounts of for-sale housing in the City. By Act 130 of 2012 ("Act 130"), the number of Board members for the Housing Authority was increased, and the method of the Board's appointment was changed. Under Act 130, the Housing Authority is to be governed by a Board of nine members appointed by the Mayor of the City, subject to the approval of City Council. New members of the Housing Authority Board were duly appointed and took office on April 26, 2013. From March 4, 2011 until April 26, 2013, the Housing Authority was under the control of the U.S. Department of Housing and Urban Development under the terms of a Co-operative Endeavor Agreement, which terminated on April 26, 2013. In March 2013, Kelvin A. Jeremiah was appointed to be the President and CEO of the Housing Authority, after having served as Interim Administrative Receiver/Interim Executive Director since June 15, 2012.

Hospitals Authority. The Hospitals and Higher Education Facilities Authority of Philadelphia (the "Hospitals Authority") assists non-profit hospitals by financing hospital construction projects. The City does not own or operate any hospitals. The powers of the Hospitals Authority have been expanded to permit the financing of construction of buildings and facilities for certain colleges and universities and other health care facilities and nursing homes. The Hospitals Authority is governed by a five-member board appointed by City Council from nominations made by the Mayor.

SEPTA. The Southeastern Pennsylvania Transportation Authority ("SEPTA"), which is supported by transit revenues and Federal, Commonwealth, and local funds, is responsible for developing and operating a comprehensive and coordinated public transportation system in the southeastern Pennsylvania region. Two of the 15 members of SEPTA's board are appointed by the Mayor and confirmed by City Council.

Convention Center Authority. The Pennsylvania Convention Center Authority (the "Convention Center Authority") constructed and maintains, manages, and operates the Pennsylvania Convention Center, which opened on June 25, 1993. The Pennsylvania Convention Center is owned by the Commonwealth and leased to the Convention Center Authority. An expansion of the Pennsylvania Convention Center was completed in March 2011. This expansion enlarged the Pennsylvania Convention Center to approximately 2,300,000 square feet with the largest contiguous exhibit space in the Northeast, the largest convention center ballroom in the East and the ability to

host large tradeshows or two major conventions simultaneously. Of the 15 members of the board of the Convention Center Authority, two are appointed by the Mayor and one by each of the President and Minority Leader of City Council. The Commonwealth, the City and the Convention Center Authority have entered into an operating agreement with respect to the operation and financing of the Pennsylvania Convention Center. In June 2013, the Pennsylvania Convention Center Authority selected SMG to manage and operate the Pennsylvania Convention Center.

The School District. The School District of Philadelphia (the "School District") was established by the Educational Supplement to the City's Home Rule Charter to provide free public education to the City's residents. Under the Home Rule Charter, its board is appointed by the Mayor and must submit a lump sum statement of expenditures to the City annually. Such statement is used by City Council in making its determination to authorize the levy of taxes on behalf of the School District. Certain financial information regarding the School District is included in the City's Comprehensive Annual Financial Report. It has no independent taxing powers and may levy only the taxes authorized on its behalf by the City and the Commonwealth. Under the Home Rule Charter, the School District is managed by a nine-member Board of Education appointed by the Mayor from a list supplied by an Educational Nominating Panel that is chosen by the Mayor. In some matters, including the incurrence of short-term and long-term debt, the School District is governed primarily by the laws of the Commonwealth. The School District is a separate political subdivision of the Commonwealth and the City has no property interest in or claim on any revenues or property of the School District.

The School District was declared distressed by the Secretary of Education of the Commonwealth pursuant to Section 691(c) of the Public School Code of 1949, as amended (the "School Code"), effective December 22, 2001. During a period of distress under Section 691(c) of the School Code, all of the powers and duties of the Board of Education granted under the School Code or any other law are suspended and all of such powers and duties are vested in the School Reform Commission (the "School Reform Commission") provided for under the School Code. The School Reform Commission is responsible for the operation, management and educational program of the School District during such period. It is also responsible for financial matters related to the School District. The School Code provides that the members of the Board of Education continue to serve during the time the School District is governed by the School Reform Commission, and that the establishment of the School Reform Commission shall not interfere with the regular selection of the members of the Board of Education. During the tenure of the School Reform Commission, the Board of Education will perform those duties delegated to it by the School Reform Commission. As of the date hereof, the School Reform Commission has not delegated any duties to the Board. Two of the five members of the School Reform Commission are appointed by the Mayor and three by the Governor of Pennsylvania.

Non-Mayoral-Appointed or Nominated Agencies

PICA. PICA was created on June 5, 1991 by the Pennsylvania Intergovernmental Cooperation Authority Act for Cities of the First Class (the "PICA Act"). PICA was established to provide financial assistance to cities of the first class. The City is the only city of the first class in the Commonwealth. Each of the Governor of Pennsylvania, the President pro tempore of the Pennsylvania Senate, the Minority Leader of the Pennsylvania Senate, the Speaker of the Pennsylvania House of Representatives and the Minority Leader of the Pennsylvania House of Representatives appoints one voting member of PICA's board. The Secretary of the Budget of the Commonwealth and the Director of Finance of the City serve as ex officio members of PICA's board with no voting rights. The City is required to develop an annual five-year financial plan and obtain annual approval of such five-year financial plan from PICA; the City is also required to prepare and submit quarterly reports to PICA. See "SUMMARY FINANCIAL INFORMATION" for a further discussion of PICA, its relationship to the City and its financial oversight role.

Parking Authority. The Philadelphia Parking Authority (the "Parking Authority") is responsible for the construction and operation of parking facilities in the City and at the Philadelphia International Airport and, by contract with the City, for enforcement of on-street parking regulations. The members of the Parking Authority's board are appointed by the Governor of Pennsylvania, with certain nominations from the General Assembly of the Commonwealth.

DISCUSSION OF FINANCIAL OPERATIONS

Principal Operations

As discussed in this Official Statement, the Bonds are payable solely from Project Revenues and moneys deposited in the Water and Wastewater Funds, other than the Rebate Fund. The Bonds are special obligations of the City and do not pledge the full faith, credit or taxing power of the City, nor create any debt or charge against the tax or general revenues of the City, nor create any lien or charge against any property of the City, other than against the Project Revenues and amounts, if any, at any time on deposit in the Water and Wastewater Funds.

The major operations of the City are conducted through the General Fund. In addition to the General Fund, operations of the City are conducted through two other major governmental funds and 12 minor governmental funds. The two major governmental funds and three of the minor governmental funds are financed solely through grants from the Commonwealth and Federal government. The City's Debt Service Fund and Capital Projects Fund are also included with the minor governmental funds. The Fiscal Year 2012 Operating Budget moved the activities of the Department of Human Services from the General Fund to the Grants Revenue Fund.

Fund Accounting

Funds are groupings of activities that enable the City to maintain control over resources that have been segregated for particular purposes or objectives. All of the funds of the City can be divided into three categories: governmental funds, proprietary funds and fiduciary funds.

Governmental Funds. The governmental funds are used to account for the financial activity of the City's basic services, such as: general government; economic and neighborhood development; public health, welfare and safety; cultural and recreational; and streets, highways and sanitation. The funds' financial activities focus on a short-term view of the inflows and outflows of spendable resources, as well as on the balances of spendable resources available at the end of the fiscal year. The financial information presented for the governmental funds is useful in evaluating the City's short term financing requirements.

The City maintains twenty-three individual governmental funds. The City's Comprehensive Annual Financial Report ("CAFR"), including for the City's Fiscal Year ended June 30, 2012, presents data separately for the General Fund, Grants Revenue Fund and Health Choices Behavioral Health Fund, which are considered to be major funds. Data for the remaining twenty funds are combined into a single aggregated presentation.

Proprietary Funds. The proprietary funds are used to account for the financial activity of the City's operations for which customers are charged a user fee; they provide both a long and short-term view of financial information. The City maintains three enterprise funds that are a type of proprietary funds - airport, water and wastewater operations, and industrial land bank.

Fiduciary Funds. The City is the trustee, or fiduciary, for its employees' pension plans. It is also responsible for PGW's employees' retirement reserve assets. Both of these fiduciary activities are reported in the City's CAFR, including for the City's Fiscal Year ended June 30, 2012, as separate financial statements of fiduciary net assets and changes in fiduciary net assets.

See "CITY FINANCES AND FINANCIAL PROCEDURES" for a further description of these funds.

Current Financial Information

The Adopted Fiscal Year 2014 Budget (hereinafter defined), the Twenty-Second Five-Year Plan (hereinafter defined), the Fiscal Year 2013 budget and Twenty-First Five-Year Plan (hereinafter defined) and the Quarterly City Manager's Report are discussed below. As described more fully in "CITY FINANCES AND FINANCIAL PROCEDURES-Budget Procedures" herein, annually in March the executive branch prepares a budget for the next fiscal year together with a five-year financial plan. City Council is required by the Home Rule Charter to adopt the budget at least 30 days prior to the end of the fiscal year. The City has not adopted a budget

later than the end of the fiscal year in the past ten (10) years. The City Council may change the budget from that which is proposed by the executive branch. The budget and corresponding five-year plan include information and projections for the current fiscal year. Subsequent to the release of the five-year plan, the City reviews and may revise the financial projections underlying the budget and the five-year plan in its Quarterly City Manager's reports (the reports are required by the PICA Act and are released forty-five days after the end of every calendar quarter). The estimates from the Adopted Fiscal Year 2014 Budget are included in certain of the financial information with respect to the City presented herein.

Fiscal Year 2013 Adopted Budget

The City's Fiscal Year 2013 budget was presented to City Council on March 8, 2012, was approved by City Council on June 28, 2012, and signed by the Mayor on June 29, 2012. The process and required timing for the approval of the budget are described under "CITY FINANCES AND FINANCIAL PROCEDURES-Budget Procedures" herein. The General Fund budget projected estimated revenues of $3.568 billion, obligations of $3.604 billion, an operating deficit of $17.6 million (net of prior year adjustments) and based on an assumed Fiscal Year 2012 ending General Fund balance of $98.970 million, it projected an ending fund balance of $81.3 million on the legally enacted basis. The actual Fiscal Year 2012 ending General Fund balance was $146.754 million. The Fiscal Year 2013 budget conformed to the Twenty-First Five-Year Plan, which was submitted to PICA on July 27, 2012, resubmitted with addendum on August 9, 2012 and approved by PICA on September 5, 2012.

Fiscal Year 2013 Current Estimate

The revised estimate included in the Adopted Fiscal Year 2014 Budget projects revenues for Fiscal Year 2013 of $3.681 billion, obligations of $3.656 billion, an operating surplus of $42.2 million (net of prior year adjustments) and an ending fund balance of $188.9 million. Revenue estimates have been revised upward $112.8 million versus the adopted budget. Tax Revenues for Fiscal Year 2013 are projected to be $98.1 million higher than the adopted budget and Revenues to be $107.5 million higher than the adopted budget as shown in the table below.

Summary of Primary Sources of Revenue Increases and (Decreases) above (below)
Fiscal Year 2013 Budget

Wage and Earnings Tax	$23.9 million
Real Estate Tax	$20.2 million
Real Property Transfer Tax	$18.7 million
Business Income and Receipts Tax	$40.0 million
Parking and Amusement Taxes	($4.9 million)
Locally Generated Non-Tax Revenues	$12.5 million
Revenues from Other Governments	($2.9 million)

The revised estimate of obligations includes $78.3 million in higher than budgeted obligations as shown in the table below.

Summary of Primary Sources of Obligation Increases above
Fiscal Year 2013 Budget

Increased Compensation[1]	$18.1 million
Other Increased Public Safety Costs[2]	$24.2 million
Vehicle Fuel Costs	$5.0 million
Office of Property Assessment (AVI)	$2.9 million
Legal Costs – Defender Association and Conflict Counsel	$2.9 million
Law Department	$2.0 million
Other Mayoral and Council Initiatives	$12.1 million
Other Miscellaneous Obligations	$11.1 million

[1] Includes $14.7 million for Police and compensation for non-represented and exempt employees of $3.4 million. See "EXPENDITURES OF THE CITY−Overview of Current Labor Situation."

[2] Includes overtime and other increased costs of Prisons, Fire and the Sheriff's Office.

These above costs are being partially offset by $9.8 million in savings from financing repayment of a pension payment deferral, interest savings on the City's Tax and Revenue Anticipation Notes - $7.0 million, the elimination of the $9.0 million budgeted expenditure and accompanying reimbursement from PICA for the 4601 Market St. project and the elimination of the reserve for snow removal - $4.0 million. See "EXPENDITURES OF THE CITY−Municipal Pension Fund−Funded Status of the Municipal Pension Fund."

Fiscal Year 2012 Budget

The City's Fiscal Year 2012 budget was presented to City Council on March 3, 2011, was approved by City Council on June 23, 2011, and signed by the Mayor on June 24, 2011. The budget projected estimated revenues of $3.503 billion, obligations of $3.470 billion, an operating surplus of $57.1 million and an ending fund balance of $60.6 million on the legally enacted basis. The Fiscal Year 2012 budget conformed to the Twentieth Five-Year Plan (hereinafter defined) which was submitted to PICA on July 7, 2011, and approved by PICA on July 26, 2011.

For several years, the financial position of the City's General Fund had been distorted by the timing of the receipt of reimbursements from the Commonwealth for the Department of Human Services. For a variety of reasons, those reimbursements had not been received in the same year as the costs were incurred. As a result, the costs were reflected in the City's fund balances, but the reimbursements were not, leading to fund balances that were distorted and artificially low. In some years, the late receipt of reimbursements led to changes of tens of millions of dollars in the City's fund balance.

The Fiscal Year 2012 budget moved reimbursed costs and corresponding revenues for services provided by the Department of Human Services of approximately $495.1 million to the Grants Revenue Fund. As a result of this change the City's General Fund balance better reflects the City's financial condition.

Fiscal Year 2012 Results

The City's CAFR for the Fiscal Year ended June 30, 2012 (the "Fiscal Year 2012 CAFR"), released on February 21, 2013, reported that the City had revenues of $3.591 billion, obligations of $3.485 billion and an ending fund balance of a positive $146.8 million on the legally enacted basis. The City is required by the Home Rule Charter to release its unaudited financial statements within 120 days of the end of the fiscal year; historically, these results have not changed between the release of the unaudited and the audited financials.

Fiscal Year 2011 Results

The CAFR for Fiscal Year 2011, released on February 24, 2012, reported that the City had revenues of $3.860 billion, obligations of $3.785 billion and an ending fund balance of a positive $0.1 million after discharging the Fiscal Year 2010 fund balance deficit on the legally enacted basis. These figures were unchanged from the City's Annual Financial Report for Fiscal Year 2011, released on October 28, 2011. The City's Fiscal Year 2011 budget was signed by the Mayor on June 1, 2010. The budget projected estimated revenues of $3.909 billion, obligations of $3.853 billion, an operating surplus of $80.5 million and an ending fund balance of $42.6 million after discharging the Fiscal Year 2010 fund balance deficit on the legally enacted basis. The budget included a 9.9% Real Estate Tax increase. The Nineteenth Five-Year Plan (hereinafter defined) was approved by PICA on August 10, 2010.

Fiscal Year 2014 Adopted Budget

The City's Fiscal Year 2014 budget (the "Adopted Fiscal Year 2014 Budget") was presented to City Council on March 14, 2013, was approved by City Council on June 20, 2013 and signed by the Mayor on June 25, 2013. The Adopted Fiscal Year 2014 Budget projects estimated General Fund revenues of $3.724 billion, obligations of $3.845 billion, an operating deficit of $102.4 million (net of prior year adjustments), which results in a projected ending fund balance of $86.5 million on the legally enacted basis. The Adopted Fiscal Year 2014 Budget conforms to the Twenty-Second Five-Year Plan. Total tax revenues are estimated at $2.76 billion, an increase of $50 million or 1.8% over Fiscal Year 2013's projections. In Fiscal Year 2014, growth is projected for all major taxes

except the property tax for which no growth is assumed and the BIRT (hereinafter defined) for which negative growth is assumed given above projected receipts in Fiscal Year 2013. The City's plan to implement the Actual Value Initiative (AVI) in Fiscal Year 2014 has been adopted. See "REVENUES OF THE CITY-Real Property Taxes." The property tax rate for Fiscal Year 2014 has been set at 1.34%; the Adopted Fiscal Year 2014 Budget assumes that, under AVI, approximately the same amount of property tax revenue will be collected in Fiscal Year 2014 as was projected for Fiscal Year 2013. The Adopted Fiscal Year 2014 Budget includes the resumption of wage tax cuts which were halted during the recession.

In the Adopted Fiscal Year 2014 Budget, total revenues increase $43 million, or 1.2%, largely due to the combination of the tax growth described above together with a $22 million decrease in revenue from other governments, a $7 million increase in local non-tax revenues, and a $9 million increase in revenues from other funds of the City. The decrease in revenue from other governments is largely due to the elimination of one-time general fund reimbursement revenue for the Department of Human Services (DHS) which was received in Fiscal Year 2013; reimbursed obligations and associated revenues for DHS were moved to the Grants Fund in Fiscal Year 2012 and no additional revenue is anticipated in the General Fund budget.

Budgeted Fiscal Year 2014 expenditures total $3.845 billion, a $189 million (5.2%) increase from Fiscal Year 2013 estimates. The largest increase in expenditures is the result of an addition of a $84.7 million provision for potential labor obligations related to District Council 33, District Council 47 and IAFF Local 22. See "EXPENDITURES OF THE CITY-Overview of Current Labor Situation." Other increases are due to rising pension, employee benefit and debt service costs which account for about $60 million of this increase and an additional $20 million is due to a salary increase awarded to the Fraternal Order of Police. The remaining estimated $20 million represents a 0.5% increase.

The Twenty-Second Five-Year Plan was submitted to PICA on July 3, 2013. See "SUMMARY FINANCIAL INFORMATION-Five-Year Plans of the City."

Overview of City Response to Economic Downturn

Between October of 2008 and December 2011, the City implemented significant actions to balance the budget and its five-year plans, including reducing overtime costs, reducing General Fund full- and part-time employee headcount by 1,652 (from December 31, 2008 to December 31, 2011), implementing a temporary five year sales tax increase (expiring June 30, 2014) and a 9.9% Real Estate Tax increase in Fiscal Year 2011, pension funding changes, freezing City funded and business privilege tax reductions until Fiscal Year 2014, increasing fees, and instituting spending cuts throughout the government. During this period of time, the City improved its public safety results due to important changes in policing and has maintained delivery of its services.

The City undertook these measures as a result of the impact of the national and global recession. Beginning in August 2008, the City began to experience adverse budgetary performance for Fiscal Year 2009 as a result of the recession. In November 2008, the City projected a $1 billion gap over the five-year period of the Seventeenth Five-Year Plan, and the City took a series of measures to close the projected gap for Fiscal Year 2009 and over the period of the Seventeenth Five-Year Plan. However, the economy deteriorated further and revenues declined at a greater pace than had been projected, leaving the City with a Fiscal Year 2009 operating deficit of $286.8 million resulting in a deficit of $236.8 million after prior year net adjustments of $41.8 million and a cumulative adjusted year-end General Fund balance deficit of $137.2 million. Tax receipts continued to display weakness in Fiscal Year 2010, increasing the projected gap for both Fiscal Year 2010 and the period of the Eighteenth Five-Year Plan. In total during the six-year period of Fiscal Years 2009-2014, the projected shortfall reached $2.4 billion. As a result of a number of steps outlined herein, in Fiscal Year 2010, the City had a cumulative adjusted year-end General Fund balance deficit of $114.0 million, in Fiscal Year 2011, the City had a cumulative adjusted year-end General Fund balance surplus of approximately $92,000, and in Fiscal Year 2012, the City had a cumulative adjusted year-end General Fund balance surplus of approximately $146.8 million. The current estimate, based on the estimates for the Adopted Fiscal Year 2014 Budget, is for the City to have a cumulative adjusted year-end General Fund balance surplus of approximately $188.9 million in Fiscal Year 2013. See also "CITY FINANCES AND FINANCIAL PROCEDURES -- Budget Stabilization Reserve."

Current City Practices

It is the City's practice to file its CAFR, which contains the audited combined financial statements of the City, in addition to certain other information such as the City's bond ratings and information about upcoming debt issuances with the Municipal Securities Rulemaking Board ("MSRB") as soon as practicable after delivery of such report. The Fiscal Year 2012 CAFR was deposited with the MSRB on February 24, 2013, through the MSRB's Electronic Municipal Market Access (EMMA) system. The CAFR is prepared by the Director of Finance of the City in conformance with guidelines adopted by the Governmental Accounting Standards Board and the American Institute of Certified Public Accountants' audit guide, Audits of State and Local Government Units. Upon written request to the Office of the Director of Finance and payment of the costs of duplication and mailing, the City will make available copies of the Fiscal Year 2012 CAFR. Such a request should be addressed to: Office of the Director of Finance, Municipal Services Building, Suite 1300, 1401 John F. Kennedy Boulevard, Philadelphia, Pennsylvania 19102. The Fiscal Year 2012 CAFR is also available online at the City's Investor Information website: http://www.phila.gov/investor (the "City's Investor Website"), further described below.

The Home Rule Charter requires the Director of Finance to issue within 120 days after the close of each Fiscal Year a statement as of the end of that year showing the balances in all funds of the City, the amounts of the City's known liabilities and such other information as is necessary to furnish a true picture of the City's financial condition. To meet this requirement, on or about October 28 of each year, the Director of Finance releases the Annual Financial Report for the prior Fiscal Year (available at the City's Investor Website). It is not audited; the audited financial statements of the City are contained in the CAFR, described above. The Annual Financial Report contains financial statements for all City governmental funds and blended component units presented on the modified accrual basis. The proprietary and fiduciary funds are presented on the full accrual basis. It also contains budgetary comparison schedules for those funds that are subject to an annual budget.

The City's Quarterly City Manager's Reports are also available at the City's Investor Website and are released within 45 days of the end of the applicable quarter.

The "Terms of Use" statement of the City's Investor Website, which applies to all users of the City's Investor Website, provides, among other things, that the information contained therein is provided for the convenience of the user, that the City is not obligated to update such information, and that the information may not provide all information that may be of interest to investors. The information contained on the City Investor Website does not constitute an offer to buy or sell securities, nor is it a solicitation therefor. The information contained on the City Investor Website is not incorporated by reference in this Official Statement and persons considering a purchase of the 2013 Bonds should rely only on information contained in this Official Statement or incorporated by reference herein.

The foregoing statement as to filing or furnishing of additional information reflects the City's current practices, but is not a contractual obligation to the holders of the City's bonds or notes.

The City also expects to provide financial and other information from time to time to Moody's Investors Service, Standard & Poor's Ratings Services, a division of The McGraw-Hill Companies, Inc. and Fitch Ratings, in connection with the securities ratings assigned by those rating agencies to bonds or notes of the City.

CITY FINANCES AND FINANCIAL PROCEDURES

Except as otherwise noted, the financial statements, tables, statistics, and other information shown below have been prepared by the Office of the Director of Finance and can be reconciled to the financial statements in the City's CAFR and Notes therein.

Governmental funds account for their activities using the current financial resources measurement focus and the modified accrual basis of accounting. Revenues are recognized as soon as they are both measurable and available. Revenues are considered to be available when they are collectible within the current period or soon enough thereafter to pay liabilities of the current period. For this purpose, the City considers revenues to be available if they are collected within 60 days of the end of the current fiscal period. Expenditures are generally recorded when

a liability is incurred, as in the case of full accrual accounting. Debt service expenditures, as well as expenditures related to compensated absences and claims and judgments, are recorded only when payment is due; however, those expenditures may be accrued if they are to be liquidated with available resources.

Imposed non-exchange revenues, such as Real Estate Taxes, are recognized when the enforceable legal claim arises and the resources are available. Derived tax revenues, such as wage, business privilege, net profits and earnings taxes, are recognized when the underlying exchange transaction has occurred and the resources are available. Grant revenues are recognized when all the applicable eligibility requirements have been met and the resources are available. All other revenue items are considered to be measurable and available only when cash is received by the City.

Revenue that is considered to be program revenue includes: (1) charges to customers or applicants for goods received, services rendered or privileges provided, (2) operating grants and contributions, and (3) capital grants and contributions. Internally dedicated resources are reported as general revenues rather than as program specific revenues; therefore, all taxes are considered general revenues.

The City's financial statements reflect the following three funds as major Governmental Funds:

- The General Fund is the City's primary operating fund. It accounts for all financial resources of the general government, except those required to be accounted for in other funds.

- The Health Choices Behavioral Health Fund accounts for resources received from the Commonwealth. These resources are restricted to providing managed behavioral health care to residents of the City.

- The Grants Revenue Fund accounts for the resources received from various federal, state and private grantor agencies. The resources are restricted to accomplishing the various objectives of the grantor agencies.

In Fiscal Year 2012, the City transferred the majority of the Department of Human Services revenues and obligation to the Grants Revenue Fund.

The City also reports on Permanent Funds, which are used to account for resources legally held in trust for use by the park and library systems of the City. There are legal restrictions on the resources of the Permanent Funds that require the principal to remain intact, while only the earnings may be used for the programs.

The City reports on the following Fiduciary Funds:

- The Municipal Pension Fund accumulates resources to provide pension benefit payments to qualified employees of the City and certain other quasi-governmental organizations.

- The Philadelphia Gas Works Retirement Reserve Fund accounts for contributions made by PGW to provide pension benefit payments to its qualified employees under its noncontributory pension plan.

The City reports on the following major Proprietary Funds:

- The Water Fund accounts for the activities related to the operation of the City's water delivery and sewage systems.

- The Aviation Fund accounts for the activities of the City's airports.

Proprietary funds distinguish operating revenues and expenses from non-operating items. Operating revenues and expenses generally result from providing services and producing and delivering goods in connection with a proprietary fund's ongoing operations. The principal operating revenues of the Water Fund are charges for water and sewer service. The principal operating revenue of the Aviation Fund is charges for the use of the City's airports. Operating expenses for enterprise funds include the cost of sales and services, administrative expenses, and

depreciation on capital assets. All revenues and expenses not meeting this definition are reported as nonoperating revenues and expenses.

Legal Compliance

The City's budgetary process accounts for certain transactions on a basis other than generally accepted accounting principles ("GAAP"). In accordance with the Home Rule Charter, the City has formally established budgetary accounting control for its operating and capital improvement funds.

The operating funds of the City, consisting of the General Fund, nine Special Revenue Funds (County Liquid Fuels Tax, Special Gasoline Tax, Health Choices Behavioral Health, Hotel Room Rental Tax, Grants Revenue, Community Development, Car Rental Tax, Acute Care Hospital Assessment and Housing Trust Funds) and two Enterprise Funds (Water and Aviation Funds), are subject to annual operating budgets adopted by City Council. Included with the Water Fund is the Water Residual Fund. These budgets appropriate funds for all City departments, boards and commissions by major class of expenditure within each department. Major classes are defined as: personnel services; purchase of services; materials and supplies; equipment; contributions, indemnities and taxes; debt service; payments to other funds; and advances and other miscellaneous payments. The appropriation amounts for each fund are supported by revenue estimates and take into account the elimination of accumulated deficits and the re-appropriation of accumulated surpluses to the extent necessary. All transfers between major classes (except for materials and supplies and equipment, which are appropriated together) must have City Council approval. Appropriations that are not expended or encumbered at year-end are lapsed.

The City's capital budget is adopted annually by City Council. The capital budget is appropriated by project for each department. Requests to transfer appropriations between projects must be approved by City Council. Any appropriations that are not obligated at year-end are either lapsed or carried forward to the next fiscal year.

Schedules prepared on the legally enacted basis differ from the GAAP basis in that both expenditures and encumbrances are applied against the current budget, adjustments affecting activity budgeted in prior years are accounted for through fund balance or as reduction of expenditures and certain interfund transfers and reimbursements are budgeted as revenues and expenditures.

Budget Procedure

At least 90 days before the end of the Fiscal Year the operating budget for the next Fiscal Year is prepared by the Mayor and must be submitted to City Council for adoption. The budget, as adopted, must be balanced and provide for discharging any estimated deficit from the current Fiscal Year and make appropriations for all items to be funded with City revenues. The Mayor's budgetary estimates of revenues for the ensuing Fiscal Year and projection of surplus or deficit for the current Fiscal Year may not be altered by City Council. Not later than the passage of the operating budget ordinance, City Council must enact such revenue measures as will, in the opinion of the Mayor, yield sufficient revenues to balance the budget.

At least 30 days before the end of each Fiscal Year, City Council must adopt by ordinance an operating budget and a capital budget for the ensuing Fiscal Year and a capital program for the six ensuing years. If the Mayor disapproves the bill, he must return it to City Council with the reasons for his disapproval at the first meeting thereof held not less than ten days after he receives it. If the Mayor does not return the ordinance within the time required, it becomes law without his approval. If City Council passes the bill by a vote of two-thirds of all of its members within seven days after the bill has been returned with the Mayor's disapproval, it becomes law without his approval. The capital program is prepared annually by the City Planning Commission to present the capital expenditures planned for each of the six ensuing Fiscal Years, including the estimated total cost of each project and the sources of funding (local, state, Federal, and private) estimated to be required to finance each project. The capital program is reviewed by the Mayor and transmitted to City Council for adoption with his recommendation thereon. See Table 33 for a summary of the City's capital improvement program for the Fiscal Years 2014 through 2019.

The capital budget ordinance, authorizing in detail the capital expenditures to be made or incurred in the ensuing Fiscal Year from City Council appropriated funds, is adopted by City Council concurrently with the capital

program. The capital budget must be in full conformity with that part of the capital program applicable to the Fiscal Year that it covers.

Budget Stabilization Reserve

In April 2011, the City adopted an Amendment to the Home Rule Charter adding the following language to Section 7 thereof ("Budget Stabilization Reserve"), in addition to directions for implementation.

> (a) The annual operating budget ordinance shall provide for appropriations to a Budget Stabilization Reserve, to be created and maintained by the Director of Finance as a separate fund which shall not be commingled with any other funds of the City. Appropriations to the Budget Stabilization Reserve shall, each year, be made in the following amounts, provided that total appropriations to the Budget Stabilization Reserve shall not exceed five percent of General Fund Appropriations:
>
> > (1) Such amounts as remain unencumbered in the Budget Stabilization Reserve from the prior fiscal year, including any investment earnings certified by the Director of Finance; plus
> >
> > (2) When the Projected General Fund Balance for the end of the fiscal year to which the operating budget relates (the "upcoming fiscal year"), without taking into account any deposits to the Budget Stabilization Reserve required by this subsection (2), equals or exceeds three percent (3%) of General Fund appropriations for the upcoming fiscal year, an amount equal to three-quarters of one percent (.75%) of Unrestricted Local General Fund Revenues for the upcoming fiscal year; plus
> >
> > (3) Such additional amounts as the Council shall authorize by ordinance, no later than at the time of passage of the annual operating budget ordinance and only upon recommendation of the Mayor.

Since the enactment of such Budget Stabilization Reserve provisions in 2011, three City budgets have been presented by the Mayor; no budget ordinance has included a provision to fund the Budget Stabilization Reserve as described in paragraph (a)(2) above because the applicable projected year ending General Fund balances did not exceed the 3% General Fund appropriation threshold described in paragraph (a)(2) above.

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SUMMARY FINANCIAL INFORMATION

Tables 1 and 2 below should be read in conjunction with the discussion concerning financial procedures of the City described under "CITY FINANCES AND FINANCIAL PROCEDURES."

Table 1
General Fund
Summary of Operations (Legal Basis)
(Amounts in Millions of USD)

	Actual 2006	Actual 2007	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual[4] 2012	Adopted Budget[5] 2013	Current Estimate[6] 2013	Adopted Budget[6] 2014
Revenues										
Real Property Taxes[1]	395.8	397.5	402.8	400.1	402.2	482.7	500.7	514.9	535.1	536.6
Wage and Earnings Tax	1,111.2	1,167.4	1,184.8	1,117.0	1,114.2	1,134.3	1,196.3	1,207.8	1,231.7	1,274.1
Net Profits Tax	14.6	15.3	12.5	12.2	14.5	8.8	15.1	12.3	12.5	12.8
Business Privilege Tax	415.5	436.4	398.8	386.0	364.7	376.9	389.4	394.9	435.0	410.0
Sales Tax[2]	127.8	132.6	137.3	128.2	207.1	244.6	253.5	259.3	259.3	272.6
Other Taxes[3]	304.1	286.7	260.3	209.3	213.9	211.8	215.4	225.2	238.9	256.5
Total Taxes	2,369.0	2,435.9	2,396.5	2,252.8	2,316.6	2,459.1	2,570.4	2,614.4	2,712.5	2,762.6
Locally Generated Non-Tax Revenue	235.9	247.9	265.8	256.3	229.4	280.0	256.7	246.3	258.6	265.2
Revenue from Other Governments[7]	924.5	1,032.9	1,033.4	993.4	1,076.4	1,066.5	715.9	653.8	650.9	628.6
Receipts from Other City Funds[7]	24.9	27.4	27.2	135.4	31.9	54.6	48.3	53.2	58.6	67.2
Total Revenue	3,554.3	3,744.1	3,722.8	3,637.9	3,654.3	3,860.3	3,591.4	3,567.7	3,680.6	3,723.6
Obligations/Appropriations										
Personnel Services	1,250.2	1,327.6	1,390.7	1,406.3	1,358.5	1,360.4	1,319.0	1,341.3	1,367.4	1,401.3
Purchase of Services	1,065.7	1,151.6	1,188.7	1,174.2	1,111.4	1,127.8	760.8	768.6	785.6	790.6
Materials, Supplies and Equipment	82.1	89.1	92.1	82.7	68.7	78.3	79.9	79.3	88.4	88.6
Employee Benefits	760.2	890.3	983.0	973.2	831.4	967.0	1,066.3	1,118.3	1,124.6	1,177.3
Indemnities, Contributions and Grants	110.9	119.0	120.9	130.0	128.0	111.1	118.0	137.9	138.5	141.7
City Debt Service	82.9	89.1	87.2	100.9	105.5	110.4	111.3	127.4	120.4	129.5
Other[8]	38.6	31.2	32.3	22.7	26.0	0.0	0.0	0.0	0.0	84.7
Payments to Other City Funds	35.4	38.7	24.8	25.3	24.2	30.3	29.5	31.1	31.1	31.6
Total Obligations/Appropriations	3,426.0	3,736.6	3,919.8	3,915.3	3,653.7	3,785.3	3,484.9	3,603.9	3,656.1	3,845.4
Operating Surplus (Deficit) for the Year	128.2	7.5	(197.0)	(277.4)	0.6	75.0	106.4	(36.1)	(24.5)	(121.8)
Net Adjustments – Prior Year	30.1	35.9	18.6	20.7	22.6	39.1	40.3	18.5	17.7	19.4
Funding for Contingencies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cumulative Fund Balance Prior Year	96.2	254.5	297.9	119.5	(137.2)	(114.0)	0.1	98.9	146.8	188.9
Cumulative Adjusted Year End Fund Balance (Deficit)	254.5	297.9	119.5	(137.2)	(114.0)	0.1	146.8	81.3	188.9	86.5

(1) Actual 2011 reflects a 9.9% increase. See "Revenues of the City – Assessment and Collection of Real and Personal Property Taxes" herein. The Twenty-First Five-Year Plan included a Real Estate Tax increase of 3.6% (8.2% on the City portion) in Fiscal Year 2013. The increased revenue generated by such increase was transferred to the School District.

(2) Reflects 1% increase effective October 8, 2009 and expiring June 30, 2014. See "REVENUES OF THE CITY-Sales and Use Tax."

(3) Includes Real Estate Transfer Tax, Parking Tax, Amusement Tax, and Other Taxes.

(4) The reduction in Revenue from Other Governments (State and Federal funding) in Fiscal Year 2012 is largely the result of transferring the majority of the Department of Human Services revenues and obligations to the Grants Revenue Fund.

(5) From the estimates for the Adopted Fiscal 2013 Budget; the estimate for Real Property Tax revenue includes the potential impact, if any, of the ruling by STEB discussed under "REVENUES OF THE CITY - Assessment and Collection of Real and Personal Property Taxes."

(6) From the estimates for the Adopted Fiscal Year 2014 Budget.

(7) State gaming revenues are reported as a Receipt from Other City Funds in Fiscal Year 2009 and as Revenue from Other Governments in Fiscal Years 2010, 2011, 2012, 2013 and 2014.

(8) Other for Fiscal Year 2014 includes a provision for funding a portion of the "final offer" associated with District Council 33, a future settlement for District Council 47, a portion of the IAFF Arbitration Award under appeal and a future IAFF Arbitration Award. See "EXPENDITURES OF THE CITY−Overview of Current Labor Situation."

Source: City of Philadelphia Department of Finance

Figures may not add up due to rounding.

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Table 2
Principal Operating Funds (Debt Related)
Summary of Operations (Legal Basis)
(Amounts in Millions of USD)

	Actual 2006	Actual 2007	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual[5] 2012	Adopted Budget[6] 2013	Current Estimate[7] 2013	Adopted Budget[7] 2014
Revenues										
General Fund	3,554.3	3,744.1	3,722.8	3,637.9	3,654.3	3,860.3	3,591.4	3,567.7	3,680.6	3,723.6
Water Fund[1]	490.3	519.7	589.7	543.5	546.7	567.5	592.5	671.9	645.8	688.1
Aviation Fund[2]	271.5	268.6	287.9	294.1	290.2	304.8	299.2	377.1	327.9	414.5
Other Operating Funds[3]	41.9	44.9	113.2	49.5	50.1	48.1	48.3	57.6	52.4	55.4
Total Revenue	4,358.0	4,577.3	4,713.6	4,525.0	4,541.3	4,780.7	4,531.3	4,674.3	4,706.7	4,881.6
Obligations/Appropriations										
Personnel Services	1,412.9	1,498.2	1,568.9	1,579.0	1,523.6	1,525.0	1,484.3	1,529.0	1,545.8	1,590.8
Purchase of Services	1,233.5	1,328.5	1,441.4	1,369.2	1,312.8	1,344.2	1,001.4	1,056.2	1,055.3	1,086.4
Materials, Supplies and Equipment	136.2	145.9	151.1	140.7	128.9	135.2	140.0	155.4	158.9	166.8
Employee Benefits	845.3	990.1	1,095.8	1,091.4	932.8	1,092.2	1,196.0	1,264.5	1,269.7	1,329.6
Indemnities, Contributions and Taxes	116.5	122.6	127.1	135.9	134.4	118.7	123.0	149.7	151.2	156.5
Debt Service[4]	337.6	348.8	346.7	384.8	397.8	398.4	406.9	442.0	429.2	470.7
Other[8]	38.6	31.2	32.3	22.7	24.2	0.0	0.0	0.0	0.0	99.6
Payments to Other City Funds	119.4	144.9	154.7	88.1	98.5	101.3	113.3	182.8	170.6	132.8
Total Obligations/ Appropriations	4,240.0	4,610.2	4,917.9	4,811.8	4,553.0	4,715.0	4,465.0	4,779.6	4,780.7	5,033.4
Operating Surplus (Deficit) for the Year	118.0	(32.8)	(204.3)	(286.8)	(11.6)	65.7	66.4	(105.3)	(74.0	(151.7)
Net Adjustments Prior Year	60.6	69.6	51.0	41.8	58.1	70.5	75.8	48.7	48.3	56.9
Funding for Contingencies	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Cumulative Fund Balance (Deficit) Prior Year End	132.9	311.5	348.3	195.0	(50.0)	(3.4)	132.7	228.3	274.9	249.2
Cumulative Adjusted Year End Fund Balance (Deficit)	311.5	348.3	195.0	(50.0)	(3.4)	132.7	274.9	171.7	249.2	154.4

(1) Revenues of the Water Fund are not legally available for payment of other obligations of the City until, on an annual basis, all revenue bond debt service requirements and covenants relating to those bonds have been satisfied, and then only to the extent of $4,994,000 per year, provided certain further conditions are satisfied. From Fiscal Year 1991 to Fiscal Year 2003, the maximum transfer, per administrative agreement, was $4,138,000. For Fiscal Year 2004, the budgeted transfer was not made. For Fiscal Year 2005, the transferred amount was $4,401,000. For Fiscal Year 2006, 2007 and 2008, the transferred amount was $4,994,000. For Fiscal Year 2009, the transferred amount was $4,185,463. For Fiscal Year 2010, the transferred amount was $2,303,986, for Fiscal Year 2011, the amount transferred was $1,229,851. The actual amount for Fiscal Year 2012 is $1,086,165, the current estimate for Fiscal Year 2013 is $600,000 and the transferred amount in the Adopted Fiscal Year 2014 Budget is $700,000.

(2) Airport revenues are not available for other City purposes.

(3) Includes County Liquid Fuels Tax Fund, Special Gasoline Tax Fund and Water Residual Fund.

(4) Excludes PICA bonds.

(5) The reduction in General Fund revenues for Fiscal Year 2012 is largely the result of transferring the majority of the Department of Human Services revenues and obligations to the Grants Revenue Fund.

(6) From the estimates for the Adopted Fiscal 2013 Budget; the estimate for Real Property Tax revenue includes the potential impact, if any, of the ruling by STEB discussed under "REVENUES OF THE CITY - Assessment and Collection of Real and Personal Property Taxes."

(7) From the estimates for the Adopted Fiscal Year 2014 Budget.

(8) Other for Fiscal Year 2014 includes a provision for funding a portion of the "final offer" associated with District Council 33, a future settlement for District Council 47, a portion of the IAFF Arbitration Award under appeal and a future IAFF Arbitration Award. See "EXPENDITURES OF THE CITY−Overview of Current Labor Situation."

Figures may not add up due to rounding.

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Independent Audit and Opinion of the City Controller

The City Controller has examined and expressed opinions on the basic financial statements of the City contained in the Fiscal Year 2012 CAFR, which can be found at the City's Investor Website.

The City Controller has not participated in the preparation of this Official Statement nor in the preparation of the budget estimates and projections and cash flow statements and forecasts set forth in various tables contained in this Official Statement. Consequently, the City Controller expresses no opinion with respect to any of the data contained in this Official Statement.

Pennsylvania Intergovernmental Cooperation Authority

PICA was created on June 5, 1991 by the PICA Act to provide financial assistance to cities of the first class. The City is the only city of the first class in the Commonwealth. The Governor of Pennsylvania, the President pro tempore of the Pennsylvania Senate, the Minority Leader of the Pennsylvania Senate, the Speaker of the Pennsylvania House of Representatives and the Minority Leader of the Pennsylvania House of Representatives each appoints one voting member of PICA's board. The Secretary of the Budget of the Commonwealth and the Director of Finance of the City serve as ex officio members of PICA's board with no voting rights.

The PICA Act provides that, upon request by the City to PICA for financial assistance and for so long as any bonds issued by PICA remain outstanding, PICA shall have certain financial and oversight functions. PICA has the power, in its oversight capacity, to exercise certain advisory and review procedures with respect to the City's financial affairs, including the power to review and approve five-year financial plans prepared at least annually by the City, and to certify non-compliance by the City with the then-existing five-year plan adopted by the City pursuant to the PICA Act. PICA is also required to certify non-compliance if, among other things, no approved five-year plan is in place; and PICA is required to certify non-compliance with an approved five-year plan if the City has failed to file mandatory revisions to an approved five-year plan. Under the PICA Act, any such certification of non-compliance would require the Secretary of the Budget of the Commonwealth to withhold payments due to the City from the Commonwealth or any of its agencies (including, with certain exceptions, all grants, loans, entitlements and payment of the portion of the PICA Tax, hereinafter described, otherwise payable to the City). See "DEBT OF THE CITY -- PICA Bonds." Under the PICA Act, the City is required to make quarterly financial reports to PICA, as further described under "Quarterly Reporting to PICA" below.

Five-Year Plans of the City

The PICA Act requires the City to annually develop a five-year financial plan and obtain PICA's approval of it. The original five-year plan, which covered Fiscal Years 1992 through 1996, was prepared by the Mayor, approved by City Council on April 29, 1992 and by PICA on May 18, 1992. In each subsequent year, the City updated the previous year's five-year plan, each of which was approved by PICA.

The Mayor presented the Twenty-Second Five-Year Plan (the "Twenty-Second Five-Year Plan") to City Council on March 14, 2013, City Council approved the Adopted Fiscal Year 2014 Budget on June 20, 2013, and the Mayor signed it on June 25, 2013. The Adopted Fiscal Year 2014 Budget conforms to the Twenty-Second Five-Year Plan. The Twenty-Second Five-Year Plan was submitted to PICA on July 3, 2013.

The Mayor presented the Twenty-First Five-Year Plan (the "Twenty-First Five-Year Plan") to City Council on March 8, 2012, City Council approved the Fiscal Year 2013 Operating Budget on June 28, 2012, and the Mayor signed it on June 29, 2012. The adopted Fiscal Year 2013 Operating Budget conformed to the Twenty-First Five-Year Plan. The Twenty-First Five-Year Plan was approved by PICA on September 5, 2012. The Twenty-First Five-Year Plan included a Real Estate Tax increase of 3.6% (8.2% on the City portion) in Fiscal Year 2013 (increased revenue generated by such increase was transferred to the School District) and also made permanent the temporary 9.9% Real Estate Tax increase in the Nineteenth Five-Year Plan (described below).

The Mayor presented the Twentieth Five-Year Plan (the "Twentieth Five-Year Plan") to City Council on March 3, 2011. City Council approved the Fiscal Year 2012 Operating Budget on June 23, 2011, and the Mayor signed it on June 24, 2011. The adopted Fiscal Year 2012 Operating Budget conformed to the Twentieth Five-Year Plan. The Twentieth Five-Year Plan was approved by PICA on July 26, 2011.

The Mayor presented the Nineteenth Five-Year Plan (the "Nineteenth Five-Year Plan") to City Council on March 4, 2010. City Council approved the Fiscal Year 2011 Operating Budget on May 20, 2010, and the Mayor signed it on June 1, 2010. The Nineteenth Five-Year Plan was approved by PICA on August 10, 2010. The Nineteenth Five-Year Plan included a temporary 9.9% Real Estate Tax increase through Fiscal Year 2012.

The City's Eighteenth Five-Year Plan (the "Eighteenth Five-Year Plan"), covering Fiscal Years 2010-2014, included a one percent City Sales Tax increase through Fiscal Year 2014 and a partial deferral of the City's pension payment in Fiscal Year 2010 ($150 million) and Fiscal Year 2011 ($80 million) to be paid back in full by Fiscal Year 2014, as permitted under Act 44 of 2009 of the General Assembly of the Commonwealth ("Act 44"). In addition to the deferrals, the City changed the amortization period from 20 years to 30 years and lowered the interest rate assumption from 8.75% to 8.25%. On October 28, 2010, the City's Board of Pensions and Retirement (the "Board of Pensions") voted to further lower the pension fund's annual earnings assumption from 8.25% to 8.15%. This is reflected in subsequent five-year plans through the Twentieth Five-Year Plan. In February of 2012, the Board of Pensions again voted to lower the Municipal Pension Fund's annual earnings assumption from 8.15% to 8.10%; this is reflected in the Twenty-First Five-Year Plan. The Board of Pensions voted to further lower the Municipal Pension Fund's annual earnings assumption to 7.95% in March 2013; this is reflected in the Twenty-Second Five-Year Plan.

At PICA's request, the Eighteenth Five-Year Plan was revised to include at least $25 million in additional savings or recurring revenues in each year of the Eighteenth Five-Year Plan. PICA approved the revised Eighteenth Five-Year Plan on September 16, 2009, subject to the enactment of the legislation authorizing the increase in the City's sales tax and change in the City's pension fund payments. The Commonwealth enacted such legislation on September 18, 2009.

Quarterly Reporting to PICA

The PICA Act requires the City to prepare and submit quarterly reports to PICA so that PICA may determine whether the City is in compliance with the then-current Five-Year Plan. Under the PICA Act, a "variance" is deemed to have occurred as of the end of a reporting period if (i) a net adverse change in the fund balance of a covered fund of more than 1% of the revenues budgeted for such fund for that fiscal year is reasonably projected to occur, such projection to be calculated from the beginning of the fiscal year for the entire fiscal year, or (ii) the actual net cash flows of the City for a covered fund are reasonably projected to be less than 95% of the net cash flows of the City for such covered fund for that fiscal year originally forecast at the time of adoption of the budget, such projection to be calculated from the beginning of the fiscal year for the entire fiscal year. The Mayor is required to provide a report to PICA that describes actual or current estimates of revenues, expenditures, and cash flows by covered funds compared to budgeted revenues, expenditures, and cash flows by covered funds for each month in the previous quarter and for the year-to-date period from the beginning of the then-current fiscal year of the City to the last day of the fiscal quarter or month, as the case may be, just ended. Each such report is required to explain any variance existing as of such last day.

PICA may not take any action with respect to the City for variances if the City (i) provides a written explanation of the variance that PICA deems reasonable; (ii) proposes remedial action that PICA believes will restore overall compliance with the then-current Five-Year Plan; (iii) provides information in the immediately succeeding quarterly financial report demonstrating to the reasonable satisfaction of PICA that the City is taking remedial action and otherwise complying with the then-current Five-Year Plan; and (iv) submits monthly supplemental reports as required by the PICA Act. PICA last declared a variance in February 2009. It has since been removed and there are no current variances.

Awards

For the thirty-second consecutive year, the Government Finance Officers Association of the United States and Canada ("GFOA") awarded its prestigious Certificate of Achievement for Excellence in Financial Reporting ("GFOA Awards") to the City for its CAFR for the fiscal year ended June 30, 2011. The City received this recognition by publishing a report that was well organized and readable and satisfied both generally accepted accounting principles and applicable legal requirements. The City expects to apply for the GFOA Award for its Fiscal Year 2012 CAFR.

REVENUES OF THE CITY

General

In 1932, the General Assembly of the Commonwealth adopted an act (commonly referred to as the Sterling Act) under which the City was permitted to levy any tax that was not specifically pre-empted by the Commonwealth. Prior to 1939, the City relied heavily upon the Real Estate Tax as the mainstay of its revenue system. Acting under the Sterling Act and other legislation, the City has taken various steps over the years to reduce its reliance on real property taxes as a source of income, including: (1) enacting the wage, earnings, and net profits tax in 1939; (2) introducing a sewer service charge to make the sewage treatment system self-sustaining after 1945; (3) requiring under the Home Rule Charter that the water, sewer, and other utility systems be fully self-sustaining; and (4) enacting in 1952 the Mercantile License Tax (a gross receipts tax on business done within the City), which was replaced as of the commencement of Fiscal Year 1985 by the Business Privilege Tax (which was renamed the Business Income and Receipts Tax in May 2012).

Major Revenue Sources

The City derives its revenues primarily from various taxes, non-tax revenues, and receipts from other governments. See Table 3 below for revenues by major source for Fiscal Years 2003-2013 and Table 4 below for General Fund tax revenues for Fiscal Years 2007-2013 as well as, in each case, the Fiscal Year 2014 budget. The following descriptions do not take into account revenues in the Non-Debt Related Funds. The tax rates for Fiscal Years 2002 through 2011 are contained in the Fiscal Year 2012 CAFR.

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Table 3
Summary of Principal Operating Funds (Debt Related)
Revenues by Major Source
Fiscal Years 2003-2014 (Legal Basis)
(Amounts in Millions of USD)

	General Fund Tax Revenues												
Fiscal Year	Real Property Taxes[1]	Wage Earnings & Net Profits Taxes[1]	Business Privilege Tax[1]	Sales and Use Tax[1]	Other Taxes[2]	Total Taxes	Water & Wastewater Charges	Airport Charges	Other Locally Generated Charges	Total Local Revenue	Revenue from Other Governments	Revenue from Other City Funds	Total Revenues
2003	361.1	1,025.1	286.1	108.0	156.3	1,936.6	329.6	219.4	327.4	2,813.0	909.7	62.8	3,785.5
2004	377.7	1,062.6	309.2	108.0	202.2	2,059.7	383.1	235.0	207.4	2,885.2	834.2	92.1	3,811.5
2005	392.7	1,087.3	379.5	119.9	250.9	2,230.3	419.7	246.3	200.8	3,097.1	1,082.4	71.6	4,251.1
2006	395.8	1,125.8	415.5	127.8	304.1	2,369.0	460.4	269.4	236.2	3,335.0	953.1	69.9	4,358.0
2007	397.5	1,182.7	436.4	132.6	286.7	2,435.9	486.9	266.0	248.3	3,437.1	1,063.3	77.0	4,577.4
2008	402.8	1,197.3	398.8	137.3	260.3	2,396.5	555.0	275.3	267.5	3,494.3	1,066.2	153.1 [3]	4,713.6
2009	400.1	1,129.2	386.0	128.2	209.3	2,252.8	484.5	291.3	258.3	3,286.9	1,025.4	212.7 [4]	4,525.0
2010	402.2	1,128.7	364.7	207.1[5]	213.9	2,316.6	516.4	290.2	224.5	3,347.7	1,110.7[6]	82.7	4,541.3
2011	482.7[7]	1,143.1	376.9	244.6	211.8	2,459.1	537.5	302.7	280.2	3,579.5	1,100.0	91.1	4,770.7
2012[9]	500.7	1,211.4	389.4	253.5	215.4	2,570.4	560.3	293.8	256.8	3,681.3	753.3	96.7	4,531.3
2013 (Adopted Budget)[8, 10]	514.9	1,220.1	394.9	259.3	225.2	2,614.4	584.4	371.1	246.2	3,816.1	688.3	169.8	4,674.3
2013 (Current Estimate)[11]	535.1	1,244.2	435.0	259.3	238.9	2,712.5	573.9	321.8	259.4	3,867.6	685.2	154.1	4,706.7
2014 (Adopted Budget)[11]	536.6	1,286.9	410.0	272.6	256.5	2,762.6	606.8	408.3	266.4	4,044,1	662.3	175.2	4,881.6

(1) See Table 7 in the Fiscal Year 2012 CAFR and "REVENUES OF THE CITY" herein for Tax Rates. As of May 1, 2012, the Business Privilege Tax was renamed the Business Income and Receipts Tax.
(2) Includes Real Estate Transfer Tax, Parking Tax, Amusement Tax, and Other Taxes.
(3) In Fiscal Year 2008, there was an increase of $73 million in payment from Water Fund to Water Residual Fund.
(4) In Fiscal Year 2009, there was an $86 million payment from the Wage Tax Reduction Fund.
(5) Reflects 1% increase effective October 8, 2009 and expiring June 30, 2014. See "REVENUES OF THE CITY-Sales and Use Tax."
(6) In Fiscal Year 2010, the Wage Tax Reduction payment is shown in the Revenue from Other Governments column.
(7) Reflects a Real Estate Tax increase of 9.9%.
(8) From the estimates for the Adopted Fiscal 2013 Budget; the estimate for Real Property Tax revenue includes the potential impact, if any, of the ruling by STEB discussed under "Assessment and Collection of Real and Personal Property Taxes."
(9) The reduction in Revenue from Other Governments in Fiscal Year 2012 is largely the result of the transfer of the majority of the Department of Human Services revenue and obligations to the Grants Revenue Fund.
(10) Reflects a Real Estate Tax increase of 3.6% (8.2% on the City portion). The increased revenue generated by such increase was transferred to the School District.
(11) From the estimates for the Adopted Fiscal Year 2014 Budget.

Figures may not add up due to rounding.

Table 4
General Fund Tax Revenues[1]
Fiscal Years 2007-2014
(Amounts in Millions of USD)

	Actual 2007	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Adopted Budget[5] 2013	Current Estimate[6] 2013	Adopted Budget[6] 2014
Real Property Taxes									
Current	367.2	366.5	365.6	364.3	454.7[4]	464.4	479.9	500.1	492.4
Prior	30.3	36.3	34.4	37.9	28.0	36.3	35.0	35.0	44.2
Total	397.5	402.8	400.0	402.2	482.7	500.7	514.9	535.1	536.6
Wage and Earnings Tax[2]									
Current	1,162.4	1,176.5	1,105.9	1,102.3	1,127.4	1,192.2	1,197.8	1,227.5	1,269.9
Prior	5.1	8.3	11.1	11.9	6.9	4.1	10.0.	4.2	4.2
Total	1,167.5	1,184.8	1,117.0	1,114.2	1,134.3	1,196.3	1,207.8	1,231.7	1,274.1
Business Taxes									
Business Privilege									
Current & Prior	436.4	398.8	386.0	364.7	376.9	389.4	394.9	435.0	410.0
Net Profits Tax									
Current	10.9	9.1	9.5	12.1	5.7	12.2	9.8	10.0	10.3
Prior	4.3	3.4	2.7	2.4	3.1	2.9	2.5	2.5	2.5
Subtotal Net Profits Tax	15.3	12.5	12.2	14.5	8.8	15.1	12.3	12.5	12.8
Total Business Taxes	451.6	411.3	398.2	379.2	385.8	404.5	407.2	447.5	422.8
Other Taxes									
Sales and Use Tax	132.6	137.3	128.3	207.1[3]	244.6	253.5	259.3	259.3	272.6
Amusement Tax	16.4	18.0	21.4	21.8	20.8	21.9	22.1	19.1	20.5
Real Property Transfer Tax	217.3	184.0	115.1	119.2	116.6	119.4	124.5	143.3	157.6
Parking Taxes	50.3	55.5	70.4	70.5	71.6	70.9	75.1	73.1	75.0
Other Taxes	2.6	2.8	2.4	2.4	2.7	3.2	3.4	3.4	3.4
Subtotal Other Taxes	419.2	397.6	337.6	421.0	456.3	468.9	484.5	498.2	529.1
TOTAL TAXES	2,435.9	2,396.5	2,252.8	2,316.6	2,459.1	2,570.4	2,614.4	2,712.5	2,762.6

[1] See Table 7 in the Fiscal Year 2012 CAFR for Tax Rates. As of May 1, 2012, the Business Privilege Tax was renamed the Business Income and Receipts Tax.
[2] Beginning in Fiscal Year 1992, the City reduced the resident Wage and Earnings and Net Profits Tax from 4.96% to 3.46% and levied the PICA Tax at a rate of 1.50%, the proceeds of which are remitted to PICA for payment of debt service on PICA bonds and the PICA expenses. After paying debt service and expenses, net proceeds from the tax are remitted to the City as Revenue from Other Governments.
[3] Effective October 8, 2009, there was a 1% increase to the City Sales tax expiring June 30, 2014. See "REVENUES OF THE CITY-Sales and Use Tax."
[4] Reflects a Real Estate Tax increase of 9.9%.
[5] From the estimates for the Adopted Fiscal 2013 Budget. Reflects a Real Estate Tax increase of 3.6% (8.2% on the City portion); the increased revenue generated by such increase was transferred to the School District. The estimate for Real Property Tax revenue includes the potential impact, if any, of the ruling by STEB discussed under "Assessment and Collection of Real and Personal Property Taxes."
[6] From the estimates for the Adopted Fiscal Year 2014 Budget.

Figures may not add up due to rounding.

Wage, Earnings, and Net Profits Taxes

The largest tax revenue source (comprising 45.5% of all tax revenues based on the Fiscal Year 2013 current estimate) is the Wage, Earnings, and Net Profits (Wage) Tax. The Wage Tax is collected from all employees working within City limits, and all City residents regardless of work location. In Fiscal Year 1992, the City reduced the City wage, earnings, and net profits tax on City residents by 1.5% and imposed the PICA Tax on wages, earnings and net profits at the rate of 1.5% on City residents. See "DEBT OF THE CITY-- PICA Bonds" for a description of the pledge of the PICA Tax to secure PICA's bonds. The table below sets forth the resident and non-

resident wage and earnings tax rates for Fiscal Years 2003-2014, and the annual wage and earnings tax receipts in Fiscal Years 2003-2012, the Adopted Budget and current estimate for Fiscal Year 2013 and the Adopted Budget for Fiscal Year 2014.

Table 5
Summary of Wage, Earnings and Net Profits Tax Rates and Receipts

Fiscal Year	Resident Wage, Earnings and Net Profits Tax Rates[1]	Non-Resident Wage, Earnings and Net Profits Tax Rates	Annual Wage, Earnings and Net Profits Tax Receipts (including PICA Tax) (Amounts in Millions of USD)
2003	4.5000	3.9127	1,306.6
2004	4.4625	3.8801	1,347.6
2005	4.4625 (Jul. 1)	3.8801 (Jul. 1)	1,387.5
	4.3310 (Jan. 1)	3.8197 (Jan. 1)	
2006	4.3310 (Jul. 1)	3.8197 (Jul. 1)	1,435.6
	4.3010 (Jan. 1)	3.7716 (Jan. 1)	
2007	4.3010 (Jul. 1)	3.7716 (Jul. 1)	1,510.6
	4.2600 (Jan. 1)	3.7557 (Jan. 1)	
2008	4.2600 (Jul. 1)	3.7557 (Jul. 1)	1,527.5
	4.2190 (Jan. 1)	3.7242 (Jan. 1)	
2009[2]	3.9800 (Jul. 1)	3.5392 (Jul. 1)	1,477.8
	3.9300 (Jan. 1)	3.5000 (Jan. 1)	
2010	3.9296	3.4997	1,472.0
2011	3.9280	3.4985	1,501.8
2012	3.9280	3.4985	1,568.9
2013	3.9280	3.4985	1,587.9 Adopted Budget[3]
2013	3.9280	3.4985	1,621.9 Current Estimate[4]
2014	3.9240	3.4950	1,677.9 Adopted Budget[4]

(1) Includes PICA Tax.
(2) There were two rate decreases during Fiscal Year 2009.
(3) From the estimates for the Adopted Fiscal 2013 Budget.
(4) From the estimates for the Adopted Fiscal Year 2014 Budget.

Commonwealth funding from gaming revenues is mandated by statute to be used to reduce the resident and nonresident wage tax rate. Gaming revenues were first used to reduce the wage tax rates in Fiscal Year 2009. Revenues from gaming revenues were $86.545 million in Fiscal Year 2009, $86.270 million in Fiscal Year 2010, $86.277 million in Fiscal Year 2011 and $86.273 million in Fiscal Year 2012. The current estimate for Fiscal Year 2013 is $86.273 million and the amount estimated in the Adopted Fiscal Year 2014 Budget is $86.269 million. Accordingly, the wage tax rates in Fiscal Years 2009, 2010, 2011, 2012, 2013 and 2014 reflect a rate reduction due to these revenues.

In the Seventeenth Five-Year Plan, the Mayor approved further reductions in the wage, earnings, and net profits tax rate for each of the Fiscal Years 2009-2013. The Seventeenth Five-Year Plan approved reducing the wage tax from the Fiscal Year 2008 level of 4.2190% for residents and 3.7242% for non-residents to 3.60% for residents and 3.25% for non-residents by Fiscal Year 2013. These reduced rates include rate reductions funded with Commonwealth funds from gaming proceeds. In Fiscal Year 2009 there were two rate reductions: one that took effect July 1, 2008 and the other that took effect January 1, 2009. The Eighteenth Five-Year Plan suspended future City-funded rate reductions until Fiscal Year 2015. The Nineteenth, Twentieth, Twenty-First and Twenty-Second Five-Year Plans all include resumption of City-funded rate reductions in Fiscal Year 2014.

Business Income and Receipts Tax

In 1984, the Commonwealth of Pennsylvania passed legislation known as The First Class City Business Tax Reform Act of 1984 authorizing the City Council of Philadelphia to impose a business tax measured by Gross Receipts, Net Income or the combination of the two. The same year, the City Council by ordinance repealed the Mercantile License Tax and the General Business Tax and imposed the Business Privilege Tax. As of May 1, 2012

the Business Privilege Tax was renamed the Business Income and Receipts Tax ("BIRT"). Rental activities are usually considered to be business activities. Every estate or trust (whether the fiduciary is an individual or a corporation) must file a BIRT return if the estate or trust is engaged in any business or activity for profit within the City of Philadelphia.

The BIRT allows for particular allocations and tax computation for regulated industries, public utilities, manufacturers, wholesalers and retailers. There are also credit programs where meeting the requirement of the program allows for a credit against the BIRT. All persons subject to both the BIRT and the Net Profits Tax are entitled to apply a credit of 60% of the net income portion of their BIRT liability against what is due on the Net Profits Tax to the maximum of the Net Profit Tax liability for that Tax Year.

In Fiscal Year 1996, the City began a program of reducing the gross receipts portion of the BIRT with plans of eventually eliminating the gross receipts portion of the tax. In the Seventeenth Five-Year Plan, the Mayor approved further reductions in the gross receipts portion of the Business Privilege Tax for each of the Fiscal Years 2009-2013. The Eighteenth Five-Year Plan suspended future City-funded rate reductions until Fiscal Year 2015. The Nineteenth Five-Year Plan and the Twentieth Five-Year Plan suspended future City rate reductions until Fiscal Year 2014. Through cooperation with City Council, major changes have been made to the BIRT that took effect calendar year 2012 with changes phasing in through calendar year 2016. These change the prior proposed schedule of rate reductions. The City Council has approved certain changes to the BIRT, further described below.

Table 6
Summary of Business Income and Receipts Tax Rates

	Business Income and Receipts Tax Rates	
Tax Year	Business Privilege Tax Rates	Net Income
2003	2.300 mills	6.50%
2004	2.100 mills	6.50%
2005	1.900 mills	6.50%
2006	1.665 mills	6.50%
2007	1.540 mills	6.50%
2008	1.415 mills	6.45%
2009	1.415 mills	6.45%
2010	1.415 mills	6.45%
2011	1.415 mills	6.45%
2012	1.415 mills	6.45%
2013	1.415 mills	6.45%
2014	1.415 mills	6.43%

The Twenty-Second Five-Year Plan includes the legislative changes passed by City Council and signed by the Mayor in 2011 which incorporated several changes intended to help businesses grow in Philadelphia. These tax changes intend to help small and medium sized businesses and spur lower costs associated with starting a new business in order to stimulate new business formation and increase employment in Philadelphia. The business privilege license fee for all businesses will be eliminated in Fiscal Year 2014. In addition, business taxes for the first two years of operations for all new businesses that employ at least three employees in their first year and six in their second were eliminated beginning in Fiscal Year 2013. These legislative changes also provide for across the board exclusions on the gross receipts portion for all businesses scaled in over a three-year period beginning in Fiscal Year 2015 and reductions in the net income portion of the BIRT. When the exclusions are fully phased in, the first $100,000 of receipts will be excluded. Lastly, these legislative changes call for implementation of single sales factor apportionment. This enables businesses to pay BIRT based solely on sales, not on property or payroll. By taxing property and payroll, the BIRT previously had provided disincentives to firms to locate in the City.

Real Property Taxes

A Real Estate Tax on all taxable real property is levied on the assessed value of residential and commercial property located within the City's boundaries as assessed by the Office of Property Assessment ("OPA"). Real estate taxes benefit both the City and the School District with the millage split changing over the years bringing

more benefit to the School District. Due to the recent economic crisis, the City portion of the real estate tax was raised in 2011 and in calendar year 2012 the School District portion of the tax was increased. For calendar year 2013 the City portion of the real estate tax was raised to provide additional funding to the School District of Philadelphia by way of an increased contribution. The City offers a 1% discount on current real estate taxes paid before March 1. The Department of Revenue also offers special payment plans covering current year taxes, including plans for low income households and low income senior citizen households.

The tax rates for tax years 2003-2014 are set forth below:

Table 7
Real Property Tax History and Allocation

Calendar Year	City	School	Total
2003-2007	3.474%	4.790%	8.264%
2008-2010	3.305%	4.959%	8.264%
2011	4.123%	4.959%	9.082%
2012	4.123%	5.309%	9.432%
2013	4.462%	5.309%	9.771%
2014	0.6018%	0.7382%	1.340%

The City has completed its Actual Value Initiative (AVI) whereby all properties in the City will be assessed at actual market values for tax years 2014 and forward. Pennsylvania's Act 131 (as defined below) directs the City to adopt AVI for real estate taxes for 2014 and thereafter. This was the City's first city wide reassessment in decades, and it will ensure that property owners have fair, accurate, and more easily understood real estate tax bills. After full implementation, cumulative assessed values will increase dramatically as a result of AVI because before the reassessment, properties were assessed at only a fraction of what is considered to be the actual market values, and because many increases in market values throughout the City were not captured in assessments previously. As described below, City Council has enacted an ordinance to adjust millage rates to account for the changes in assessed value due to AVI. The Office of Property Assessment mailed notices of revised property values in February 2013.

The table below shows the differences in the current assessed value of properties used for tax year 2013 real estate taxes and the assessed values used for tax year 2014 real estate taxes following the reassessment and implementation of AVI.

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Table 8
Assessed Property Values 2013 and 2014

	Tax Year 2013*			
Category	**Assessed Value**	**Taxable Assessed Value**	**Exempt Assessed Value**	**Number of Parcels**
Residential	$23,480,956,634	$20,253,095,331	$ 3,227,861,303	456,852
Commercial	21,414,689,601	8,086,881,511	13,327,808,090	15,333
Industrial	2,367,255,600	1,635,367,256	731,888,344	4,729
Hotels and Apartments	7,312,672,990	5,803,784,850	1,508,888,140	41,339
Stores with Dwellings	1,013,104,334	907,265,169	105,839,165	15,199
Vacant Land	1,226,885,260	683,978,425	542,906,835	46,086
Total	$56,815,564,419	$37,370,372,542	$19,445,191,877	579,538

* Taxes applied against 2011 Assessed Value as described under "Assessment and Collection of Real and Personal Property Taxes."

	Tax Year 2014			
Category	**Assessed Value**	**Taxable Assessed Value**	**Exempt Assessed Value**	**Number of Parcels**
Residential	$ 67,031,300,900	$62,124,464,380	$ 4,906,836,520	469,463
Commercial	43,593,893,400	17,260,794,497	16,474,147,443	13,447
Industrial	3,535,800,300	2,847,170,296	688,630,004	4,475
Hotels and Apartments	16,022,031,200	12,655,457,633	3,053,356,824	27,445
Stores with Dwellings	3,447,991,700	3,346,130,697	86,374,055	14,958
Vacant Land	3,773,163,500	1,707,997,271	2,034,031,919	44,839
Total	$137,404,181,000	$99,942,014,774	$27,243,376,765	574,627

On October 24, 2012, the Governor approved Act 160 ("Act 160") which permits downward adjustments to School District millage tax rates, solely to offset the higher assessed values anticipated under AVI, and only to the extent the yield from such lower rates is no lower than the highest tax yield in the previous three years. Act 160 also precludes the School District from using its independent authority to levy real estate taxes, separately granted by the General Assembly of the Commonwealth, but only to the extent the City authorizes School District real estate taxes in an amount no lower than total real estate taxes yielded in the year prior to the revision of assessments, adjusted to account for increases in assessed value since the first year of revision.

The Adopted Fiscal Year 2014 Budget has a combined City/School District property tax rate for Fiscal Year 2014 of 1.34%, down from 9.7710% in Fiscal Year 2013 in order to generate approximately the same current year revenue in Fiscal Year 2014 as in Fiscal Year 2013. The City portion of the tax is 0.6018% (down from 4.4620% in Fiscal Year 2013) and the School District portion is 0.7382% (down from 5.3090% in Fiscal Year 2013).

The rate is set to ensure that AVI results in the collection of approximately the same amount of current year revenue in both Fiscal Year 2013 and Fiscal Year 2014. Nonetheless, there will be changes in property taxes for many individual property owners. Under the old assessment system, some properties were valued closer to their actual value than other properties. Properties that had been valued closer to their actual value will see smaller increases in assessments and when those assessment changes are coupled with the much lower property tax rate, they will produce tax decreases. On the other hand, properties that were relatively undervalued will see increases, a small percent of which could be substantial. In order to mitigate the hardship that could be created by those large increases, the Adopted Fiscal Year 2014 Budget includes a homestead exemption of $30,000 for all property owners

and other relief measures equal to an additional $20 million. The new property tax rates take into account these relief measures. The estimated current property tax revenue for the City is projected to be $492 million in Fiscal Year 2014 (excluding delinquent collections) under the Adopted Fiscal Year 2014 Budget slightly lower than the $500.1 million estimated in Fiscal Year 2013.

Assessment and Collection of Real and Personal Property Taxes

Historically, the Board of the Revision of Taxes (the "BRT") was responsible for both the property assessment and assessment appeals functions for the City. The BRT consists of a seven-member panel that is appointed by the Judges of the First Judicial District of Pennsylvania. On December 17, 2009, City Council passed legislation that would disband the BRT and replace it with separate offices for assessments and appeals, subject to the approval of City voters. In the May 10, 2010, primary election voters approved the separation of the assessment and appeals functions. On June 16, 2010 a new Chief Assessment Officer, Rich McKeithen, was appointed by the Mayor and approved by City Council on June 17, 2010 to lead the new Office of Property Assessment.

According to the legislation, the BRT would cease to exist at the end of September 2010 and the changes described above would take effect; however, the Pennsylvania Supreme Court ruled on September 20, 2010 that the City could not abolish the existing appeals board because only the General Assembly of the Commonwealth has the authority to do so. Therefore, the BRT remains in place as the property appeals board; however, the separation of the property assessment function from the property appeals function proceeds as per the original legislation. The City has established an informal review process to speed review and resolution of appeals prior to the formal BRT process.

Beginning on October 1, 2010, the new Office of Property Assessment was formally created to conduct the annual assessment of all real estate located within the City. The Office of Property Assessment now considers the reassessment of the approximately 579,000 parcels in the City to be substantially complete. Additionally, the Office of Property Assessment no longer employs a fractional assessment system, and for tax year 2014 all assessments are at 100% of actual value.

According to the existing appeals mechanism, the BRT has the authority to increase or decrease the property valuations contained in the return of the assessors in order that such valuations conform with law. After all changes in property assessments, and after all assessment appeals, assessments are certified and the results provided to the Department of Revenue. Real Estate Taxes, if paid by February 28, are discounted by 1%. If the tax is paid during the month of March, the gross amount of tax is due. If the tax is not paid by the last day of March, tax additions of 1.5% per month are added to the tax for each month that the tax remains unpaid through the end of the calendar year. Beginning in January of the succeeding year, the 15% tax additions that accumulated during the last ten months of the preceding years are capitalized and the tax is registered delinquent. Interest is then computed on the new tax base at a rate of 0.5% per month until the real estate tax is fully paid. Commencing in February of the second year, an additional 1% per month penalty is assessed for a maximum of seven months. See the Fiscal Year 2012 CAFR for assessed and market values of taxable realty in the City and for levies and rates of collections.

Prior to 2013, real estate tax bills were calculated as follows: certified fair market value multiplied by established predetermined ratio (EPR) multiplied by tax rate. The last applicable EPR was 32%. However, for properties that are the subject of tax assessment appeals, the EPR is replaced with the common level ratio (CLR) issued by the State Tax Equalization Board (STEB) if the CLR differs from the EPR by more than 15%. STEB has issued a final 2012 CLR of 25.2%, revised upwards from 18.1% following objections from the City and School District. This higher CLR still differs from the EPR by more than 15%.

On July 5, 2012, the Governor approved Act 131 ("Act 131"). Act 131 provides that 2013 real estate taxes are based on the 2011 assessed values, with adjustments for construction, demolition and other dramatic changes in condition. For 2013 only, Act 131 provides that real estate tax assessment appeals are decided using the EPR, regardless of the CLR. Act 131 also permits the City to provide the same "Homestead Exemption" from real property taxes allowed by other jurisdictions, but does not require the City to provide such exemptions, nor does it set an amount for such exemption. The legislation allows for an exemption from real estate property tax for up to fifty percent (50%) of the median assessed value of homesteads. Partner property tax legislation passed by City Council includes a homestead exemption equal to the lesser of $30,000 and 50% of the median assessed value of

properties granted a homestead exemption. Finally, Act 131 directs the City to adopt AVI for real estate taxes for 2014 and thereafter. See "Real Property Taxes."

An action has been filed in Commonwealth Court on behalf of the owners of approximately 1,530 parcels of real property in the City (the "Taxpayers") and purportedly as a class action on behalf of all property owners in the City against the City, among others, challenging the Pennsylvania and federal constitutionality of Act 131. Relief requested includes: (1) requiring the CLR applicable in 2013 for the City to be recalculated by STEB; (2) requiring appropriate notice and an opportunity for all taxpayers to file tax appeals (including those based on such CLR); and (3) enjoining enforcement or other implementation of Act 131. The City believes the action is not appropriately filed in the Commonwealth Court and has moved to transfer it to Common Pleas Court. The Taxpayers also have filed objections with STEB to its determination that the City's CLR applicable in 2013 is 30.6%, contending that (i) the City submitted incomplete data to STEB, (ii) the STEB's methodology is invalid, (iii) STEB did not independently verify the City's data and (iv) STEB inappropriately "trimmed" or excluded outliers from the data. The City has responded by stating that it disagrees with the Taxpayers' allegations regarding the CLR for the City, that the Taxpayers need to demonstrate rather than merely assert flaws in STEB's methodology, that the City would be heavily prejudiced if STEB were to re-examine only for the City the uniform methodology used statewide, and that STEB should stay any proceeding before it because the Taxpayers have made the same allegations and requested the same relief in the most recent Second Amended Petition filed with Commonwealth Court. If Taxpayers were both to persuade STEB to lower the CLR and to succeed in getting Act 131 invalidated, the impact on real estate tax revenue could be material but is highly uncertain. The City intends to vigorously defend both actions but no assurance can be given as to their outcomes, nor can the City estimate the amount at issue at this time.

For tax year 2014 and thereafter, real estate tax bills will be levied based on AVI, as described under "Real Property Taxes."

Table 9
City of Philadelphia
Real Property Taxes Levied and Collected
For the Calendar Years 2003 through 2012
as of June 30, 2012
(Amounts in Millions of USD)

		Collected within the Year of the Levy			Total Collections to Date	
Calendar Year of Levy[1]	Taxes Levied for the Year	Amount	Percentage of Levy	Collected in Subsequent Years	Amount[2]	Percentage of Levy
2003	359.4	326.8	90.9	27.6	354.4	98.6
2004	372.5	340.9	91.5	26.3	367.2	98.6
2005	373.5	350.3	93.8	22.1	372.4	99.7
2006	385.6	339.6	88.1	23.1	362.7	94.1
2007	391.7	347.5	88.7	23.6	371.1	94.7
2008	390.2	346.4	88.8	24.9	371.3	95.2
2009	396.5	315.4	79.6	41.8	357.2	90.1
2010	405.8	353.7	87.2	32.7	386.4	95.2
2011	509.1	440.9	86.6	29.8	470.7	92.5
2012	508.6	444.5[3]	87.4	N/A	444.5	87.4

[1] Real Estate Tax bills are sent out in November and are payable at 1% discount until February 28th, otherwise the face amount is due by March 31 without penalty or interest.
[2] Includes collections through June 30, 2012.
[3] Includes collections through June 30, 2012. It is estimated that approximately 92% of the amount levied for 2012 will be collected within the year of levy.

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Table 10
Principal Property Taxpayers
2014 and 2005
(Amounts in Millions of USD)

	2014*		2005	
Taxpayer	Assessment**	Percentage of Total Assessments	Assessment**	Percentage of Total Assessments
HUB Properties Trust	265.7	0.27	55.0	0.51
Nine Penn Center Associates	232.6	0.23	54.1	0.50
Phila Liberty Place ELP	207.7	0.21	49.6	0.46
Philadelphia Market Street	203.7	0.20	32.9	0.30
Tenet Health Systems Hahnemann	192.1	0.19	32.0	0.29
Commerce Square Partners	178.2	0.18	30.5	0.28
Maguire / Thomas	170.1	0.17	43.3	0.40
Franklin Mills Associates	163.2	0.16	30.3	0.28
Brandywine Operating Partners ***	159.4	0.16	28.8	0.27
NNN 1818 Market Street 37	146.8	0.15	22.2	0.20
Total	1,919.5	1.92	378.7	3.49
Total Taxable Assessments	99,942.0		10,864.9	

*2014 Assessments reflect the reassessment of properties under AVI. See "Real Property Taxes."
**Assessment Values rounded to the nearest $100,000 and only include the largest assessed property for each taxpayer; additional properties owned by the same taxpayer are not included.
***Assessment is being appealed.
Source: City of Philadelphia, Office of Property Assessment.

Table 11
Ten Largest Certified Market and Assessment Values
of Tax-Abated Properties
Certified Values for 2014
(Amounts in Millions of USD)

Location	2014 Certified Market Value	Total Assessment	Total Taxable Assessment	Total Exempt Assessment	Exempt Thru Tax Year
1701 John F Kennedy Blvd.	212.5	212.5	9.1	203.4	2017
2929L Arch St.	160.7	160.7	0	160.7	2015
1001 N Delaware Ave.	150.9	150.9	39.3	111.6	2020
1500 Spring Garden St.	138.7	138.7	27.8	110.9	2020
2323 Race St.	72.4	72.4	2.8	69.6	2016
3401 Chestnut St.	64.6	64.6	3.4	61.2	2017
1601 N 15th St.	64.2	64.2	0.5	63.7	2017
907-37 Market St.	61.0	61.0	41.4	19.6	2016
1327-39 Chestnut St.	58.5	58.5	56.4	2.1	2016
630-40 N Broad St.	57.5	57.5	9.9	47.6	2016

Source: City of Philadelphia, Office of Property Assessment.

Sales and Use Tax

The City adopted a 1% sales and use tax (the "City Sales Tax") for City general revenue purposes effective beginning in Fiscal Year 1992. The Commonwealth authorized the levy of this tax under the PICA Act. Vendors are required to pay this sales tax to the Commonwealth Department of Revenue together with the similar

Commonwealth sales and use tax. The State Treasurer deposits the collections of this tax in a special fund and disburses the collections, including any investment income earned thereon, less administrative fees of the Commonwealth Department of Revenue, to the City on a monthly basis.

The City Sales Tax is imposed in addition to, and on the same basis as, the Commonwealth's sales and use tax. The City Sales Tax became effective September 28, 1991 and is collected for the City by the Commonwealth Department of Revenue. The Fiscal Year 2010 budget assumed an increase to 2% from the then-current 1% rate. The General Assembly of the Commonwealth enacted legislation authorizing this increase effective October 8, 2009, through June 30, 2014. The Eighteenth Five-Year Plan, the Nineteenth Five-Year Plan, the Twentieth Five-Year Plan, the Twenty-First Five-Year Plan and the Twenty-Second Five-Year Plan all assumed this temporary increase will sunset on June 30, 2014.

In July 2013, the General Assembly of the Commonwealth enacted legislation authorizing the implementation of a new 1% increase following the expiration on June 30, 2014, of the previously authorized 1% increase. Implementation requires adoption of an ordinance by the City. The legislation provides that such 1% increase will be applied in each fiscal year beginning with Fiscal Year 2015 as follows: (1) the first $120 million collected will be paid to the School District so long as the Commonwealth's Secretary of Education has made an annual certification that the School District has begun implementation of reforms that provide for fiscal stability, educational improvement and operational control; (2) for Fiscal Years 2015 through 2018, the next $15 million collected will be applied to payment of debt service on approximately $50 million of bonds to be issued by the City for the benefit of the School District; and (3) the remainder will be paid to the City pursuant to Act 205 (defined below) for application to the Municipal Pension Fund.

The table below sets forth the City Sales Tax collected in Fiscal Years 2003 through 2012, the Adopted Budget and current estimate for Fiscal Year 2013 and the Adopted Fiscal Year 2014 Budget.

Table 12
Summary of City Sales Tax Collections
(Amounts in Millions of USD)

Fiscal Year	City Sales Tax Collections
2003	108.0
2004	108.0
2005	119.9
2006	127.8
2007	132.6
2008	137.3
2009	128.0
2010	207.1
2011	244.6
2012	253.5
2013 (Adopted Budget)[1]	259.3
2013 (Current Estimate)[2]	259.3
2014 (Adopted Budget)[2]	272.6

[1] From the estimates for the Adopted Fiscal Year 2013 Budget.
[2] From the estimates for the Adopted Fiscal Year 2014 Budget.

Other Taxes

The City also collects real property transfer taxes, parking taxes, amusement tax, valet parking tax, outdoor advertising tax, smokeless tobacco tax and other miscellaneous taxes.

Other Locally Generated Non-Tax Revenues

These revenues include license fees and permit sales, traffic fines and parking meter receipts, court related fees, stadium revenues, interest earnings and other miscellaneous charges and revenues of the City.

Revenue from Other Governments

The City's Fiscal Year 2013 General Fund current estimate projects that approximately 17.7% of General Fund revenues will be received from other governmental jurisdictions, including (1) $235.3 million from the Commonwealth for health, welfare, court, and various other specified purposes; (2) $37.5 million from the Federal government; and (3) $66.0 million from other governments, in which revenues are primarily payments from PGW and parking fines and fees from the Philadelphia Parking Authority. See "THE GOVERNMENT OF THE CITY OF PHILADELPHIA-Government Services." In addition, the net collections of the PICA Tax of $311.6 million are included in "Revenue from Other Governments." The decrease in Fiscal Year 2013 current estimate of Revenue from Other Governments of $65.0 million from the Fiscal Year 2012 actual amount is primarily the result of the elimination of several one-time revenues sources including: $34 million of State Pension Aid, $12.5 million from the Parametric Garage for amounts owed to the City, and $11 million in amounts due related to the Love Park Garage which was offset by certain other revenues.

The City's Fiscal Year 2012 General Fund received 19.9% of General Fund revenues from other governmental jurisdictions, including: (1) $241.6 million from the Commonwealth for health, welfare, court, and various other specified purposes; (2) $97.0 million from the Federal government; and (3) $82.1 million from other governments, in which revenues are primarily payments from PGW and parking fines and fees from the Philadelphia Parking Authority. In addition, the net collections of the PICA Tax of $295.2 million are included in "Revenue from Other Governments." The General Fund decrease in Fiscal Year 2012 Revenue from Other Governments is largely due to the transfer of the majority of the Department of Human Services revenue and obligations to the Grants Revenue Fund.

The City's Fiscal Year 2011 General Fund received 27.6% of General Fund revenues from other governmental jurisdictions, including: (1) $542.2 million from the Commonwealth for health, welfare, court, and various other specified purposes; (2) $165.4 million from the Federal government; and (3) $63.5 million from other governments, in which revenues are primarily rentals and payments from PGW and parking fines and fees from the Philadelphia Parking Authority. In addition, the net collections of the PICA Tax of $293.8 million are included in "Revenue from Other Governments."

These amounts do not include the substantial amounts of revenues from other governments received by the Grants Revenue Fund, Community Development Fund, and other operating and capital funds of the City.

Revenues from City-Owned Systems

In addition to taxes, the City realizes revenues through the operation of various City-owned systems such as the Water and Wastewater Systems and PGW. The City has issued revenue bonds with respect to the Water and Wastewater Systems and PGW to be paid solely from and secured by a pledge of the respective revenues of these systems. The revenues of the Water and Wastewater Systems and PGW are not legally available for payment of other obligations of the City until, on an annual basis, all revenue bond debt service requirements and covenants relating to those bonds have been satisfied and then, in a limited amount and upon satisfaction of certain other conditions.

Effective June 1991, the revenues of the Water Department were required to be segregated from other funds of the City. Under the City's Restated General Water and Wastewater Revenue Bond Ordinance of 1989 (the "Water Ordinance"), an annual transfer may be made from the Water Fund to the City's General Fund in an amount not to exceed the lesser of (a) all Net Reserve Earnings, as defined below, or (b) $4,994,000. Net Reserve Earnings means the amount of interest earnings during the fiscal year on amounts in the Debt Reserve Account and Subordinated Bond Fund, as defined in the Water Ordinance. Commencing in Fiscal Year 1991, the $4,994,000 amount was reduced to $4,138,000 by administrative agreement that remained in effect through Fiscal Year 2003.

No such transfer was made in Fiscal Year 1992; however, the transfer was made in each subsequent year through Fiscal Year 2003. For Fiscal Year 2004, the transfer was to have increased to $4,994,000 but no payment was made. For Fiscal Year 2005, the transferred amount was $4,401,000; for each of Fiscal Years 2006 through 2008, the transferred amount was $4,994,000. In Fiscal Years 2009, 2010 and 2011, the transferred amounts were $4,185,463, $2,303,986, and $1,229,851 respectively. In Fiscal Year 2012, the amount transferred was $1,086,165 and the Fiscal Year 2013 budget and current estimate is $600,000. The Adopted Fiscal Year 2014 Budget has an estimated transfer amount of $700,000.

The revenues of PGW are segregated from other funds of the City. Payments for debt service on Gas Works Revenue Bonds are made directly by PGW. In previous years, PGW has also made an annual payment of $18,000,000 to the City's General Fund. For Fiscal Year 2005, the City agreed to forgo the $18,000,000 payment, and for Fiscal Years 2006, 2007, 2008, 2009 and 2010, the City budgeted the receipt of the $18,000,000 payment and the grant back of such amount to PGW. The City's Nineteenth Five-Year Plan assumed that the $18,000,000 payment would be made in each of Fiscal Years 2011 through 2015 and that the City would grant back such payment to PGW in each such Fiscal Year. See also "EXPENDITURES OF THE CITY - Annual Payments to PGW." The City's Twentieth Five-Year Plan included the PGW annual payment of $18,000,000 to the City's General Fund but discontinued the City's grant back to PGW equal to the annual payment received from PGW for Fiscal Years 2012, 2013, 2014, 2015 and 2016. The City's Twenty-First Five-Year Plan included the PGW annual payment of $18,000,000 to the City's General Fund and discontinued the City's grant back to PGW equal to the annual payment received from PGW for Fiscal Years 2013, 2014, 2015, 2016 and 2017. The City's Twenty-Second Five-Year Plan includes the PGW annual payment of $18,000,000 to the City's General Fund and discontinues the City's grant back to PGW equal to the annual payment received from PGW for Fiscal Years 2014, 2015, 2016, 2017 and 2018. The City is considering the sale of PGW to a private entity. See "THE GOVERNMENT OF THE CITY OF PHILADELPHIA-Government Services."

Philadelphia Parking Authority Revenues

The Philadelphia Parking Authority ("PPA") was established by City ordinance pursuant to the Pennsylvania Parking Authority Law, P.L. 458, No. 208 (June 5, 1947). Various statutes, ordinances, and contracts authorize PPA to plan, design, acquire, hold, construct, improve, maintain and operate, own or lease land and facilities for parking in the City, including such facilities at Philadelphia International Airport (the "Airport" or "PHL"), and to administer the City's on-street parking program through an Agreement of Cooperation ("Agreement of Cooperation") with the City.

PPA owns and operates five parking garages at the Airport, as well as operating a number of surface parking lots at the Airport. The land on which these garages and surface lots are located is leased from the City, acting through the Department of Commerce, Division of Aviation, pursuant to a lease expiring in 2030 (the "Lease Agreement"). The Lease Agreement provides for payment of rent to the City, which is equal to gross receipts less operating expense, debt service on PPA's bonds issued to finance improvements at the Airport and reimbursement to PPA for capital expenditures and prior year operating deficits relating to its Airport operations, if any. The City received transfers of rental payments in Fiscal Years 2006 through 2011 that totaled $30,186,642, $33,184,918, $33,570,037, $31,239,909, $23,732,623 and $28,008,554, respectively. The amount for Fiscal Year 2012 was $25,035,368. The Fiscal Year 2013 budgeted amount is $29,000,000 and the current estimated amount is $25,500,000. The Adopted Fiscal Year 2014 Budget has an estimated amount of $25,000,000.

One component of the operating expenses is PPA's administrative costs. In 1999, at the request of the Federal Aviation Administration ("FAA"), PPA and the City entered into a letter agreement (the "FAA Letter Agreement") which contained a formula for calculating PPA's administrative costs and capped such administrative costs at 28% of PPA's total administrative costs for all of its cost centers. PPA owns and/or operates parking facilities at a number of non-Airport locations in the City. These parking facilities are revenue centers for purposes of the FAA Letter Agreement. According to PPA's audited financial statements, as filed with the City, PPA has been in compliance with the FAA Letter Agreement since its execution.

EXPENDITURES OF THE CITY

The major City expenditures are for personal services (including pensions and other employee benefits), purchase of services (including payments to SEPTA), and debt service.

Personal Services (Personnel)

As of March 31, 2013, the City employed 26,503 full-time employees, 20,879 of which had salaries paid from the General Fund. Additional employment is supported by other funds, including the Grants Fund, Water Fund and the Aviation Fund.

Additional operating funds for employing personnel are contributed by other governments, primarily for categorical grants, as well as for the conduct of the community development program. These activities are not undertaken if funding is not received.

The following table sets forth the number of filled full-time positions of the City as of the dates indicated.

Table 13
Filled, Full Time Positions - All Operating Funds
as of June 30 (Actual)

	2006	2007	2008	2009	2010	2011	2012[1,2]
General Fund							
Police	7,287	7,424	7,367	7,443	7,378	7,219	7,225
Fire	2,270	2,399	2,326	2,252	2,187	2,146	2,072
Courts	1,936	1,928	1,970	1,889	1,756	1,869	1,957
Prisons	2,225	2,176	2,131	2,294	2,254	2,166	2,144
Streets	1,858	1,814	1,839	1,724	1,693	1,689	1,682
Health	662	664	665	662	662	661	669
Human Services	1,703	1,721	1,784	1,743	1,751	1,668	804
All Other	4,878	4,941	5,029	4,905	4,616	4,602	4,622
Total General Fund	22,819	23,067	23,111	22,912	22,297	22,020	21,175
Other Funds	4,616	4,598	4,642	4,570	4,566	4,540	5,197
Total - All Funds	27,435	27,665	27,753	27,482	26,863	26,560	26,372

[1] Reflects full-time positions for Fiscal Year 2012 from the June 30, 2012 Quarterly City Manager's Report.
[2] Reflects the transfer of the majority of the Department of Human Services revenue and obligations from the General Fund to the Grants Revenue Fund.

Overview of City Employees

The wages and benefits of City employees vary not only by position, but also by whether the employees are represented by a union and, if so, which union. Employee wages and benefits may also be impacted by whether the employee is subject to the Civil Service system or exempt from those rules. Thus, City employees may be broken down into three major categories for purposes of understanding how their wages and benefits are determined: (1) employees who are not subject to the Civil Service system ("exempt employees"); (2) employees who fall under the Civil Service system but are not represented by a union ("non-represented employees") and (3) employees who are subject to the Civil Service system and represented by a union ("union employees"). In addition, there are employees of the First Judicial District who are represented by a union but are not subject to the Civil Service system. By state law, the City is considered to be the economic employer and a joint employer over these court employees, which results in the City negotiating the wages and economic benefits for these employees while the First Juridical District retains control over the non-economic terms of their employment including decisions such as hiring, promotion and all work rules.

As of May 29, 2013, the City's 24,951 unionized employees were represented by the City's four municipal unions: Fraternal Order of Police Lodge No. 5 ("FOP"); International Association of Fire Fighters Local 22

("IAFF"); American Federation of State, County and Municipal Employees ("AFSCME") District Council 33 ("DC 33"); and AFSCME District Council 47 ("DC 47").

Table 14
Number of Unionized Employees
As of May 29, 2013

AFSCME District Council 33	AFSCME District Council 33 Correctional Officers	AFSCME District Council 47	AFSCME District Council 47 Local 810 Court Employees	AFSCME District Council 47 Local 2186	Fraternal Order of Police Lodge No. 5 (Police Department)	Fraternal Order of Police Lodge No. 5 (Sheriff's Office and Register of Wills)	International Association of Fire Fighters Local 22
9,668	2,210	2,608	512	954	6,602	273	2,124

Union employees, other than uniformed employees of the Police Department and Fire Department, are subject to the requirements of Pennsylvania Act 195 of 1972 ("Act 195"). Under Act 195, the union and the City are required to bargain in good faith to attempt to reach agreement on new contract terms. Act 195 also requires the parties to satisfy certain state-mandated mediation procedures involving a mediator appointed by the Commonwealth Bureau of Mediation. Once those mediation procedures are satisfied and no collective bargaining agreement has been reached, most employees covered by Act 195 are permitted to strike. For most employees under Act 195 there is no statutory mechanism to resolve an impasse in collective bargaining.

However, under Act 195, certain employees, including employees of the Sheriff's Office and the Register of Wills represented by the FOP, corrections officers represented by DC 33 and employees of the First Judicial District represented by DC 47, are not permitted to strike, but may proceed to interest arbitration under Act 195 when collective bargaining negotiations reach an impasse. In interest arbitration, a tri-parte arbitration panel is convened with each side appointing one partial arbitrator and the partial arbitrators selecting a neutral third arbitrator. The panel then conducts evidentiary hearings and issues an arbitration award that sets the terms and conditions of employment, including changes in wages and benefits, for covered employees. Although the arbitration panel cannot issue an award on matters that are not mandatory subjects of bargaining, such as matters of inherent managerial policy, without the parties' consent, arbitration panels have broad powers to set employment terms. Pennsylvania law provides limited grounds on which an interest arbitration award can be set aside by a court on appeal. However, provisions of an interest arbitration award issued under Act 195 that require legislative action are considered advisory only and the legislative body is permitted to meet, consider and reject those provisions.

Uniformed employees of the Police Department and Fire Department bargain under Pennsylvania Act 111 of 1968 ("Act 111"), which provides for final and binding interest arbitration to resolve collective bargaining impasses. These employees are similarly not permitted to strike. Interest arbitration under Act 111 operates similarly to interest arbitration under Act 195, but the City's legislative body is not permitted to reject the portions of an interest arbitration award that require legislative action. To the contrary, the City is required to pass any legislation necessary to implement the award unless doing so would violate state or federal law. Thus, the arbitration panel has significant, although not limitless power, to issue an award on mandatory subjects of bargaining. As with interest arbitration under Act 195, the arbitration panel cannot issue an award on a matter that is one of inherent managerial policy. In addition to the grounds available to challenge an Act 195 interest arbitration award on appeal, the PICA Act requires an Act 111 interest arbitration panel to *inter alia* give substantial weight to the City's Five-Year Plan and ability to pay for the cost of the award without negatively impacting services, and gives the City the right to appeal the award to the Court of Common Pleas if it believes the panel has failed to meet these responsibilities. If the arbitration panel fails to do so or *inter alia* if it awards wages or benefits that exceed what is assumed in the Five-Year Plan without substantial evidence in the record demonstrating that the City can afford these increases without adversely impacting service levels, the Court of Common Pleas is required to vacate the arbitration award and remand it to the arbitration panel.

Overview of Employee Benefits

The City provides various pension, life insurance, and health benefits for its employees. The benefits offered depend on the employee's union status and bargaining unit, if applicable. General Fund employee benefit expenditures for Fiscal Years 2007 through 2014 are shown in the following table.

Table 15
General Fund Employee Benefit Expenditures
Fiscal Years 2007-2014
(Amounts in Millions of USD)

	Actual 2007	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Actual 2012	Adopted Budget [2] 2013	Current Estimate [3] 2013	Adopted Budget [3] 2014
Pension Contribution[1]	436.8	430.8	459.0	346.7	485.2	547.8	629.1	619.3	667.5
Health	331.5	421.0	377.0	349.7	346.3	379.4	347.4	363.5	362.9
Social Security	64.1	69.7	68.8	65.2	64.6	67.2	64.9	64.9	65.0
Other	57.9	61.5	68.4	69.5	70.9	71.8	76.9	76.9	81.9
Total	890.3	983.0	973.2	831.4	967.0	1,066.2	1,118.3	1,124.6	1,177.3

[1] The Pension Contribution amount includes debt service on the 1999 Pension Obligation Bonds (defined below) and certain debt incurred to refinance existing pension deferral repayment obligations (outstanding together in the aggregate principal amount of $1,294,825,350 on June 30, 2013). See also "*Pension Obligation Bonds*" and "*Funded Status of the Municipal Pension Fund*" under "Municipal Pension Fund (Related to All Funds)" below.
[2] From the estimates for the Adopted Fiscal Year 2013 Budget.
[3] From the estimates for the Adopted Fiscal Year 2014 Budget.

Each of the City's four municipal unions sponsors its own health plan that provides medical, prescription, dental and optical benefits to participating employees and eligible retirees through trusts on which the City has varying degrees of minority representation. Exempt and non-represented employees, along with represented employees of the Register of Wills and employees represented by DC 33 who have chosen not to become members of the union, receive health benefits through a plan sponsored and administered by the City (the "City-Administered Plan"). Each of the plans provide different benefits determined by the plan sponsor. In addition, employees who satisfy the eligibility criteria, receive five years of health benefits after their retirement. See "Other Post-Employment Benefits." These benefits are determined and administered by the plan in which the employee participated at the time of his or her retirement.

Other employee benefits, including life insurance and paid leave, are similarly determined by the respective collective bargaining agreements and City policies and Civil Service Regulations. Employees also participate in the Municipal Retirement System. See "Municipal Pension Fund." The City sponsors a number of pension plans within the Retirement System. Membership in the plans is determined by the employee's hire date, union membership and job classification. Uniformed employees of the Police Department and Fire Department have their own separate pension plans, which have lower retirement ages, higher multipliers and higher employee contribution rates. All other City employees participate in what is referred to as the "municipal plan." Depending on hire date and union status, employees participate in one of three basic pension plan tiers in the municipal plan, which have varying levels of benefits, and which are colloquially referred to based on the year in which they were first implemented: "Plan 67" is the most generous of the three plans, offering a traditional defined benefit for life; "Plan 87" maintains Plan 67's defined benefit structure but provides less generous benefits to employees and lower employee contributions; "Plan 10," which was created by the current Administration, is a so-called hybrid plan, combining a lower level of defined benefits with an optional defined contribution component in which employees can contribute a portion of their salary, pre-tax, to a 403(b) plan and receive a 50% match on those contributions up to a maximum City contribution of 1.5% of pay annually. Plan 10 has only been put in place for newly-hired employees. The actuary for the pension plan has estimated the savings to the City for new hires participating in Plan 10 at 2.5% of payroll compared to the cost of these employees participating in Plan 87 instead.

Overview of Current Labor Situation

The Fraternal Order of Police received a five-year interest arbitration award for uniformed police department employees on December 18, 2009 covering the period Fiscal Year 2010 through Fiscal Year 2014. Interest arbitration awards covering employees of the Sheriff's Office and Register of Wills, corrections officers and youth detention counselors represented by DC 33 and court employees represented by DC 47 through Fiscal Year 2014 were issued in 2011 and 2012.

Agreements with the remaining three bargaining units – IAFF, DC 33 and DC 47 – expired on June 30, 2009 and no new agreements have been reached.

The information below summarizes the interest arbitration awards that have been issued and provides an update on the status of negotiations for the other bargaining units, as well as changes that have been made for exempt and non-represented employees.

Uniformed Police Department Employees Represented by FOP

On December 18, 2009, an arbitration panel awarded a five-year contract to the FOP effective July 1, 2009. On March 2, 2010, the arbitration panel issued a supplemental award solely on the issue of pension benefits. On December 20, 2012, the interest arbitration panel issued an award setting the wage terms for Fiscal Year 2013 and Fiscal Year 2014. These awards have the following key provisions:

- No wage increase for Fiscal Year 2010.
- Three percent pay increases for each of Fiscal Year 2011 and Fiscal Year 2012, along with a re-opener for Fiscal Year 2013 and Fiscal Year 2014 which yielded an additional 3% raise in both years.
- An increase in the stress pay that police officers receive as a result of working rotating shifts by 1% in Fiscal Year 2011 and 1% in Fiscal Year 2014.
- Several changes were made in the area of health benefits to reduce City costs. At the start of the Nutter Administration, the City was contributing $1,265 per eligible employee and retiree per month ("PEPM") to the FOP health plan. In the one-year 2008-2009 interest arbitration award, that amount was reduced to $1,165 PEPM. The 2009-2014 interest arbitration award continued that downward trend, reducing the City's contribution to the FOP health plan to $965 PEPM effective January 1, 2010. Effective July 1, 2010, the award ordered the FOP's health plan moved to self-insurance. Under self-insurance, the health fund pays for the actual cost of services provided to members, instead of paying a premium to an insurance carrier based on expected claims. The FOP's change is similar to the change the City made in Fiscal Year 2010 for the City-Administered Plan. In addition, the award also ordered increases in the co-pays employees pay for doctor's visits and prescription drugs. The health plan's actuary has estimated that the change in benefits reduced costs by $1.5 million in the first six months alone. Changes in the health care provisions in the 2008 and 2009 interest arbitration awards have resulted in savings to the City in excess of $50 million to date.
- Pension changes for new hires - FOP members now choose between either increasing their pension contribution from 5% to 6% of pay or enrolling in Plan 10.
- The City gained the right to furlough (a day off without pay) employees up to 30 days each fiscal year.

The City and the FOP currently have a dispute regarding implementation of certain portions of the 2009 interest arbitration award regarding health insurance. Specifically, the parties have a dispute about how the expected costs were calculated by the parties' respective experts for Fiscal Year 2011, the inclusion of certain depreciation expenses in administrative costs and the creation of an escrow account. A hearing has been held before the interest arbitration panel on these disputes and the parties await a decision. Pending this decision, the City has escrowed $34.5 million to cover the disputed amounts.

FOP-Represented Deputy Sheriff and Register of Wills

A five-year interest arbitration award covering the unionized employees of the Sheriff's Office and Register of Wills was issued on June 21, 2011 for the period July 1, 2009 through June 30, 2014. Key provisions of the award include:

- A 2.5% increase for Sheriff's Office employees in Fiscal Year 2011 and Fiscal Year 2012 and a re-opener for Fiscal Year 2013 and Fiscal Year 2014. Hearings on the re-opener have been completed, with a decision by the arbitration panel not expected before August 2013.
- Wage increases for Register of Wills employees, if any, will be based on increases negotiated between the City and DC 33.
- Step and longevity increments, which had been frozen by the City in July 2009, were restored for employees of the Sheriff's Office retroactive to the start of the freeze. Increments for Register of Wills employees were restored prospectively as of the date the award was issued.
- Employees of the Sheriff's Office participate in the FOP's health plan. The award continued that arrangement, along with the same funding terms and benefit plan changes as the police interest arbitration award. Register of Wills employees continue to participate in the City-Administered Plan.
- Pension changes for new hires. New employees of the Sheriff's Office choose between going into the existing municipal pension Plan 87 and increasing their contribution to 50% of normal cost from 30% of normal cost, or going into Plan 10. Register of Wills employees hired after the date of the award must enter Plan 10. The award was the first that required City employees to enter the hybrid plan.

IAFF

A four-year interest arbitration award with the IAFF was issued on October 15, 2010. Although the award took a crucial step toward reform by implementing a Plan 10 option like the one in the 2009 FOP award, it would have imposed more than $200 million in new costs over the Five-Year Plan without giving the City the required tools to manage these costs. As a result, the City appealed the award, with the exceptions of the revisions to the pension plan and a change related to vacations, on the basis that the award violated the PICA Act because it failed to give substantial weight to the City's approved Five-Year Plan and ability to pay, and, as a result, granted increases in pay and benefits in excess of what the City can afford. On November 16, 2011, the Philadelphia Court of Common Pleas vacated the entire award, with the exception of the pension and vacation provisions, which have been implemented, and remanded it to the arbitration panel to issue an award that complies with the PICA Act.

On July 2, 2012, the arbitration panel issued an award following the remand. This award followed the same pattern as the vacated award on economic terms with the exception of health insurance. Key provisions of the award include:

- No wage increase for Fiscal Year 2010.
- Three percent pay increases for each of Fiscal Year 2011, Fiscal Year 2012 and Fiscal Year 2013.
- Pension changes for new hires - IAFF members now choose between either increasing their pension contribution from 5% to 6% of pay or enrolling in Plan 10.

Under the 2012 award, the City's required contributions to the IAFF-controlled health fund were substantially increased from $1,270 PEPM at the start of the award to $1,679 PEPM as of July 1, 2012, including more than $20 million in retroactive payments. For the period October 1, 2012 through June 30, 2013, the City's required contribution was set at $1,619.64 PEPM under the award, which is significantly higher than the monthly per employee contribution for DC 33 and DC 47 ($975.76) and the FOP ($1,192). The award also gave the City the option to have the health fund move to self-insurance on terms based on the FOP award effective October 1, 2012 rather than pay the fixed $1,619.64 PEPM. However, to do so, the City would still have had to pay the retroactive contributions in excess of $20 million and bear the costs of the benefits and administration of the health fund, regardless of their magnitude with no employee contribution after the health fund paid the first $5 million in claims. Because this award would have added over $200 million in costs over the Five-Year Plan, including more than $80

million in retroactive payments in Fiscal Year 2013, it was appealed by the City. On November 19, 2012, the Common Pleas Court denied the City's appeal. The City has appealed the denial to Commonwealth Court; and the submission of briefs and the record on appeal to the court was completed on June 27, 2013.

During the pendency of the appeal, the City has not implemented its terms, except for the pension provision that was implemented following issuance of the 2010 award. The IAFF filed an unfair labor practice charge with the Pennsylvania Labor Relations Board and a Motion for Contempt with the Court of Common Pleas of Philadelphia County challenging the City's failure to implement the 2012 award. The Court of Common Pleas issued an order on June 26, 2013 denying the IAFF's Motion for Contempt and finding that the City is entitled to an automatic stay of its decision to deny the petition to vacate while the City's appeal of that order is pending. On July 3, the IAFF filed an Emergency Application to Vacate Automatic Supersedeas with the Commonwealth Court seeking to have the court order the City to implement the terms of the 2012 award while the appeal is pending. The City's response in opposition to the application is due to be filed on July 19, 2013. IAFF has also filed an application for expedited oral argument on the appeal with the Commonwealth Court. The City does not oppose this application. A hearing on the unfair labor practice charge is scheduled for August 7, 2013.

Because the appealed contract would have expired on June 30, 2013, negotiations are underway for a new contract to begin on July 1, 2013. The IAFF has declared an impasse and requested interest arbitration and the arbitration panel has been selected. Hearings are scheduled to begin in July 2013 and are expected to last into Fall of 2013.

DC 33

After having spent nearly four years in negotiations, including multiple bargaining sessions in the past six months, the City has been unable to reach an agreement with DC 33.

On January 16, 2013, the City made a final offer to DC 33 for a contract to run July 1, 2009 through June 30, 2014. The City's offer includes wage increases of 2.5% following ratification and an additional 2% in January 2014 and restoration of step and longevity increments prospectively following ratification, along with $25 million in additional payments to the union managed health fund. Under the City's proposal, the City's PEPM contribution to the union's health fund will remain at $975.76 for the term of the contract with the health fund using the lump sum payments to offset any cost increases it has experienced. The City also proposed two pension changes: (1) to require all new employees to enter Plan 10; and (2) increased pension contributions from current employees as was ordered for corrections officers represented by DC 33 (discussed below). Additionally, the City proposed changes in overtime rules based on the changes made in Fiscal Year 2013 for non-represented employees and those represented by Local 2186 of DC 47 (discussed below) and the right to furlough employees when economic circumstances warrant, similar to the FOP award. The City estimates the Five-Year Plan cost of its final offer at more than $50 million. When DC 33 rejected this offer, the Mayor gave DC 33 two weeks to reconsider its refusal, but subsequent discussions were unproductive.

On February 1, 2013, the City filed an action in the Court of Common Pleas of Philadelphia County, asking the court for a declaration that the City has the right to implement its final offer for the currently-expired contract. On February 5, 2013, the City asked the Pennsylvania Supreme Court to assume immediate jurisdiction over the matter to speed a final resolution. Groups representing all 3,000 elected local governments in Pennsylvania filed a brief in the Pennsylvania Supreme Court on February 19, 2013 in support of the City's request. On June 7, 2013, the Pennsylvania Supreme Court declined to expedite review over a strong dissent by Justice Castille. The case continues in the Court of Common Pleas with the parties expected to file cross motions for summary judgment in Summer 2013. During the period of litigation, the City is maintaining the status quo on the issues that separate the parties.

DC 33 Corrections' Officers and Youth Detention Counselors

On March 16, 2012, an interest arbitration panel issued an award for the period July 1, 2009 through June 30, 2014 covering approximately 2,100 prison guards and related employees of the City who are part of DC 33. Key components of the award include:

- A one-time $1,100 lump sum bonus, equivalent to that received by the larger unit of DC 33 in 2008, and wage increases of 2.5% effective July 1, 2012 and July 1, 2013. If the City agrees to any wage increases in the DC 33 negotiations described in the preceding section for July 1, 2009 through June 30, 2012, the prison guards and related City employees would also receive these increases.
- All new hires are required to enter Plan 10. Additionally, current employees are required to make increased contributions for their pension plans effective July 1, 2013. Employees covered under Plan 87 will see an increase from 30% of normal cost to 50% of normal cost, which will increase the employee contribution by approximately 1.3% of salary. Employees in Plan 67 will also pay 50% of normal cost, but will no longer receive an offset while contributing toward FICA, which will increase the employee contribution by 2.25% of salary for most employees.
- Paid leave hours other than vacation no longer count as hours worked when determining when overtime is due.

The union filed a petition to vacate portions of the award, which was denied by the Court of Common Pleas of Philadelphia County on April 5, 2013. The union has appealed that decision to Commonwealth Court. The union's brief is due on July 30, 2013, with the City's response due 30 days after service of the union's brief. The pension changes awarded require approval by City Council to be implemented.

DC 47

DC 47 represents three distinct groups of City employees that have different bargaining rights under Act 195. Local 2187 is the rank-and-file professional employees that DC 47 represents. They have the right to collectively bargain under Act 195 and to strike once the statutory mediation procedures are exhausted, as described above. Local 2186 is a unit comprised of first-level supervisors who do not have the right to collectively bargain under Act 195, but only to meet and discuss. Subject to this obligation, it has the right to impose changes in terms and conditions of employment, including wage and benefit changes, on Local 2186 employees. Local 810 is a unit of employees of the First Judicial District who have the right to proceed to interest arbitration under Act 195.

All three of the groups participate in the union-controlled health fund. The City's current contribution to the health fund of $975.76 has been in place since 2007. The status of contracts with each group of these employees is discussed below.

DC 47 Local 2187

Negotiations are on-going with DC 47 for employees represented by Local 2187 with the City seeking similar changes to those it is seeking in its negotiations with DC 33.

DC 47 Local 810

On July 11, 2012, an interest arbitration award was issued governing economic terms of employment for covered employees for the period from July 1, 2009 through June 30, 2014. The award ordered general wage increases of 2.5% on July 1, 2012 and July 1, 2013. Additionally, employees in the classification of Probation Officer 2 were awarded a one-range increase within the First Judicial District pay schedule. The First Judicial District has not implemented the classification adjustment, as ordering a promotion infringes on the exclusive authority of the courts. The union has filed an unfair labor practice charge challenging the refusal to implement that provision, which is scheduled for a second day of hearings on July 9, 2013. Under the award, new hires are required to enter Plan 10. Implementation of the pension provision requires City Council approval.

DC 47 Local 2186 and Exempt and Non-Represented Employees

In September 2012, Mayor Nutter announced changes in wages and benefits for supervisors in DC 47 Local 2186 (for whom the City may impose terms of employment), effective October 1, 2012, along with civil service non-represented and exempt employees. These changes included: (1) a 2.5% pay increase; (2) prospectively restored step and longevity increments (but no back pay); (3) changes restricting overtime including the elimination

of double time. In addition, the City amended the Civil Service Regulations to allow it to furlough employees when economic circumstances warrant. As part of this package of changes, the Mayor asked City Council to pass legislation placing new employees in Plan 10 and requiring other employees to contribute, on average, 1.3% to 2.25% more to their pension, as was awarded in interest arbitration with the City's corrections officers (discussed above). Implementation of the pension changes is awaiting City Council approval. These changes affect approximately 5,500 City employees, including those in independently elected offices, who had not had a pay increase since 2007.

The union filed an unfair labor practice charge challenging the implementation of these changes on employees in Local 2186. A hearing on that charge is scheduled for July 17, 2013.

Summary of Wage Changes since Fiscal Year 2006

The following table presents employee wage increases for the Fiscal Years 2006 through 2014.

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Table 16
Employee Wage Increases
Fiscal Years 2006-2014

Fiscal Year	AFSCME District Council 33	AFSCME District Council 47	Fraternal Order of Police Lodge No. 5 (Police)	IAFF Local 22	AFSCME District Council 33 Correctional Officers	AFSCME District 47 Local 810 Court Employees	AFSCME District Council 47 Local 2186	Fraternal Order of Police Lodge No. 5 (Sheriff's Office and Register of Wills
2006	2.0%	2.0%	3.0%	3.0%	2.0%	2.0%	2.0%	2.0%
2007	3.0%(1)	3.0%(1)	3.0%	3.0%	3.0%(1)	3.0%(1)	3.0%(1)	3.0%(1)
2008	4.0%(2)	4.0%(2)	4.0%	4.0%	4.0%(2)	4.0%(2)	4.0%(2)	4.0%(2)
2009	No increase(3)	No increase(3)	4.0%(4)	4.0%(4)	No increase	No increase(3)	No increase(3)	3.0%(10)
2010	(5)	(5)	0.0%(6)	0.0%(7)	(8)	(9)	(11)	0.00%(12)
2011	(5)	(5)	3.0%(6)	(7)	(8)	(9)	(11)	2.5%(12)
2012	(5)	(5)	3.0%(6)	(7)	(3) (8)	(9)	(11)	2.5%(12)
2013	(5)	(5)	3.0%(6)	(7)	2.5%(8)	2.5%(9)	2.5%(11)	(12)
2014	(5)	(5)	3.0%(6)	(7)	2.5%(8)	2.5%(9)	(11)	(12)

(1) Third year of a four year contract: 3% effective July 1, 2006.
(2) Fourth year of a four year contract: 4% effective July 1, 2007.
(3) Cash bonus of $1,100 paid 15 days after ratification.
(4) One year contract: 2% effective July 1, 2008 and 2% effective January 1, 2009.
(5) Contract expired on June 30, 2009, and negotiations are currently underway.
(6) Five year contract: 0% effective July 1, 2009, 3% effective July 1, 2010, 3% effective July 1, 2011, 3% effective July 1, 2012, 3% effective July 1 2013..
(7) Four year contract: 0% effective July 1, 2009, 3% effective July 1, 2010, 3% effective July 1, 2011, 3% effective July 1, 2012. The contract award was appealed by the City. Negotiations for a contract beginning July 1, 2013 are underway.
(8) Five year contract: For Fiscal Years 2010, 2011 and 2012, covered employees will receive the same wage increases, if any, negotiated by DC33 for that time period; 2.5% effective July 1, 2012; 2.5% effective July 1, 2013..
(9) Five year contract: For Fiscal Years 2010, 2011 and 2012, covered employees will receive the same wage increases, if any, negotiated by DC47 for that time period; ; 2.5% effective July 1, 2012; 2.5% effective July 1, 2013.
(10) One year contract: 3% effective July 1, 2008.
(11) Memorandum of Agreement expired on June 30, 2009. City implemented wage increase of 2.5% effective October 1, 2012 when no agreement was reached. The union continues to participate in DC47 negotiations.
(12) Five year contract: 0% effective July 1, 2009, 2.5% effective July 1, 2010, 2.5% effective July 1, 2011, and re-openers on wages in Fiscal Years 2013 and 2014.

Municipal Pension Fund (Related to All Funds)

General

The Board of Pensions and Retirement (the "Pension Board") is charged under the Philadelphia Home Rule Charter with the creation and maintenance of an actuarially sound retirement system providing benefits for all City employees. Court decisions have interpreted the requirement to maintain an actuarially sound retirement system to mean that the City must make contributions to the Municipal Pension Fund sufficient to fund:

A. Accrued actuarially determined normal costs; and

B. Amortization of the unfunded actuarial accrued liability ("UAAL").

The Pension Board, pursuant to the Home Rule Charter, is composed of the Director of Finance, who serves as chairperson, the Managing Director, the City Solicitor, the Personnel Director, the City Controller and four members who are elected by the Civil Service employees of the City. The elected members serve a four-year term of office.

The Pension Board formally approves all benefit applications, but its major role is that of "trustee," to ensure that the retirement system remains actuarially and financially sound for the benefit of current and future benefit recipients. The Pension Board, with the assistance of its professional consultants, develops the policies and strategies which enable the Pension Board to successfully execute its fiduciary obligations.

The City's funding of employer contributions to the Municipal Pension Fund requires the Mayor's annual budget submission and the appropriation of funds for such purpose by the City Council. See "CITY FINANCES AND FINANCIAL PROCEDURES – Budget Procedure" above. In every year since 1987, the City has appropriated contributions to the Municipal Pension Fund in an amount at least equal to the required minimum municipal obligation ("MMO") specified under state law. See "*Funded Status of the Municipal Pension Fund*" below. However, the City, pursuant to state legislation, deferred a portion of its MMO in the amount of $150 million in Fiscal Year 2010 and $80 million in Fiscal Year 2011 to be paid over the period ending in Fiscal Year 2014. See "*Annual Required Contributions*" below for further information regarding the City's annual contributions to the Municipal Pension Fund. The City's annual funding of the Municipal Pension Fund at a level at least equal to the applicable MMO makes the City eligible to receive certain annual pension funding from the Commonwealth of Pennsylvania which is deposited to the City's General Fund and transferred to the Municipal Pension Fund. For information regarding the annual amounts of Commonwealth contributions see Table 23 below.

Overview Discussion of Funding of Municipal Pension Fund

Since 2004, the City has been making contributions to the Municipal Pension Fund based primarily upon the MMO rather than the higher annual required contribution (the "ARC") and the City's Twenty-Second Five-Year Plan projects continued funding based upon the MMO. See "Comparison of State Law (MMO) and Pension Board Funding Policy Funding Methods" for a comparison of the methodologies for the actuarial calculations of the ARC and the MMO. The MMO, the ARC, the actuarial accrued liability, the unfunded actuarial accrued liability and the net pension obligation with respect to the Municipal Pension Fund have each generally been increasing over the prior decade while the funded ratios for the Municipal Pension Fund have generally been decreasing. See Tables 21 through 24 below. The Municipal Pension Fund is expected to generally show a continuation of these trends over the City's next five fiscal years. See Table 25 below. The 2012 Actuarial Report (hereafter defined) sets forth certain projections of the funded ratio of the Municipal Pension Fund to 2032 which indicate that funding the Municipal Pension Fund at the MMO level, based on current methods and assumptions, will result in a slow improvement of funding of the Municipal Pension Fund. See *"Projections of Funded Status"* below for a further discussion of such projections and related assumptions. The fresh start amortization on a level dollar basis ensures the principal is paid each year and is expected to cause the City's pension contributions to be more level compared to what they would have been under the City's previous amortization period.

The City considers capital market fluctuations with respect to the assets of the Municipal Pension Fund to be a significant risk to the funded status of the Municipal Pension Fund. The City has reduced the assumed rate of return over the last several years and anticipates that it may further reduce the assumed rate. No assurances can be given that the Municipal Pension Fund will achieve its assumed rate of return for any particular time period. See "*Investments"* and *"Cash Flows of the Municipal Pension Fund"* below.

The City's ability to reduce the unfunded actuarial accrued liability for the Municipal Pension Fund depends, among other factors, upon collective bargaining negotiations and accompanying City Council implementing actions. No assurances can be given that such negotiations and actions will be successfully implemented in their entirety, or, if implemented, will produce expected improvements in funded status for the Municipal Pension Fund.

With respect to Municipal Pension Fund's impact on the City's overall budget, the City's Twenty-Second Five-Year Plan includes annual funding at the MMO level without reductions in services or new General Fund revenues but reflects the alterations in pension fund benefits that have been included in arbitration awards and are

being sought in collective bargaining negotiations. Historically, however, pension cost increases (which have gone from approximately 6% of the City's General Fund budget in 2004 to 12% in 2011) necessitated, at least in part, service cuts and tax increases imposed by the City in recent years.

Certain Additional Municipal Pension Fund Information

In addition to the discussion of the City's Municipal Pension Fund and the City's municipal pension programs known as Plan 67 and Plan 87 (collectively, the "Municipal Pension Plan") set forth under "Municipal Pension Fund (Related to All Funds)" herein, investors are referred to certain other portions of this Official Statement for other information relating to the City's Municipal Pension Fund and Municipal Pension Plan as described below.

See "SUMMARY FINANCIAL INFORMATION−Five-Year Plans of the City" for a discussion of changes in the annual earnings assumptions for the Municipal Pension Fund in relation to the City's five-year financial plans. See "Overview of Current Labor Situation" above for a discussion of pension-related changes set forth in certain collective bargaining agreement contracts or arbitration awards.

A schedule of funding progress as of July 1, 2011, a comparative schedule of operations of the City's Municipal Pension Fund for Fiscal Years 2003 through 2012 and a description of the derivatives and other financial contracts utilized by the Pension Board, among other items, are contained in the CAFR for the City's Fiscal Year ended June 30, 2012.

The City's actuarial report dated March 29, 2013, for the period ending July 1, 2012 (the "2012 Actuarial Report"), which sets forth further information regarding the City's pension obligations, including projections of assets and liabilities in the Municipal Pension Fund and future City contributions, is available on the City's Investor Website. See "DISCUSSION OF FINANCIAL OPERATIONS-Current City Practices." The 2012 Actuarial Report is not incorporated into this Official Statement by reference. The 2012 Actuarial Report was prepared by Cheiron, McLean, Virginia (the "Actuary"). The City has not prepared the projections or actuarial assessments set forth in the 2012 Actuarial Report but has reviewed the information set forth in the 2012 Actuarial Report and has no reason to believe that any such information as of its relevant date is inaccurate. **Projections and actuarial assessments are "forward looking" statements and based upon assumptions which may not be fully realized in the future and are subject to change including changes based upon the future experience of the City's Municipal Pension Fund and Municipal Pension Plan.**

Employee Participants and Membership in Municipal Pension Plan

Total membership in the City's Municipal Retirement System increased by 0.2% from July 1, 2011 to July 1, 2012 from 64,349 to 64,485 members, including a decrease of 1.4% in active members from 26,671 to 26,306. Between such dates, annual salaries increased by 0.1% from approximately $1.371 billion to $1.372 billion; average salary per active member increased by 1.5% from $51,414 to $52,162; annual retirement allowances increased by 3.2% from approximately $627.12 million to $646.92 million and the average retirement allowance increased by 1.8% from $18,641 to $18,969.

Non-uniformed represented employees become vested in the Municipal Pension Plan upon the completion of ten years of service or may elect accelerated vesting after five years of service and pay a higher employee contribution. Upon retirement, non-uniformed employees may receive up to 100% of their average final compensation depending upon their years of credited service and the plan in which they participate. Generally, uniformed employees become vested in the Municipal Pension Plan upon the completion of ten years of service. Upon retirement, uniformed employees may receive up to 100% of their average final compensation depending upon their years of credited service and the plan in which they participate. City employees participate in arrangements set forth under one of three municipal pensions programs known as Plan 67, Plan 87 and Plan 10, depending, primarily, on such employee's date of hire. The retirement age differs for Plan 67 (age 55) and Plan 87 and Plan 10 (age 60) for non-uniformed employees and also for Plan 67 (age 45) and Plan 87 and Plan 10 (age 50) for uniformed employees.

Police employees hired on or after January 1, 2010 and Fire employees hired after October 15, 2010 have the option to participate in Plan 10, which has a defined benefit plan with a different benefit calculation formula and eligibility and vesting rules and a defined contribution plan with eligibility for City matching contributions, or enter Plan 87 but with an increased employee contribution rate of 6.0% of pay instead of 5.0%. Represented employees of the Sheriff's Office hired after January 1, 2012 have the option to participate in municipal Plan 10, which also has a defined benefit plan with a different benefit calculation formula and eligibility and vesting rules and a defined contribution plan with eligibility for City matching contributions, or enter Plan 87 but with an increased employee contribution rate of 50% of normal cost instead of 30% of normal cost. Represented employees of the Register of Wills hired after June 21, 2011 are required to participate in municipal Plan 10. See also "Overview of Current Labor Situation."

All City employees participate in the U.S. Social Security retirement system except for Police and Fire employees.

Certain membership information relating to the City's municipal retirement system provided by the Pension Board is set forth in Appendix A to the 2012 Actuarial Report and includes as of July 1, 2012, among other information, active and non-active member data by plan, age/service distribution for active participants and average salary for all plans, and age and benefit distributions for non-active member data. See also Appendix D to the 2012 Actuarial Report for a summary of the provisions of Plan 67 and Plan 87 including, among other things, plan provisions regarding: participation, credited service, compensation, employee contributions, service requirements, early retirement, deferred vested retirements, withdrawal benefit, service-connected and ordinary death and disability, survivor benefits, service-connected health care benefit and deferred retirement option plan (DROP).

Investments

The allocation of assets in the Municipal Pension Fund as of April 30, 2013 as well as the target allocation is set forth below:

Table 17
Asset Allocation as of April 30, 2013

	Domestic Equity	Non-US Equity	Total Fixed Income	Private Equity	Hedge Funds	Real Assets	Cash & Other
Current Allocation	27.5%	18.5%	27.2%	11.3%	6.4%	4.6%	4.4%
Target Allocation	20.0%	20.0%	21.0%	17.0%	12.0%	8.0%	2.0%

Source: Current Allocation – J.P. Morgan
Target Allocation – Approved by Board of Trustees October 2012.
Totals may not add due to rounding.

The Pension Board's investment policy provides, in part:

- The overall investment objectives and goals should be achieved by use of a diversified portfolio, with safety of principal a primary emphasis. The portfolio policy should employ flexibility by prudent diversification into various asset classes based upon the relative expected risk-reward relationship of the asset classes and the expected correlation of their returns.

- The Fund seeks an annual total rate of return of not less than 7.95% over a full market cycle with a standard deviation of 12.7% as of November 2012. It is anticipated that this return standard should enable the Fund to meet its actuarially assumed earnings projections (currently 7.95%) over a market cycle. Accordingly, the Fund's investment program will pursue its aforestated total rate of return by a combination of income and appreciation, relying upon neither exclusively in evaluating a prospective investment for the Fund. Any exceptions, an investment made solely for income with no prospect of appreciation or an investment made solely for appreciation prospects with no income contribution, will be made only upon recommendation of the Fund's Investment Committee and approval by a majority of the Pension Board.

The following table sets forth for the City's Fiscal Years 2003-2012 the market value of assets internal rate of return and actuarial value of assets internal rate of return experienced by the Municipal Pension Fund, and the assumed rate of return. The 5-year and 10-year arithmetic average returns as of June 30, 2012 were 1.80% and 6.56%, respectively on a market value basis.

Table 18
Municipal Pension Fund
Annual Rates of Return

Year Ending June 30,	Market Value	Actuarial Value*	Assumed Rate of Return
2003	1.8%	-2.2%	9.00%
2004	16.6	4.6	9.00
2005	9.9	1.8	9.00
2006	11.3	6.1	8.75
2007	17.0	10.7	8.75
2008	-4.5	10.1	8.75
2009	-19.9	-9.3	8.75
2010	13.8	12.9	8.25
2011	19.4	9.9	8.15
2012	0.2	2.4	8.10

Source: 2012 Actuarial Report for Market and Actuarial Value annual rates of return; annual Actuarial Valuation Reports prepared by Mercer for Fiscal Years 2003-2006 and Cheiron for Fiscal Years 2007-2012 for Assumed Rates of Return.

* Net of Pension Adjustment Fund (PAF). See "*Pension Adjustment Fund*" below.

The following table sets forth as of the July 1st actuarial valuation date for the years 2003-2012 the actuarial and market value of assets in the Municipal Pension Fund and the actuarial value as a percentage of market value.

Table 19
Asset Smoothed Value of Assets vs. Market Value of Net Assets
(Amounts in Millions of USD)

Actuarial Valuation Date	Actuarial Value of Assets(1)	Market Value of Net Assets(2)	Actuarial Value as a Percentage of Market Value
7/1/2003	$ 4,548.1	$ 3,790.1	120.0%
7/1/2004	4,333.1	3,972.4	109.1
7/1/2005	4,159.5	4,100.6	101.4
7/1/2006	4,168.5	4,315.6	96.6
7/1/2007	4,421.7	4,850.9	91.2
7/1/2008	4,623.6	4,383.5	105.5
7/1/2009	4,042.1	3,368.4	120.0
7/1/2010(3)	4,380.9	3,650.7	120.0
7/1/2011(3)	4,719.1	4,259.2	110.8
7/1/2012(3)	4,716.8	4,151.8	113.6

Source: 2012 Actuarial Report for Actuarial Value of Assets; 2003-2012 Actuarial Reports for Market Value of Net Assets

(1) The Actuarial Value of Assets is calculated through use of an asset smoothing method. See "Funded Status of the Municipal Pension Fund" below regarding changes made to the asset smoothing method in response to the 2008/2009 market decline.

(2) The Market Value of Net Assets excludes the Pension Adjustment Fund which as of July 1, 2012 equaled $988,497.

(3) The July 1, 2010 actuarial and market values of assets include the $150 million deferred contribution from Fiscal Year 2010, and the July 1, 2011 and July 1, 2012 actuarial and market values of assets include the total deferred contribution of $230 million.

The 2012 Actuarial Report notes that regardless of whether the Municipal Pension Fund achieves the assumed long-term rate of return of 7.95%, the funding ratio can be adversely impacted by volatile returns year by year. The 2012 Actuarial Report further notes that this component of funding risks is driven by negative cash flows

(where benefit payments and expenses are greater than contributions) and that when a mature fund (such as the Municipal Pension Fund) pays out more than it receives in a year and returns are below the assumed rate of return, the assets that get paid out of the fund are no longer available in the fund during subsequent years of market recovery. The 2012 Actuarial Report includes projections with respect to the Municipal Pension Fund based upon assumed consistent annual returns of 7.95% each year and assumed varying returns that average 7.95%. See also *"Cash Flows of the Municipal Pension Fund"* below.

Cash Flows of the Municipal Pension Fund

The following table sets forth for the City's Fiscal Years 2008-2012, the cash inflows, including employee contributions, City contributions, investment earnings and miscellaneous income, and cash outflows, including benefit payments and administration expenses for the Municipal Pension Fund. Debt service payments on the Pension Related Bonds (defined below) are made from the City's General Fund and not made from the Municipal Pension Fund.

Table 20
Cash Flow of the Municipal Pension Fund
Fiscal Years 2008-2012
(Amount in Thousands of USD)

	2008	2009	2010	2011	2012
Beginning Net Assets (Market Value)[1]	$ 4,899,355.1	$4,424,075.3	$3,375,767.1	$3,501,602.1	$4,030,215.9
Cash Inflows					
- Member Contributions	51,690.2	54,022.6	51,569.9	52,705.6	49,978.7
- City Contributions[2][3]	426,934.5	455,389.0	312,556.3	470,154.8	556,031.7
- Investment Income[4]	(224,906.4)	(849,377.7)	455,792.6	699,847.9	8,394.1
- Miscellaneous Income[5]	8,468.0	(13,887.5)	(1,367.6)	991.7	(636.4)
Total	$ 262,186.3	$ (353,853.6)	$ 818,551.2	$1,223,700.0	$ 613,768.0
Cash Outflow					
- Benefits and Refunds	(729,860.8)	(685,872.9)	(684,642.0)	(687,033.5)	(712,684.5)
- Administration	(7,605.3)	(8,581.8)	(8,074.1)	(8,052.7)	(8,482.6)
Total	$ (737,466.1)	$ (694,454.7)	$ (692,716.2)	$ (695,086.2)	$ (721,167.1)
Ending Net Assets (Market Value)[6]	$ 4,424,075.3	$3,375,767.1	$3,501,602.1	$4,030,215.9	$ 3,922,816.8

Source: 2008-2012 Actuarial Valuation Reports. Table may not add due to rounding.

(1) Includes the Pension Adjustment Fund which is not available for funding purposes.

(2) City Contributions include pension contributions from the Commonwealth which were in the amounts of $59.6 million, $59.6 million, $59.2 million, $61.8 million and $87.6 million for the City's 2008-2012 Fiscal Years, respectively.

(3) City contributions are the actual contributions for Fiscal Year 2010 and Fiscal Year 2011 which do not include deferred amounts of $150 million and $80 million, respectively.

(4) Investment income is shown net of fees and expenses.

(5) Miscellaneous income includes securities lending and other miscellaneous revenues.

(6) For Fiscal Year 2010, does not include the $150 million contribution receivable and for Fiscal Years 2011 and 2012 does not include the $230 million total contribution receivable that was paid back in October 2012.

Funded Status of the Municipal Pension Fund

Based on the 2012 Actuarial Report, the UAAL was $5.083 billion which equals a funding ratio of approximately 48.1% and a UAAL as a percentage of covered payroll of approximately 370%, each based on actuarial assets of $4.717 billion. The market value of the net assets in the Municipal Pension Fund was $4.152 billion as of July 1, 2012, and the funding ratio based on such market value was approximately 42.4%. As of April 30, 2013, the market value of net assets in the Municipal Pension Fund was approximately $4.6 billion (subject to reporting lag times for certain categories of investment; private equity is reflected as of September 30, 2012, real estate as of December 31, 2012 and hedge funds as of March 31, 2013).

The amortization of the UAAL was determined in accordance with the provisions of the Pennsylvania Municipal Pension Plan Funding Standard and Recovery Act, 1984 ("Act 205"), as amended from time to time. Any increase or decrease in unfunded liabilities is amortized according to Act 205. Effective for the July 1, 2009 valuation, which defines the City's contribution obligation for the Fiscal Year ending on June 30, 2010, and subsequent valuations, which define the City's contribution obligation in subsequent fiscal years, and as further described below, the unfunded liability may be amortized over a fixed 30 year period as a level dollar amount pursuant to Act 44 which amends Act 205 to provide specific funding relief for the City.

As part of Act 44, which provided for a new method of determining municipal distress levels and alternative funding relief in response to the 2008/2009 market decline, the City adopted the fresh start amortization alternative of 30 years (previously 20 years remaining) and lowered the assumed rate of interest for funding valuation purposes from 8.75% to 8.25%. Along with these changes the asset smoothing method was changed from a five year period to a ten year period with the additional requirement that the actuarial asset value is not more than 120% nor less than 80% of the market value of assets. Additionally, the legislation allowed the City to defer a portion of its minimum municipal obligation payment in the amount of $150 million in Fiscal Year 2010 and $80 million in Fiscal Year 2011 to be paid (including interest due annually as accrued on the outstanding deferral) over the period ending in Fiscal Year 2014; $106 million was budgeted to be paid back in Fiscal Year 2013 with the balance of $124 million in Fiscal Year 2014. The City has applied the proceeds of certain bonds issued in October 2012, together with other available amounts, to repay the Municipal Pension Fund the entire outstanding $230.0 million of the deferred minimum municipal obligation payment and $5.6 million of interest due on such deferred contributions. The change in amortization period and the partial deferral were approved by the Pennsylvania General Assembly as part of Act 44.

On October 28, 2010, the Pension Board voted to further lower the Municipal Pension Fund's annual earnings assumption from 8.25% to 8.15%. In February of 2012, the Board of Pensions voted to lower the Municipal Pension Fund's annual earnings assumption from 8.15% to 8.10%. In March of 2013, the Board of Pensions voted to lower the Municipal Pension Fund's annual earnings assumption from 8.10% to 7.95%.

The following two tables set forth as of the July 1st actuarial valuation date for the years 2003-2012, the asset value, the actuarial accrued liability, the UAAL, the funded ratio, covered payroll and UAAL as a percentage of covered payroll for the Municipal Pension Fund on actuarial and market value bases, respectively. The July 1, 2012 valuation results in both tables reflect the Pension Board's decision to decrease the assumed rate of return to 7.95% from 8.10% and a reduction in the age-based salary scale assumption by 0.20% for all ages.

Table 21
Schedule of Funding Progress (Actuarial Value)
(Amount in Millions of USD)

Actuarial Valuation Date	Actuarial Value of Assets[(1)] (a)	Actuarial Accrued Liability (b)	UAAL (Actuarial Value) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll [(b-a)/c]
7/1/2003	$ 4,548.1	$ 7,188.3	$ 2,640.2	63.3%	$ 1,269.3	208.0%
7/1/2004	4,333.1	7,247.7	2,914.6	59.8	1,266.0	230.2
7/1/2005	4,159.5	7,851.5	3,692.0	53.0	1,270.7	290.5
7/1/2006	4,168.5	8,083.7	3,915.2	51.6	1,319.4	296.7
7/1/2007	4,421.7	8,197.2	3,775.5	53.9	1,351.8	279.3
7/1/2008	4,623.6	8,402.2	3,778.7	55.0	1,456.5	259.4
7/1/2009	4,042.1	8,975.0	4,932.9	45.0	1,463.3	337.1
7/1/2010	4,380.9	9,317.1	4,936.2	47.0	1,421.2	347.3
7/1/2011	4,719.1[(2)]	9,487.5	4,768.4	49.7	1,371.3	347.7
7/1/2012	4,716.8[(2)]	9,799.9	5,083.1	48.1	1,372.2	370.4

Source: 2012 Actuarial Report.

(1) The July 1, 2010 Actuarial Value of Assets includes the $150 million deferred contribution from Fiscal Year 2010 and each of the July 1, 2011 and July 1, 2012 Actuarial Value of Assets includes the total deferred contribution of $230 million.

(2) Reflects the assumed rate of return on deferred contributions at the time of the deferral.

Table 22
Schedule of Funding Progress (Market Value)
(Amount in Millions of USD)

Actuarial Valuation Date	Market Value of Net Assets[1] (a)	Actuarial Accrued Liability (b)	UAAL (Market Value) (b-a)	Funded Ratio (Market Value) (a/b)	Covered Payroll (c)	UAAL as a % of Covered Payroll (Market Value) [(b-a)/c]
7/1/2003	$ 3,790.1	$ 7,188.3	$ 3,398.2	52.7%	$1,269.3	267.7%
7/1/2004	3,972.4	7,247.7	3,275.3	54.8	1,266.0	258.7
7/1/2005	4,100.6	7,851.5	3,750.9	52.2	1,270.7	295.2
7/1/2006	4,315.6	8,083.7	3,768.1	53.4	1,319.4	285.6
7/1/2007	4,850.9	8,197.2	3,346.3	59.2	1,351.8	247.5
7/1/2008	4,383.5	8,402.2	4,018.7	52.2	1,456.5	275.9
7/1/2009	3,368.4	8,975.0	5,606.6	37.5	1,463.3	383.2
7/1/2010	3,650.7	9,317.0	5,666.3	39.2	1,421.2	398.7
7/1/2011	4,259.2	9,487.5	5,228.3	44.9	1,371.3	381.3
7/1/2012	4,151.8	9,799.9	5,648.1	42.4	1,372.2	411.6

Source: 2003-2012 Actuarial Valuation Reports

(1) The July 1, 2010 Market Value of Net Assets includes the $150 million deferred contribution from Fiscal Year 2010 and each of the July 1, 2011 and July 1, 2012 Market Value of Net Assets includes the total deferred contribution of $230 million.

The values of the Actuarial Value of Assets and Market Value of Net Assets included the deferred contributions as a receivable in accordance with Act 205 for valuation purposes so the Municipal Pension Fund did not increase due to the City's repayment of the $230 million of deferred contributions in October 2012.

Annual Required Contributions

The following table sets forth for the City's Fiscal Years 2003-2012, information related to the City's annual pension contributions including, among other information, the MMO, the ARC for the Municipal Pension Fund, the percentage of the ARC contributed, General Fund total expenditures, and each of the MMO and the ARC as a percentage of General Fund total expenditures. The ARC is the annual amount to be funded in accordance with the Municipal Pension Fund funding policy adopted by the Pension Board (the "Pension Board Funding Policy"). The City is not required under law or pursuant to contract to contribute to the Municipal Pension Plan in accordance with the Pension Board Funding Policy. Since 2004, the City has been making contributions to the Municipal Pension Fund based primarily upon the MMO rather than the Pension Board Funding Policy. See "*Comparison of State Law (MMO) and Pension Board Funding Policy Funding Methods*" below.

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Table 23
Annual City Contribution Status for the Municipal Pension Fund
(Amount in Millions of USD)

Fiscal Year	MMO	ARC	All City Funds Total Actual Contribution[1]	Percentage of ARC Contributed	General Fund Contribution	Commonwealth Contribution	City Interfund Transfers[2]	Total General Fund Expenditures	MMO as % of Total General Fund Expenditures	ARC as % of Total General Fund Expenditures
2003	$142.4	$195.5	$179.8	91.9%	$114.9	$40.3	$24.6	$3,153.18	4.5%	6.2%
2004	195.8	253.8	193.1	76.1	124.2	42.8	26.1	3,248.18	6.0	7.8
2005	294.0	358.1	309.0	86.3	224.2	49.8	35.0	3,386.34	8.7	10.6
2006	306.9	395.0	331.8	84.0	231.2	57.3	43.3	3,426.05	9.0	11.5
2007	400.3	527.9	432.3	81.9	317.5	57.7	57.1	3,736.66	10.7	14.1
2008	412.4	536.9	426.9	79.5	305.5	59.6	61.8	3,919.84	10.5	13.7
2009	438.5	539.5	455.4	84.4	332.1	59.6	63.7	3,915.29	11.2	13.8
2010	447.4	581.1	312.6	53.8[3]	204.0	59.2	49.3	3,653.73	12.2	15.9
2011	511.0	715.5	470.2	65.7[3]	343.4	61.8	65.0	3,785.29	13.5	18.9
2012	507.0	722.5	556.0	77.0	376.9	95.0	84.1	3,484.88[4]	14.5	20.7

Source: 2003-2012 Actuarial Valuation Reports and the City.

(1) Includes amounts shown under Commonwealth Contribution and City Interfund Transfers columns. Does not include debt service on the 1999 Pension Obligation Bonds and certain debt incurred to refinance existing pension deferral repayment obligations (outstanding together in the aggregate principal amount of $1,294,825,350 on June 30, 2013). See also "Pension Obligation Bonds" and "Funded Status of the Municipal Pension Fund."

(2) Represents amounts contributed, or reimbursed, to the City's General Fund for pensions from the City's Water Operating Fund, Aviation Operating Fund and certain other City funds or agencies.

(3) Reflects the actual contributions contributed for Fiscal Year 2010 and Fiscal Year 2011 which does not include the deferred contributions authorized pursuant to Act 44. See "Funded Status of the Municipal Pension Fund" above for a discussion of pension contribution deferrals authorized pursuant to Act 44.

(4) In Fiscal Year 2012, reimbursed costs and corresponding revenues for services provided by the Department of Human Services of approximately $495.1 million were moved from the General Fund to the Grants Revenue Fund.

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For Fiscal Year 2013, the City's All City Funds Total Actual Contribution to the Municipal Pension Fund (determined on a similar basis to the corresponding column in Table 23) was approximately $513 million. Such contribution was intended to equal at least the MMO for Fiscal Year 2013 of $492 million.

The amounts of Commonwealth Contributions and City Interfund transfers for pensions do not affect the MMO requirement, but can be and are counted toward the City's contribution to the MMO.

Comparison of State Law (MMO) and Pension Board Funding Policy Funding Methods

Pennsylvania state law (Act 205) and the Pension Board Funding Policy result in different contribution amounts based upon two different sets of rules for determining how the UAAL is funded. The state law method defines the MMO which is the City's minimum required contribution under Pennsylvania state law. A second method operates in accordance with the Pension Board Funding Policy which predates the Act 205 requirements and calls for contributions that are greater than the MMO until the Municipal Pension Fund's initial July 1, 1985 unfunded actuarial accrued liability is fully funded. Since 2004, the City has been making contributions to the Municipal Pension Fund based primarily upon the MMO rather than the Pension Board Funding Policy due to fiscal constraints while adhering to the requirements of state law. The City's Twenty-Second Five-Year Plan projects continued funding based upon the MMO level rather than the Pension Board Funding Policy level also due to fiscal constraints while adhering to the requirements of state law. Under both funding methods there are two components: the normal cost and the amortized UAAL. The amortization periods related to the UAAL are different under the MMO and the Pension Board Funding Policy. Due to the contribution deferrals in the City's Fiscal Years ended June 30, 2010 and June 30, 2011 pursuant to Act 44, there is an additional component to the MMO to include interest on deferred contributions and to repay these contributions beginning in the City's Fiscal Year ending June 30, 2013. The City repaid such deferred contributions and accrued interest thereon with proceeds of certain bonds issued in October 2012, together with certain other available amounts. Certain differences between the MMO and the Pension Board Funding Policy are:

- The Pension Board Funding Policy amortizes the initial July 1, 1985 unfunded actuarial accrued liability over 34 years. Act 44 allowed for the amortization of the entire unfunded actuarial accrued liability as of July 1, 2009 to be "fresh started" over a 30-year period for MMO purposes.
- The normal cost portion of the Pension Board Funding Policy payment is based on actual fiscal year payroll, whereas the MMO is based on the prior year's estimated payroll for that year.
- Interest does not accumulate on the MMO, as long as the payment is made by the end of the fiscal year.
- Both the Pension Board Funding Policy and the MMO utilize valuation results developed in the previous year (e.g., the July 1, 2012 valuation report determined contribution amounts for Fiscal Year 2013). However, no interest is added to the MMO for this delay.
- The MMO reflects amortization of prior years' City contributions above past MMOs as actuarial gains.
- Starting with Fiscal Years 2007-2008, the MMO recognized actuarial gains and losses every other year. Beginning with Fiscal Year 2012, gains and losses are recognized annually. The Pension Board Funding Policy recognizes actuarial gains and losses on an annual basis.

Annual Pension Cost and Net Pension Obligation

The following table sets forth for the City's Fiscal Years 2003-2012, the calculation of the annual pension cost and the Net Pension Obligation ("NPO") (or Net Pension Asset) for the Municipal Pension Fund. The NPO is the accumulated value of contribution deficiencies (or excesses) over required contributions between the annual pension cost and the employer's contribution. The annual pension cost is equal to the ARC, one year's interest on the NPO and an adjustment to the ARC to offset, approximately, the amount included in the ARC for amortization of past contribution deficiencies. See also "*Pension Obligation Bonds*" regarding the impact on the NPO (Net Pension Asset) due to the City's financing in Fiscal Year 1999 of a lump-sum contribution to the Municipal Pension Fund.

Table 24
Calculation of Annual Pension Cost
(Amounts in Thousands of USD)

	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012
ARC	$195,514	$253,844	$358,141	$394,950	$527,925	$536,874	$539,464	$581,123	$715,544	$722,491
Interest on NPO	(103,330)	(98,392)	(90,448)	(82,068)	(71,541)	(60,685)	(48,957)	(39,899)	(14,155)	6,521
Adjustment to ARC	142,446	135,638	124,687	113,135	99,953	84,785	68,399	55,744	20,353	(9,435)
Annual Pension Cost	$234,630	$291,090	$392,380	$426,017	$556,337	$560,974	$558,906	$596,968	$721,742	$719,577
Contributions	179,757	202,827	299,266	331,765	432,267	426,934	455,389	312,556	470,155	555,690
Increase in NPO	$54,873	$88,263	$93,114	$94,252	$124,069	$134,040	$103,517	$284,412	$251,587	$163,887
NPO at beginning of the year	(1,148,116)	(1,093,243)	(1,004,980)	(911,866)	(817,614)	(693,545)	(559,505)	(455,987)	(171,575)	80,012
NPO at end of the year	$(1,093,243)	$(1,004,980)	$(911,866)	$(817,614)	$(693,545)	$(559,505)	$(455,987)	$(171,575)	$80,012	$243,898
Interest Rate	9.00%	9.00%	9.00%	9.00%	8.75%	8.75%	8.75%	8.75%	8.25%	8.15%

Source: 2012 Actuarial Report.

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Pension Obligation Bonds

In Fiscal Year 1999, PAID issued $1.3 billion in pension funding bonds (the "1999 Pension Obligation Bonds") and in Fiscal Year 2013 issued the 2012 Service Agreement Revenue Refunding Bonds (hereinafter defined, and together with the 1999 Pension Obligation Bonds, the "Pension Related Bonds"), all on behalf of the City. The Pension Related Bonds are special, limited obligations of PAID and are secured by payments to be made by the City pursuant to service agreements. The City's service agreement payments with respect to the Pension Related Bonds are made from the City's General Fund. The City's payment obligations with respect to the Pension Related Bonds are not included within either the ARC or the MMO. Substantially all the net proceeds of the 1999 Pension Related Bonds were contributed, with other City funds, to make a contribution in Fiscal Year 1999 to the Municipal Pension Fund in the amount of approximately $1.506 billion. Consequently, this contribution resulted in an increase in the City's net pension asset by approximately $1.249 billion during Fiscal Year 1999. See Table 24 above for information regarding changes in the City's net pension obligations/(net pension assets) for Fiscal Years 2003 through 2012. See Section IV in the 2012 Actuarial Report for Pension Related Bond debt service shown allocated among the City's municipal, police and fire divisions. The 2012 Service Agreement Revenue Refunding Bonds refunded a portion of the 1999 Pension Obligation Bonds and financed a deposit of approximately $22.7 million to the Municipal Pension Fund from the refunding savings.

Pension Adjustment Fund

Pursuant to §22-311 of the Philadelphia Code, the Pension Board has established a Pension Adjustment Fund (the "PAF"). In general, the PAF provides for additional benefit distributions to retirees and beneficiaries through the use of excess earnings of the Municipal Pension Fund. Benefit distributions may include a lump-sum bonus payment, monthly pension increases, ad-hoc cost of living adjustments, or other increases determined by the Pension Board. Each fiscal year, the Pension Board shall determine whether there are excess earnings available to be credited to the PAF. Excess earnings that may be transferred to the PAF are limited to 50% of the earnings in excess of a rate equal to the sum of the assumed rate of investment return for the Municipal Pension Fund (currently 7.95%) plus 1.0% and are limited to 2.5%. Currently, 50% of earnings in excess of 8.95% up to 13.95% would be subject to being credited to the PAF. The determination of whether excess earnings exist is based upon an adjusted market value of assets which uses a 5-year smoothing of gains and losses. The market value of assets in the PAF as of July 1, 2012 was $988,497.

Projections of Funded Status

The following table shows the projected future funding status of the Municipal Pension Fund, including the actuarially determined contribution, the actuarial value of assets, the actuarial accrued liability, UAAL and funded ratio. The Actuary notes in the 2012 Actuarial Report certain assumptions upon which the following projections are based. Included among such assumptions are: (i) the rates of return for the Municipal Pension Fund over the projection period will equal 7.95% annually, (ii) MMO contributions will be made each year, and (iii) the provisions of Act 205 as amended by Act 44 will remain in force during the projection period without consideration of the sunset provisions. See "*Actuarial Methods and Assumptions*" below and the 2012 Actuarial Report for a further discussion of the assumptions and methodologies used by the Actuary in preparing the 2012 Actuarial Report and the following projections. **Projections and actuarial assessments are "forward looking" statements and based upon assumptions which may not be fully realized in the future and are subject to change, including changes based upon the future experience of the City's Municipal Pension Fund and Municipal Pension Plan.**

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Table 25
Prospective Funded Status of the Municipal Pension Fund[1]
(Amounts in Millions of USD)

Fiscal Year	Actuarially Determined Contribution	Actuarial Value of Assets	Actuarial Accrued Liability	UAAL	Funded Ratio
2013	$ 523.4	$ 4,631.5	$ 9,842.9	$ 5,211.4	47.1%
2014	544.3	4,564.0	9,885.9	5,321.9	46.2%
2015	564.8	4,518.5	9,926.7	5,408.2	45.5%
2016	584.1	4,487.5	9,963.4	5,475.9	45.0%
2017	602.8	4,537.8	10,062.8	5,525.0	45.1%
2018	620.8	4,608.4	10,163.1	5,554.7	45.3%

Source: The Actuary.
[1] Values for actuarially determined contributions represent the MMO and do not reflect interest or principal amounts related to the deferred contribution of $230 million repaid in Fiscal Year 2013.

The 2012 Actuarial Report sets forth certain projections of the funded ratio of the Municipal Pension Fund to 2032. Such projections from the 2012 Actuarial Report indicate that funding at the MMO level, based on current assumptions and methods, will result in a slow improvement of funding after the full impact of the 2008/2009 investment losses are fully realized. Assuming varying returns on Municipal Pension Fund assets that average 7.95% annually, were the City to make annual contributions at the MMO level, the 2012 Actuarial Report projects that the Municipal Pension Fund's actuarial funded ratio would be at approximately 49% in 2023 and increase to 53% and 64% in 2028 and 2032, respectively. Based on the 2012 Actuarial Report, maintaining contributions at the MMO level would have the effect of increasing the Municipal Pension Fund's funded ratio at a slower rate, and to lower levels, than would be achieved were the City to make annual contributions in accordance with the Pension Board Funding Policy over the same projection period to 2032. No assurances can be given that the above-described projections set forth in the 2012 Actuarial Report will be realized or that actual results will not differ materially from such projections.

The 2012 Actuarial Report states with respect to the funded status of the Municipal Pension Fund that, "This historic trend emphasizing the relatively low funded status highlights the potential risk of insolvency, if contributions coupled with more stable and favorable investment returns relative to the long-term assumption are not realized in the near future." On June 24, 2013, the Actuary provided a written response (the "June 2013 Response") to a request from the City to provide more detail regarding this statement in which the Actuary states that all retirement systems are subject to solvency risk if there is an interruption of, or limitation on sufficient cash flows into a fund (i.e., contributions and investment income) and assets held by a fund to make cash flow payments out (i.e., benefits and expenses). The Actuary further states therein that "Because of the current funded status of the plan [i.e., the Municipal Pension Fund] (42.4% on a market asset value) and the relatively high portion of benefit payments to market asset value (15.6%), we believe it is appropriate to identify insolvency as a risk." The Actuary then notes certain factors specific to the Municipal Pension Fund that eliminate much of the risk of insolvency:

- "[s]tatutory required contributions under Act 205 with very significant cash incentives to preclude the City from failing to meet the [MMO] – in other words as long as the City makes [its] MMO there is no solvency risk";
- the continuous and gradual decrease of the discount rate resulting in higher required MMO amounts which the Actuary states has two impacts: lowering the long-term expected return on Municipal Pension Fund assets that has to be achieved and increasing the contribution from the City to offset the benefit payout cash flow; and
- "[t]he long history of the City contributing at least the MMO and for many years (until 2004) contributing in excess of the MMO."

The June 2013 Response concludes by providing that as long as the City continues to make its MMO payments, the Municipal Pension Fund "should remain solvent and capable of making the benefit payments called for under the [City's Municipal] Retirement System."

Actuarial Methods and Assumptions

The following is a summary of certain actuarial assumptions and methods utilized by the Actuary for the Municipal Pension Fund:

- The Entry Age Normal actuarial funding method is used for active employees whereby the normal cost is computed as the level annual percentage of pay required to fund the retirement benefits between each member's date of hire and assumed retirement;
- The Municipal Pension Fund's UAAL as of July 1, 2009 was "fresh started" to be amortized over 30 years in level dollars;
- All future amortization periods will follow the Pension Board Funding Policy whereby actuarial gains and losses will be amortized over 20 years and assumption changes will be amortized over 15 years;
- The actuarial value of assets is determined using an adjusted market value recognizing investment gains or losses prior to July 1, 2009 over a five-year period, and beginning July 1, 2009, investment gains and losses are recognized over a 10-year period with adjustments so that the actuarial value of assets remains between 80% and 120% of market value (net of the PAF);
- Investment returns are assumed at 7.95% compounded annually, net of expenses;
- Total annual payroll growth is assumed to be 3.3% per year;
- Other than those provided from time to time by the PAF, there are no other post-retirement benefit increases; and
- Annual expected administrative expenses are expected to increase by 3.3% per year.

The Actuary's assumptions and methods are summarized in greater detail within Appendix C of the 2012 Actuarial Report and address, among other things, rates of termination, disability, mortality and retirement and family composition assumptions.

Other Post-Employment Benefits

The City self-administers a single employer, defined benefit plan and provides health care for five years subsequent to separation for eligible retirees who participate in the City Administered Plan. Eligible represented employees receive five years of coverage through their union's health fund. The City's funding obligation for such benefits is the same as for active employees. Certain union represented employees may defer their coverage until a later date. For some groups, the amount that the City pays for their health care is limited to the amount that the City would have paid at the date of their retirement, but for police and fire retirees, the City pays the cost of five years of coverage when the employee receives the benefits. The City also provides lifetime insurance coverage for all eligible retirees. Firefighters are entitled to $7,500 coverage and all other employees receive $6,000 in coverage.

The City funds its retiree benefits on a pay-as-you-go basis. To provide health care coverage, the City pays a negotiated monthly premium for retirees covered by union contracts (other than police) and is self-insured for nonunion employees and union police employees.

The City's annual other post-employment benefit ("OPEB") expense is calculated based on the annual required contribution of the employer ("ARC"), an amount actuarially determined in accordance with the parameters of Governmental Accounting Standards Board Statement No. 45. The ARC represents a level of funding, which 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 (30) years.

For Fiscal Year 2012, the City's ARC was $105.369 million and it contributed $76.344 million for OPEB expense; its net OPEB obligation for Fiscal Year 2012 was $109.019 million. As of July 1, 2012, the City's unfunded actuarial accrued liability for benefits was $1.2 billion.

Further information on the City's annual OPEB expense and net OPEB obligation for Fiscal Years 2010, 2011 and 2012 and the funded status of the OPEB benefits is contained in the Fiscal Year 2012 CAFR.

PGW Pension Plan

General

The City sponsors the Philadelphia Gas Works Pension Plan (the "PGW Pension Plan"), a single employer defined benefit plan, to provide pension benefits for all of PGW's employees and other eligible class employees of PFMC and the Philadelphia Gas Commission. As plan sponsor, the City, through its General Fund, could be responsible for plan liabilities if the PGW Pension Plan does not satisfy its payment obligations to PGW retirees. If a sale of PGW were to take place, it is expected that the PGW Pension Plan would be fully funded through sale proceeds.

Covered employees hired prior to May 21, 2011 (union employees) or prior to December 21, 2011 (non-union employees) are not required to contribute to the PGW Pension Plan. In December 2011, the PGW Pension Plan was amended by ordinance and a new deferred compensation plan was authorized by ordinance as well. Newly hired employees have an irrevocable option to join either a new deferred compensation plan created in accordance with Internal Revenue Code Section 401 or the existing defined benefit plan, modified to include employee contributions not previously required. The deferred compensation plan provides for an employer contribution equal to 5.5% of applicable wages. The defined benefit plan provides for a newly hired employee contribution equal to 6.0% of applicable wages. The amendments to the PGW Pension Plan did not affect the retirement benefits of active employees, current retirees and beneficiaries, or terminated employees entitled to benefits but not yet receiving them. The PGW Pension Plan provides for retirement payments for vested employees at age 65 or earlier under various options. The PGW Pension Plan also provides death and disability benefits. Retirement benefits vest after five years of credited service.

PGW is required by statute to contribute the amounts necessary to fund the PGW Pension Plan. The PGW Pension Plan is being funded with contributions by PGW to the Sinking Fund Commission of the City. Benefit and contribution provisions are established by City ordinance and may be amended only as allowed by City ordinance.

Pension Costs and Funding

Pension costs increased by $1.4 million to $24.0 million in PGW's 2012 fiscal year ended August 31, 2012 as compared to the prior fiscal year due to higher payments to retirees. Beneficiary payments of $40.1 million were made in PGW's 2012 fiscal year. Withdrawals from the pension assets of $16.0 million were utilized to meet these beneficiary payments.

The PGW Pension Plan funding policy provides for periodic employer contributions at actuarially determined rates that, expressed as percentages of annual covered payroll, are sufficient to accumulate assets to pay benefits when due. Actuarial assessments are "forward looking" statements and based upon assumptions which may not be fully realized in the future and are subject to change including changes based upon the future experience of the PGW Pension Plan. Level percentages of payroll employer contribution rates are determined using the Projected Unit Credit actuarial funding method. As of its September 1, 2011 actuarial valuation date, the PGW Pension Plan had an unfunded actuarial accrued liability of $150.241 million and a funded ratio of 73.7% based upon an actuarial value of assets of $421.949 million and an actuarial accrued liability of $572.190 million. The PGW Pension Plan's actuarial asset value is equal to the value of the plan's assets as reported by the City with no adjustments. The actuarial assumptions used for the September 1, 2011 valuation included a rate of return on the investment of present and future assets of 8.15% per year compounded annually. Subsequently, the PGW Pension Plan's assumed rate of return on the investment of pension plan assets was lowered to 7.95%. No assurances can be given that the PGW Pension Plan's assets will achieve the assumed rate of return for any particular time period. As of September 1, 2011, the covered payroll with respect to the PGW Pension Plan was $106.308 million and the UAAL as a percent of covered payroll was 141.3%. The UAAL is being amortized over 20 years

PGW's annual pension cost is equal to its annual required contribution (ARC). PGW contributed 100% of the ARC for each of its 2010 through 2012 fiscal years in the annual amounts of $23.972 million, $22.597 million and $24.633 million, respectively. PGW had no net pension obligation as of the end of each of such fiscal years. PGW has budgeted $27.159 million for its pension contribution for its fiscal year ending August 31, 2013 which amount is intended to equal the ARC for such fiscal year.

Additional Information

The City issues a publicly available financial report that includes financial statements and required supplementary information for the PGW Pension Plan. The report is not incorporated into this Official Statement by reference. The report may be obtained by writing to the Office of the Director of Finance of the City.

Further information on the PGW Pension Plan, including with respect to its membership, plan description, funding policy, actuarial assumptions and funded status is contained in the City's Fiscal Year 2012 CAFR.

PGW Other Post-Employment Benefits

PGW provides post-employment healthcare and life insurance benefits to approximately 2,018 participating retirees and their beneficiaries and dependents in PGW's fiscal year ended August 31, 2012. The City, through its General Fund, could be responsible for costs associated with post-employment healthcare and life insurance benefits if PGW fails to satisfy its post-employment benefit obligations to PGW retirees or if PGW is sold to a purchaser and (1) the City retains the post-employment benefit obligation without fully funding the liability through sale proceeds or (2) the post-employment benefit obligation is transferred to a purchaser that subsequently fails to satisfy the benefit obligation.

PGW pays the full cost of medical, basic dental, and prescription coverage for employees who retired prior to December 1, 2001. Employees who retire after December 1, 2001 are provided a choice of three plans at PGW's expense and can elect to pay toward a more expensive plan. PGW pays 100% of the cost for the prescription drug plan after drug co-pays. Union employees hired prior to May 21, 2011 and non-union employees hired prior to December 21, 2011 are entitled to receive lifetime post-retirement medical, prescription, and dental benefits. Employees hired on or after those dates are entitled to receive only five years of post-retirement benefits. Currently, PGW provides for the cost of healthcare and life insurance benefits for retirees and their beneficiaries on a pay-as-you-go-basis.

As part of a July 29, 2010, rate case settlement (the "Rate Settlement"), which provided for the establishment of an irrevocable trust for the deposit of funds derived through a rider from all customer classes to fund OPEB liabilities, PGW established the trust in July 2010 and began funding the trust in accordance with the settlement agreement in September 2010. The Rate Settlement provides that PGW shall deposit $15.0 million annually towards the ARC and an additional $3.5 million annually, which represents a 30-year amortization of the OPEB liability at August 31, 2010. These deposits will be funded primarily through increased rates of $16.0 million granted in the Rate Settlement.

The ARC represents a level of funding that, if paid on an ongoing basis, is projected to cover normal costs each year and amortize any unfunded actuarial liabilities (or funding excesses) over a period of 30 years.

The actuarial accrued liability for PGW's OPEB obligations as of August 31, 2012 was $444.0 million, assuming that PGW will continue to fund its OPEB obligations of $18.5 million per year pursuant to the Rate Settlement on an ongoing basis. The ratio of the unfunded actuarial accrued liability ($405.1 million) for PGW's OPEB obligations to the covered payroll was 381.1% as of August 31, 2012, and the funded ratio of the OPEB trust assets (actuarial value basis) to the actuarial accrued liability was 8.8% as of such date. The valuation was prepared utilizing an 8.0% discount rate for purposes of developing the liabilities and the ARC for PGW's fiscal year ended August 31, 2012. This rate is based on the expected return of the investments of the OPEB trust. Subsequently, the expected rate of return of the investments of the OPEB trust was lowered to 7.95%.

For PGW's fiscal year ended August 31, 2012, PGW's ARC was $47.071 million and it contributed $44.486 million for OPEB expense, consisting of approximately $24.5 million of healthcare expenses, $1.5 million of life insurance expenses, and $18.5 million contributed to the OPEB trust. The net OPEB obligation for PGW's fiscal year ended August 31, 2012 was $111.067 million. PGW has budgeted $38.578 million for its OPEB contribution for its fiscal year ending August 31, 2013, consisting of $18.5 million to meet its OPEB trust funding obligation and $20.078 million to provide for the cost of healthcare and life insurance benefits for retirees and their beneficiaries on a pay-as-you-go basis for such fiscal year.

Further information on PGW's annual OPEB expense, net OPEB obligation and the funded status of the OPEB benefits related to PGW is contained in the City's Fiscal Year 2012 CAFR.

Purchase of Services

The City accounts for a number of expenditures as purchase of services. The following table presents major purchases of services in the General Fund in Fiscal Years 2007 through 2014.

Table 26
Purchase of Service in the General Fund
Fiscal Years 2007-2014
(Amounts in Millions of USD)

	Actual					Actual [9]	Adopted Budget[10]	Current Estimate[11]	Adopted Budget[11]
	2007	2008	2009	2010	2011	2012	2013	2013	2014
Human Services[1]	495.3	515.3	499.0	465.5	448.2	78.2	69.3	80.3	78.2
Public Health	65.5	65.1	67.9	64.7	66.1	63.0	66.1	65.6	60.9
Public Property[2]	156.3	139.5	142.6	136.2	138.7	139.5	149.0	141.1	141.1
Streets[3]	58.3	58.4	51.0	55.8	51.0	45.7	42.5	40.5	45.7
Sinking Fund - Lease Debt[4]	84.3	85.1	86.1	79.9	87.5	89.7	95.0	95.0	96.7
Legal Services[5]	35.4	37.3	37.3	35.9	36.6	37.3	37.1	38.7	40.1
First Judicial District	24.8	25.6	23.6	23.7	22.9	24.1	13.2	14.1	10.3
Licenses & Inspections[6]	11.4	11.9	9.6	8.2	4.1	7.0	7.1	7.1	7.1
Supportive Housing [7]	31.3	33.9	32.3	31.7	30.2	30.4	31.6	34.6	34.5
Prisons	87.5	93.6	110.7	106.4	106.6	104.0	103.2	105.7	104.2
All Other[8]	101.5	123.0	114.1	103.4	131.0	141.9	154.5	162.9	171.8
Total	1,151.6	1,188.7	1,174.2	1,111.4	1,127.9	760.8	768.6	785.6	790.6

(1) Includes payments for care of dependent and delinquent children.
(2) Includes payments for SEPTA, space rentals, utilities, and telecommunications. In Fiscal Year 2008, the telecommunications division was transferred to the Managing Director – Office of Innovation and Technology ("OIT"). Services purchased for OIT appear in the table under the category "All Other."
(3) Includes solid waste disposal costs.
(4) Includes, among other things, Justice Center, Neighborhood Transformation Initiative and Stadium lease debt.
(5) Includes payments to the Defender Association to provide legal representation for indigents.
(6) Includes payments for demolition in Fiscal Year 2007 through Fiscal Year 2012.
(7) Includes homeless shelter and boarding home payments.
(8) Includes payment for Convention Center Subsidy and Vehicle leasing.
(9) The reduction in Human Services purchases in Fiscal Year 2012 is largely the result of the transfer of the majority of the Department of Human Services revenue and obligations to the Grants Revenue Fund.
(10) From the estimates for the Adopted Fiscal Year 2013 Budget.
(11) From the estimates for the Adopted Fiscal Year 2014 Budget.

Figures may not add up due to rounding.

City Payments to School District

In each fiscal year since Fiscal Year 1996, the City has made an annual grant of $15 million to the School District. Pursuant to negotiations with the Commonwealth to address the School District's current and future educational and fiscal situation, the Mayor and City Council agreed to provide the School District with an additional annual $20 million beginning in Fiscal Year 2002. In Fiscal Year 2008, the Mayor and City Council agreed to provide an additional $2 million, bringing the total contribution to $37 million. In Fiscal Year 2010, the City made a $38.5 million contribution. In Fiscal Year 2011, the City made a $38.6 million contribution. In Fiscal Year 2012, the City made a contribution of $48.9 million, which included an additional contribution of $10 million over the previous fiscal year. The adopted budget and the current estimate for Fiscal Year 2013 includes a contribution of $48.9 million along with an additional contribution of $20 million (budgeted in City Council) bringing the total

expected contribution to $68.9 million. The additional contribution was coupled with an increase in the City portion of the property tax rate. The Approved Fiscal Year 2014 Budget includes a contribution of $69.1 million. In addition, beginning in Fiscal Year 2014, the City will forgive annual payment by the School District of $2.0 million for reimbursement of costs of the Office of Property Assessment.

As further described under "REVENUES OF THE CITY-Sales and Use Tax," a 1% sales and use tax has been authorized to finance, among other things, beginning in Fiscal Year 2015 an annual $120 million payment to the School District, subject to certain conditions, and debt service on approximately $50 million of bonds to be issued by the City on behalf of the School District.

Section 696 of the School Code (commonly referred to as "Act 46") imposed on the City a maintenance of effort obligation with respect to the School District. For so long as the School District remains subject to a declaration of "distress" by the Secretary of Education, the City is obligated to continue paying over to the School District each year an amount at least equal to the amount paid over to the School District in the previous year; and is obligated to continue authorizing for the School District a rate of taxation at least equal to the rate of taxation authorized by the City for the School District in the previous year. The School District was declared distressed effective December 22, 2001. See "THE GOVERNMENT OF THE CITY OF PHILADELPHIA - Local Government Agencies - The School District."

See also "REVENUES OF THE CITY-Real Property Taxes" for a discussion of the transition to AVI.

PGW Annual Payments

In order to assist PGW, (i) the City agreed to forgo the $18 million annual payment in Fiscal Year 2004, (ii) for Fiscal Years 2005, 2006, 2007, 2008, 2009 and 2010 the City made a grant to PGW equal to the annual payment received from PGW in such fiscal years. In Fiscal Year 2011, PGW remitted to the City the required annual payment of $18,000,000. The City's Twentieth Five-Year Plan included the PGW annual payment of $18,000,000 to the City's General Fund but discontinued the City's grant back to PGW equal to the annual payment received from PGW for Fiscal Years 2012, 2013, 2014, 2015 and 2016. The City's Twenty-First Five-Year Plan included the PGW annual payment of $18,000,000 to the City's General Fund and discontinued the City's grant back to PGW equal to the annual payment received from PGW for Fiscal Years 2013, 2014, 2015, 2016 and 2017. The City's Twenty-Second Five-Year Plan includes the PGW annual payment of $18,000,000 to the City's General Fund and discontinues the City's grant back to PGW equal to the annual payment received from PGW for Fiscal Years 2014, 2015, 2016, 2017and 2018. The City is considering the sale of PGW to a private entity. See "THE GOVERNMENT OF THE CITY OF PHILADELPHIA-Government Services."

City Payments to SEPTA

The City made operating subsidy payments to SEPTA in Fiscal Years 2008, 2009, 2010 and 2011 of $61.3 million, $62.9 million, $64.2, and $65.9 million, respectively. The actual Fiscal Year 2012 operating subsidy payments to SEPTA was $66.4 million. The adopted budget and current estimate for Fiscal Year 2013 projects operating subsidy payments to SEPTA of $66.4 million. The Twenty-Second Five-Year Plan projects operating subsidy payments to SEPTA of $67.1 million and that the City's contribution to SEPTA will increase to $71.9 million by Fiscal Year 2018.

City Payments to Convention Center Authority

In connection with the financing of the expansion to the Pennsylvania Convention Center and the refinancing of debt for the original Pennsylvania Convention Center construction, the Commonwealth, the City and the Convention Center Authority entered into an operating agreement in 2010, providing for the operation of the Convention Center by the Convention Center Authority and pursuant to which the City agreed to pay the Convention Center Authority an annual service fee of $15,000,000 in each Fiscal Year through Fiscal Year 2040 and specified percentages of the City's hotel room rental tax and hospitality promotion tax, subject to certain conditions.

CITY CASH MANAGEMENT AND INVESTMENT POLICIES

General Fund Cash Flow

Because the receipts of General Fund revenues lag behind expenditures during most of each fiscal year, the City issues notes in anticipation of General Fund revenues and makes payments from the Consolidated Cash Account to finance its on-going operations. The City has issued notes in anticipation of the receipt of income by the General Fund in each fiscal year since Fiscal Year 1972 (with a single exception). Each issue was repaid when due, prior to the end of the fiscal year.

The timing imbalance referred to above results from a number of factors, principally the following: (1) real property, business privilege tax and certain other taxes are not due until the latter part of the fiscal year; and (2) the City experiences lags in reimbursement from other governmental entities for expenditures initially made by the City in connection with programs funded by other governments.

The City issued $285 million of Tax and Revenue Anticipation Notes in July 2010. These notes were repaid on June 30, 2011. The City issued Tax and Revenue Anticipation Notes in the amount of $173 million in December 2011 which were repaid in June 2012. The City issued Tax and Revenue Anticipation Notes in the amount of $127 million in December 2012 which matured on June 26, 2013. The City anticipates issuing Tax and Revenue Anticipation Notes in December 2013. The City anticipates selling the notes competitively in an amount to be determined.

Consolidated Cash

The Act of the General Assembly of the Commonwealth of June 25, 1919, P.L. 581, Art. XVII, § 6, gives the City the authority to make temporary inter-fund loans between operating and capital funds.

The Consolidated Cash Account provides for the physical commingling of the cash of all City Funds, except those which, for legal or contractual reasons, cannot be commingled (e.g., the Municipal Pension Fund, sinking funds, sinking fund reserves, funds of PGW, the Water Fund, the Aviation Fund and certain other restricted purpose funds). A separate accounting is maintained for the equity of each member fund in the Consolidated Cash Account. The City manages the Consolidated Cash Account pursuant to the following procedures:

To the extent that any member fund temporarily experiences the equivalent of a cash deficiency, the required advance is made from the Consolidated Cash Account, in the amount necessary to result in a zero balance in the cash equivalent account of the borrowing fund. All subsequent net receipts of a borrowing fund are applied in repayment of the advance.

All advances are made within the budgetary constraints of the borrowing funds. Within the General Fund, this system of inter-fund advances has historically resulted in the temporary use of tax revenues or other operating revenues for capital purposes and the temporary use of capital funds for operating purposes.

Procedures governing the City's cash management operations require the General Fund-related operating fund to borrow initially from the General Fund-related capital fund, and only to the extent there is a deficiency in such fund may the General Fund-related operating fund borrow money from any other funds in the Consolidated Cash Account.

Investment Practices

Cash balances in each of the City's funds are managed to maintain daily liquidity to pay expenses, and make investments that preserve principal while striving to obtain the maximum rate of return. In accordance with the Home Rule Charter, the City Treasurer is the City Official responsible for managing cash collected into the City Treasury. The available cash balances in excess of daily expenses are placed in demand accounts, swept into money market mutual funds, or used to make investments directed by professional money managers. These investments are held in segregated trust accounts at a separate financial institution. Cash balances related to Revenue Bonds for

Water and Sewer and the Airport are directly deposited and held separately in trust. A Fiscal Agent manages these cash balances per the related bond documents and the investment practice is guided by administrative direction of the City Treasurer per the Investment Committee and the Investment Policy. In addition, certain operating cash deposits (such as Community Behavioral Health, Special Gas/County Liquid and "911" surcharge) of the City are restricted by purpose and required to be segregated into accounts in compliance with Federal or State reporting.

Investment guidelines for the City are embodied in legislation approved by City Council appearing in the Philadelphia City Code, Chapter 19-202. In furtherance of the City, State, and Federal legislative guidelines, the Director of Finance adopted a written Investment Policy (the "Policy") that first went into effect in August 1994 and most recently was revised in January 2011. The Policy supplements other legal requirements and establishes a comprehensive investment policy for the overall administration and effective management of all monetary funds (except the Municipal Pension Fund and PGW Retirement Reserve Fund).

The Policy delineates the authorized investments as approved by City Council Ordinance and the funds to which the Policy applies. The authorized investments include U.S. government securities, U.S. treasuries, U.S. agencies, repurchase agreements, commercial paper, corporate bonds, money market mutual funds, obligations of the Commonwealth, collateralized banker's acceptances and certificates of deposit, and collateralized mortgage obligations and pass-through securities directly issued by a federal agency of the United States, all of investment grade rating or better.

U.S. government treasury and agency securities carry no limitation as to the percent of the total portfolio. Repurchase agreements, money market mutual funds, commercial paper, and corporate bonds are limited to investment of no more than 25% of the total portfolio. Obligations of the Commonwealth and collateralized banker's acceptances and certificates of deposit are limited to no more than 15% of the total portfolio. Collateralized mortgage obligations and pass-through securities directly issued by a federal agency of the United States are limited to no more than 5% of the total portfolio.

U.S. government treasury and agency securities carry no limitation as to the percent of the total portfolio per issuer. Repurchase agreements and money market mutual funds are limited to no more than 10% of the total portfolio per issuer. Commercial paper, corporate bonds, obligations of the Commonwealth, collateralized banker's acceptances and certificates of deposit, and collateralized mortgage obligations and pass-through securities directly issued by a federal agency of the United States are limited to no more than 3% of the total portfolio per issuer.

The Policy also restricts investments to those having a maximum maturity of two years. Daily liquidity is maintained through the use of SEC-registered money market mutual funds with the balance of funds invested by the City or money managers in accordance with the Policy.

The Policy provides for an ad hoc Investment Committee consisting of the Director of Finance and the City Treasurer with ex-officio membership of a representative of each of the principal operating and capital funds, i.e., Water Fund, Aviation Fund, PGW and PMA. The Investment Committee meets quarterly with each of the investment managers to review each manager's performance to date and to plan for the next quarter. Investment managers are given any changes in investment instructions at these meetings. The Investment Committee approves all modifications to the Policy.

The Policy expressly forbids the use of any derivative investment product as well as investments in any security whose yield or market value does not follow the normal swings in interest rates. Examples of these types of securities include, but are not limited to: structured notes, floating rate or inverse floating rate instruments, securities that could result in zero interest accrual if held to maturity, and mortgage derived interest and principal only strips. The City currently makes no investments in derivatives.

DEBT OF THE CITY

The Constitution of the Commonwealth provides that the authorized debt of the City "may be increased in such amount that the total debt of said City shall not exceed 13.5% of the average of the annual assessed valuations of the taxable realty therein, during the ten years immediately preceding the year in which such increase is made, but

said City shall not increase its indebtedness to an amount exceeding 3.0% upon such average assessed valuation of realty, without the consent of the electors thereof at a public election held in such manner as shall be provided by law." It has been judicially determined that bond authorizations once approved by the voters will not be reduced as a result of a subsequent decline in the average assessed value of City property.

The Constitution of the Commonwealth further provides that there shall be excluded from the computation of debt for purposes of the Constitutional debt limit, debt (herein called "self-supporting debt") incurred for revenue-producing capital improvements that may reasonably be expected to yield revenue in excess of operating expenses sufficient to pay interest and sinking fund charges thereon. In the case of general obligation debt, the amount of such self-supporting debt to be so excluded must be determined by the Court of Common Pleas of Philadelphia County upon petition by the City. Self-supporting debt is general obligation debt of the City, with the only distinction from tax-supported debt being that it is not used in the calculation of the Constitutional debt limit. Self-supporting debt has no lien on any particular revenues.

As of July 31, 2013, the Constitutional debt limitation for tax-supported general obligation debt was approximately $1,669,996,000. This amount is based upon a formula of 13.5% of the assessed value of taxable real estate within the City on a 10 year rolling average. The total amount of authorized debt applicable to the debt limit was $1,567,338,000, including $492,909,000 of authorized but unissued debt, leaving a legal debt margin of $102,658,000. The calculation of the legal debt margin is as follows:

Table 27
General Obligation Bonded Debt
July 31, 2013
(Amounts in Thousands)

Authorized, issued and outstanding	$1,435,665
Authorized and unissued	492,909
Total	1,928,574
Less: Self-supporting debt	(353,766)
Less: Serial bonds maturing within a year	(7,470)
Total amount of authorized debt applicable to debt limit	1,567,338
Legal debt limit	1,669,996
Legal debt margin	$ 102,658

As a result of the implementation of the City's Actual Value Initiative, see "REVENUES OF THE CITY−Real Property Taxes," the assessed value of taxable real estate within the City will increase substantially beginning with valuations for 2014. Such increase in assessed valuation along with the change in the methodology for calculating real estate taxes under AVI will increase substantially the Constitutional debt limitation for tax-supported general obligation debt starting in 2015 as the higher valuations are averaged into the formula described above over the following ten years. The increase in such Constitutional debt limitation could be more than approximately $1 billion annually over such ten-year period.

The City is also empowered by statute to issue revenue bonds and, as of July 31, 2013 had outstanding $1,753,761,544 aggregate principal amount of Water and Wastewater Revenue Bonds, $1,068,885,000 aggregate principal amount of Gas Works Revenue Bonds, and $1,315,455,000 aggregate principal amount of Airport Revenue Bonds. As of the close of business on July 31, 2013, the principal amount of PICA bonds outstanding was $409,280,000.

Short-Term Debt

The City has issued notes in anticipation of the receipt of income by the General Fund in each fiscal year since Fiscal Year 1972 (with a single exception). Each note issue was repaid when due prior to the end of the fiscal year of issuance. The City issued $127 million of Tax and Revenue Anticipation Notes on December 19, 2012, which matured on June 26, 2013. The City anticipates issuing Tax and Revenue Anticipation Notes in December 2013. The City anticipates selling the notes competitively in an amount to be determined.

Long-Term Debt

The table below presents a synopsis of the bonded debt of the City and its component units as of the date indicated. In addition, for tables setting forth a ten-year historical summary of tax-supported debt of the City and School District and the debt service requirements to maturity of the City's outstanding bonded indebtedness as of June 30, 2012, see the Fiscal Year 2012 CAFR.

Of the total balance of City tax-supported general obligation bonds issued and outstanding on July 31, 2013, approximately 20% is scheduled to mature within five fiscal years and approximately 42% is scheduled to mature within ten fiscal years.

Table 28
Bonded Debt -- City of Philadelphia and Component Units
as of July 31, 2013
(Amounts in Thousands)

(Unaudited)

General Obligation and PICA bonds		
General Obligation Bonds		$ 1,476,660
PA Intergovernmental Cooperation Authority		409,280
Subtotal: General Obligation and PICA bonds		1,885,940
Other Long-Term Debt-Related Obligations[1]		
Philadelphia Municipal Authority		
Municipal Services Building	$ 13,559	
Criminal Justice Center	106,015	
Juvenile Justice Center	95,355	
Energy Conservation	12,605	227,534
Philadelphia Authority for Industrial Development		
Pension Bonds	1,598,481	
Stadiums	314,115	
Library	7,690	
Cultural and Commercial Corridor	115,825	
One Parkway	41,405	2,077,516
Parking Authority		14,250
Redevelopment Authority		220,045
Subtotal		4,425,285
Revenue bonds		
Water Fund		1,753,756
Aviation Fund		1,315,455
Gas Works		1,068,885
Subtotal: Revenue bonds		4,138,096
Grand total		$ 8,563,381

[1]The principal amount outstanding relating to the PAID 1999 Pension Obligation Bonds, Series B (capital appreciation bonds) and the PMA Municipal Services Building Rental Bonds, Series 1990C (capital appreciation bonds) are reflected as the accreted value thereon as of July 31, 2013.

Source: Office of Director of Finance

Table 29
City of Philadelphia
Annual Debt Service on City-Related Long-Term Debt[1]
As of July 31, 2013
(Amounts in Millions of USD)

Fiscal	General Obligation Bonds			Other Long-Term Obligations[2,5]			Total		
Year	Principal[6]	Interest[3,6]	Total	Principal	Interest[3,4]	Total	Principal	Interest	Total
2014	50.91	70.38	121.29	206.43	141.34	347.77	257.33	211.72	469.06
2015	58.57	73.42	131.98	84.17	143.51	227.68	142.74	216.92	359.66
2016	58.31	70.62	128.92	84.04	139.89	223.93	142.34	210.51	352.86
2017	61.19	67.64	128.82	84.19	139.56	223.74	145.37	207.20	352.57
2018	64.17	64.44	128.61	89.61	138.77	228.38	153.78	203.21	356.99
2019	67.43	61.07	128.50	74.59	138.02	212.60	142.02	199.09	341.11
2020	69.42	57.61	127.03	64.09	137.79	201.88	133.50	195.40	328.91
2021	62.44	54.35	116.79	79.21	122.70	201.91	141.65	177.05	318.70
2022	65.27	51.17	116.44	76.97	124.98	201.95	142.24	176.15	318.39
2023	69.64	47.69	117.33	114.34	87.64	201.98	183.97	135.33	319.30
2024	73.20	43.96	117.15	114.29	87.72	202.01	187.49	131.68	319.17
2025	76.86	40.04	116.90	118.76	83.30	202.05	195.62	123.34	318.96
2026	73.27	36.16	109.43	134.38	66.88	201.26	207.65	103.04	310.69
2027	76.89	32.24	109.13	160.04	43.88	203.92	236.93	76.12	313.05
2028	81.27	28.26	109.53	165.25	34.60	199.85	246.52	62.86	309.38
2029	54.91	24.94	79.85	277.50	17.61	295.11	332.41	42.55	374.96
2030	70.92	21.77	92.69	53.73	7.81	61.53	124.65	29.58	154.23
2031	74.73	18.07	92.79	56.27	5.32	61.58	130.99	23.39	154.38
2032	78.72	14.16	92.87	13.63	3.21	16.84	92.35	17.37	109.72
2033	43.05	10.92	53.97	4.90	2.71	7.61	47.95	13.63	61.58
2034	30.40	8.79	39.18	5.22	2.39	7.61	35.61	11.18	46.79
2035	15.71	7.36	23.07	5.56	2.06	7.61	21.27	9.42	30.68
2036	16.80	6.28	23.07	5.92	1.69	7.61	22.71	7.97	30.68
2037	17.96	5.12	23.07	6.30	1.31	7.61	24.26	6.43	30.68
2038	19.22	3.85	23.07	6.71	0.90	7.61	25.93	4.75	30.68
2039	20.59	2.48	23.07	7.15	0.46	7.61	27.74	2.95	30.68
2040	8.52	1.50	10.02	--	--	--	8.52	1.50	10.02
2041	9.10	0.93	10.02	--	--	--	9.10	0.93	10.02
2042	9.71	0.32	10.02	--	--	--	9.71	0.32	10.02
TOTAL	1,479.10	925.54	2,404.64	2,093.21	1,676.08	3,769.28	3,572.31	2,601.62	6,173.92

[1] Does not include PICA bonds.
[2] Includes PAID, PMA, Parking Authority, and Redevelopment Authority bonds.
[3] Assumes interest rate to be fixed swap rate on hedged variable rate bonds.
[4] Net of capitalized interest on the 2012 Service Agreement Revenue Refunding Bonds.
[5] Fiscal Year 2014 includes payments on debt incurred to refinance existing pension deferral repayment obligations due in such Fiscal Years. See "EXPENDITURES OF THE CITY−Municipal Pension Fund−Funded Status of the Municipal Pension Fund."
[6] Updated through July 31, 2013 to include the effect of GO Series 2013A.

Other Long-Term Debt Related Obligations

The City has entered into other contracts and leases to support the issuance of debt by public authorities related to the City pursuant to which the City is required to budget and appropriate tax or other general revenues to satisfy such obligations, as shown on Table 28. The City budgets all other long-term debt-related obligations as a single budget item with the exception of the Parking Authority which has a budget of $1,336,200 for Fiscal Year 2014.

The Hospitals Authority and the State Public School Building Authority have issued bonds on behalf of the Community College of Philadelphia ("CCP"). Under the Community College Act, each community college must

have a local sponsor, which for CCP is the City. As the local sponsor, the City is obligated to pay up to 50% of the annual capital expenses of CCP, which includes debt service. The remaining 50% is paid by the Commonwealth. Additionally, the City annually appropriates funds for a portion of CCP's operating costs (less tuition and less the Commonwealth's payment). The total payment to CCP in Fiscal Year 2008 was $24,467,924. The amount paid in Fiscal Year 2009 and Fiscal Year 2010 was $26,467,924 each year. The amount paid in Fiscal Year 2011, Fiscal Year 2012 and Fiscal Year 2013 was $25,409,207. The budgeted amount for Fiscal Year 2014 is $26,409,207. This amount represents the portion of operating costs (less student tuition and the Commonwealth payment) and up to half of the annual capital expenses for the year.

PICA Bonds

PICA has previously issued 11 series of bonds. Under the PICA Act, PICA no longer has the authority to issue bonds for new money purposes, but may refund bonds previously issued by it. Two series of bonds remain outstanding: (i) Special Tax Revenue Refunding Bonds (City of Philadelphia Funding Program), Series of 2009 issued in the original aggregate principal amount of $354,925,000, having a final stated maturity date of June 15, 2023 and (ii) Special Tax Revenue Refunding Bonds (City of Philadelphia Funding Program), Series of 2010 in the original principal amount of $206,960,000, having a final stated maturity date of June 15, 2022. As of the close of business on July 1, 2013, the principal amount of PICA bonds outstanding was $409,280,000.

The proceeds of the previous series of bonds issued by PICA were used (a) to make grants to the City to fund General Fund deficits of the City, to fund the costs of certain capital projects undertaken by the City, to provide other financial assistance to the City to enhance productivity in the operation of City government, and to defease certain general obligation bonds of the City, (b) to refund other bonds of PICA and (c) to pay costs of issuance.

The PICA Act authorized the City to impose a tax for the sole and exclusive purposes of PICA. In connection with the adoption of the Fiscal Year 1992 budget and the adoption of the first Five-Year Plan, the City reduced the wage, earnings, and net profits tax on City residents by 1.5% and enacted a PICA Tax of 1.5% tax on wages, earnings and net profits of City residents (the "PICA Tax"). Proceeds of the PICA Tax are solely the property of PICA. The PICA Tax, collected by the City's Department of Revenue, is deposited in the "Pennsylvania Intergovernmental Cooperation Authority Tax Fund" (the "PICA Tax Fund") of which the State Treasurer is custodian. The PICA Tax Fund is not subject to appropriation by City Council or the General Assembly of the Commonwealth.

The PICA Act authorizes PICA to pledge the PICA Tax to secure its bonds and prohibits the Commonwealth and the City from repealing the PICA Tax or reducing the rate of the PICA Tax while any bonds secured by the PICA Tax are outstanding. PICA bonds are payable from the PICA revenues, including the PICA Tax, pledged to secure PICA's bonds, the Bond Payment Account (as described below) and any debt service reserve fund established for such bonds and have no claim on any revenues of the Commonwealth or the City.

The PICA Act requires that proceeds of the PICA Tax in excess of amounts required for (i) debt service, (ii) replenishment of any debt service reserve fund for bonds issued by PICA, and (iii) certain PICA operating expenses, be deposited in a trust fund established pursuant to the PICA Act exclusively for the benefit of the City and designated the "City Account." Amounts in the City Account are required to be remitted to the City not less often than monthly, but are subject to withholding if PICA certifies the City's non-compliance with the then-current five-year plan.

The PICA Act establishes a "Bond Payment Account" for PICA as a trust fund for the benefit of PICA bondholders and authorizes the creation of a debt service reserve fund for bonds issued by PICA. Since PICA has issued bonds secured by the PICA Tax, the PICA Act requires that the State Treasurer pay the proceeds of the PICA Tax held in the PICA Tax Fund directly to the Bond Payment Account, the debt service reserve fund created for bonds issued by PICA and the City Account.

The total amount of PICA Tax remitted to PICA by the State Treasurer (which is net of the costs of the State Treasurer in collecting the PICA Tax) for each of the Fiscal Years 2003 through 2012, the Fiscal Year 2013 budget, the current estimate for Fiscal Year 2013 and the Adopted Budget for Fiscal Year 2014 are set forth below.

Table 30
Summary of PICA Tax Remitted to PICA by the State Treasurer and Net Taxes Remitted to the City (Amounts in Millions of USD)

Year	PICA Tax	PICA Annual Debt Service and Investment Expenses	Net taxes remitted to the City[1]
2003	281.5	79.2	202.3
2004	285.0	78.9	206.1
2005	300.2	85.9	214.3
2006	309.9	87.1	222.8
2007	327.9	86.0	241.9
2008	341.8	86.4	255.4
2009	348.5	86.4	262.1
2010	343.3	68.9	274.4
2011	358.7	64.9	293.8
2012	357.5	62.3	295.2
2013 (Adopted Budget)[2]	367.8	66.0	301.8
2013 (Current Estimate)[3]	377.7	66.1	311.6
2014 (Adopted Budget)[3]	391.0	65.9	325.1

(1) Does not include additional one-time grants to the City from PICA reserves in certain years.
(2) From the estimates for the Adopted Fiscal Year 2013 Budget.
(3) From the estimates for the Adopted Fiscal Year 2014 Budget.

OTHER FINANCING RELATED MATTERS

Swap Information

The City has entered into various swaps related to its outstanding General Fund supported bonds as detailed in the following table:

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Table 31
Summary of Swap Information
for General Fund Supported Bonds
as of July 31, 2013

City Entity	City GO	City Lease - PAID	City Lease -PAID	City Lease - PAID
Related Bond Series	2009B[1]	2001 (Stadium)	2007B (Stadium)	2007B (Stadium)
Initial Notional Amount	$313,505,000	$298,485,000	$217,275,000	$72,400,000
Current Notional Amount	$100,000,000	$193,520,000	$217,275,000	$72,400,000
Termination Date	8/1/2031	10/1/2030	10/1/2030	10/1/2030
Product	Fixed Payer Swap	Basis Swap[2]	Fixed Payer Swap	Fixed Payer Swap
Rate Paid by Dealer	SIFMA	67% 1-month LIBOR + 0.20%, plus fixed annuity	SIFMA	SIFMA
Rate Paid by City Entity	3.829%	SIFMA	3.9713%	3.9713%
Dealer	Royal Bank of Canada	Merrill Lynch Capital Services, Inc.	JPMorgan Chase Bank, N.A.	Merrill Lynch Capital Services, Inc.
Fair Value[3]	($14,720,082)	($7,109,500)	($34,070,871)	($11,353,301)

(1) On July 28, 2009, the City terminated a portion of the swap in the amount of $213,505,000 in conjunction with the refunding of its Series 2007B bonds with the Series 2009A fixed rate bonds and the Series 2009B variable rate bonds. The City made a termination payment of $15,450,000.

(2) PAID receives annual fixed payments of $1,216,500 from July 1, 2004 through July 1, 2013. As the result of an amendment on July 14, 2006, $104,965,000 of the total notional amount was restructured as a constant maturity swap (the rate received by PAID on that portion was converted from a percentage of 1-month LIBOR to a percentage of the 5-year LIBOR swap rate from October 1, 2006 to October 1, 2020). The constant maturity swap was terminated in December 2009. The City received a termination payment of $3,049,000.

(3) Fair values are as of July 31, 2013, and are shown from the City's perspective and include accrued interest.

While the City is party to several interest rate swap agreements, for which there is General Fund exposure and on which the swaps currently have a negative mark against the City, the City has no obligation to post collateral on these swaps while the City's underlying ratings are investment grade.

For more information related to certain swaps entered into in connection with revenue bonds issued for PGW, Water and the Airport, see the Fiscal Year 2012 CAFR. In addition, PICA has entered into swaps which are detailed in the Fiscal Year 2012 CAFR.

Letter of Credit and Liquidity Agreements

The City has entered into various letter of credit and standby agreements related to its General Fund supported bonds as detailed in the table below. Under the terms of such letter of credit and standby agreements, following a purchase of the applicable bonds, the City may be required to amortize such bonds more quickly than as originally scheduled at issuance.

Table 32
Summary of Letter of Credit and Standby Agreements
for General Fund Supported Bonds
as of July 31, 2013

Variable Rate Bond Series	Amount Outstanding	Provider	Expiration Date
General Obligation Bonds, Series 2009B	$ 100,000,000	Bank of New York Mellon	03/07/2016
PAID Multi-Modal Lease Revenue Refunding Bonds, Series 2007B-1	117,275,000	JPMorgan	05/24/2014
PAID Multi-Modal Lease Revenue Refunding Bonds, Series 2007B-2	72,400,000	TD Bank	05/29/2015
PAID Multi-Modal Lease Revenue Refunding Bonds, Series 2007B-3	44,605,000	PNC Bank	05/23/2014

Recent and Upcoming Financings

In Fiscal Year 2014, the City anticipates issuing approximately $50 million of bonds for the benefit of the School District intended to be repaid from Sales and Use Tax receipts in Fiscal Years 2015 through 2018. See "REVENUES OF THE CITY-Sales and Use Tax."

The City anticipates issuing Tax and Revenue Anticipation Notes in December 2013. The City anticipates selling the notes competitively in an amount to be determined.

In August 2013, the City through the PMA expects to issue bonds to refund certain of the PMA's outstanding bonds.

From time to time, the City considers additional new money and/or refunding financings as market opportunities arise.

The following is a list of financings that the City has entered into since the close of Fiscal Year 2012:

In May 2013, the City, together with the Philadelphia Water Department, converted its existing Water and Wastewater Revenue Bonds, Series 2005B to an Index Mode.

In January 2013, the City together with Philadelphia International Airport closed on its Aviation Revenue Commercial Paper Notes, consisting of Tax Exempt (non-AMT), Tax-Exempt (AMT), and Federally Taxable notes, in the amount of $350 million.

In December 2012, the City issued Tax And Revenue Anticipation Notes in the amount of $127 million.

In December 2012, the City, through Philadelphia Authority for Industrial Development, issued its City Service Agreement Refunding Revenue Bonds, Series 2012 (Federally Taxable), in the amount of $299.805 million (the "2012 Service Agreement Revenue Refunding Bonds").

In October 2012, the City, through the Philadelphia Authority for Industrial Development, issued its City Service Agreement Revenue Bonds, Series 2012 (Federally Taxable), in the amount of $231.185 million to repay a deferred obligation to the Municipal Pension Fund.

In October 2012, the City together with Philadelphia Water Department, issued Water and Wastewater Refunding Revenue Bonds, Series 2012 in the amount of $70.370 million.

In July 2013, the City issued General Obligation Bonds in the amount of $208.360 million.

CITY CAPITAL IMPROVEMENT PROGRAM

The Capital Improvement Program for Fiscal Years 2014-2019 contemplates a total budget of $10,006,625,000, of which $2,338,132,000 is to be provided from Federal, Commonwealth, and other sources and the remainder through City funding. The following table shows the amounts budgeted each year from various sources of funds for capital projects. City Council adopted the Capital Improvement Program for Fiscal Years 2014-2019 on June 20, 2013.

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Table 33
Fiscal Years 2014-2018
Capital Program
(Amounts in Thousands of USD)

City Funds – Tax Supported	2014	2015	2016	2017	2018	2019	2014-2019
Carried-forward Loans	303,897	0	0	0	0	0	303,897
Operating Revenue	29,855	3,464	2,964	1,764	1,764	1,764	41,575
New Loans	91,097	90,367	95,720	95,037	94,978	111,024	578,223
Pre-financed Loans	16,346	0	0	0	0	0	16,346
PICA Pre-financed Loans	12,858	0	0	0	0	0	12,858
Tax-supported Subtotal	454,053	93,831	98,684	96,801	96,742	112,788	952,899
City Funds – Self-Sustaining							
Carried-forward Loans	1,138,430	0	0	0	0	0	1,138,430
Operating	163,289	59,017	69,163	74,066	76,227	78,639	520,401
New Loans	765,680	756,431	692,412	1,036,669	897,243	840,328	4,988,763
Self-Sustaining Subtotal	2,067,399	815,448	761,575	1,110,735	973,470	918,967	6,647,594
Revolving Funds	18,000	0	0	0	0	0	18,000
Other Than City Funds							
Carried-Forward Other Government	19,485	0	0	0	0	0	19,485
Other Governments Off Budget	634	724	949	934	1,050	1,217	5,508
Other Governments/Agencies	60	0	0	0	0	0	60
Carried-Forward State	93,978	0	0	0	0	0	93,978
State Off Budget	74,904	90,059	135,981	136,936	140,022	148,083	725,985
State	29,973	23,138	20,375	20,125	21,925	15,300	130,836
Carried-Forward Private	141,896	0	0	0	0	0	141,896
Private	61,670	34,470	32,120	28,370	33,370	20,370	210,370
Carried-Forward Federal	265,307	0	0	0	0	0	265,307
Federal Off Budget	77,140	63,838	57,251	41,998	41,943	17,998	300,168
Federal	128,614	74,550	87,550	81,750	66,975	55,100	494,539
Other Than City Funds Subtotal	893,661	286,779	334,226	310,113	305,285	258,068	2,338,132
TOTAL	$3,433,113	$1,196,058	$1,194,485	$1,517,649	$1,375,497	$1,289,823	$10,006,625

LITIGATION

Generally, judgments and settlements on claims against the City are payable from the General Fund, except for claims against the Water Department, the Division of Aviation, and the Gas Works. Claims against the Water Department are paid first from the Water Fund and only secondarily from the General Fund. Claims against the Division of Aviation, to the extent not covered by insurance, are paid first from the Aviation Fund and only secondarily from the General Fund. Claims against the Gas Works, to the extent not covered by insurance, are paid first from Gas Works revenues and only secondarily from the General Fund.

The Act of October 5, 1980, P.L. 693, No. 142, known as the "Political Subdivision Tort Claims Act," (the "Tort Claims Act") establishes a $500,000 aggregate limitation on damages for injury to a person or property arising from the same cause of action or transaction or occurrence or series of causes of action, transactions or occurrences with respect to governmental units in the Commonwealth such as the City. The constitutionality of that aggregate limitation has been repeatedly upheld by the Pennsylvania Supreme Court. In February 1987, an appeal of a decision upholding such constitutionality to the United States Supreme Court was dismissed for want of jurisdiction. However, under Pennsylvania Rule of Civil Procedure 238, delay damages in State Court cases are not subject to the $500,000 limitation. Moreover, the limit on damages is inapplicable to any suit against the City which does not arise under state tort law such as claims made against the City under Federal civil rights laws.

The aggregate loss resulting from general and special litigation claims was $24.5 million for Fiscal Year 2004, $27.5 million for Fiscal Year 2005, $23.0 million for Fiscal Year 2006, $26.6 million for Fiscal Year 2007, $29.8 million for Fiscal Year 2008, $34.5 million for Fiscal Year 2009, $32.7 million for Fiscal Year 2010, $33.7 million for Fiscal Year 2011, $32.6 million for Fiscal Year 2012, and $30.3 for Fiscal Year 2013. Estimates of settlements and judgments from the General Fund are $32.5 million for Fiscal Year 2014 (based on the Operating Budget for Fiscal Year 2014), and $32.5 million for each of the Fiscal Years 2015 through 2019, respectively (based on the Twenty-Second Five-Year Plan). In budgeting for settlements and judgments in the annual Operating Budget and projecting settlements and judgments for each Five-Year Plan, the City bases its estimates on past experience and on an analysis of estimated potential liabilities and the timing of outcomes, to the extent a proceeding is sufficiently advanced to permit a projection of the timing of a result. General and special litigation claims are budgeted separately from back-pay awards and similar settlements relating to labor disputes. Usually, some of the costs arising from labor litigation are reported as part of current payroll expenses. For Fiscal Year 2011, payments for claims arising from labor settlements in the General Fund were $807,629 of which $751,022 was paid from the Indemnities account, and $56,607 from the operating budgets of the affected departments. For Fiscal Year 2012, payments for claims arising from labor settlements in the General Fund were $1.25 million and were paid from the Indemnities account. Actual claims paid out from the General Fund for settlements and judgments averaged $32.76 million per year over the five years from Fiscal Year 2009 through Fiscal Year 2013.

In addition to routine litigation incidental to performance of the City's governmental functions and litigation arising in the ordinary course relating to contract and tort claims and alleged violations of law, certain special litigation matters are currently being litigated and/or appealed and adverse final outcomes of such litigation could have a substantial or long-term adverse effect on the City's General Fund. These proceedings involve: environmental-related actions and proceedings in which it has been or may be alleged that the City is liable for damages, including but not limited to property damage and bodily injury, or that the City should pay fines or penalties or the costs of response or remediation, because of the alleged generation, transport, or disposal of toxic or otherwise hazardous substances by the City, or the alleged disposal of such substances on or to City-owned property; contract disputes; union arbitrations; and a dispute regarding City-wide property valuations. The ultimate outcome and fiscal impact, if any, on the City's General Fund of the claims and proceedings described in this paragraph are not currently predictable.

Various claims in addition to the lawsuits described in the preceding paragraph have been asserted against the Water Department and in some cases lawsuits have been instituted. Many of these Water Department claims have been reduced to judgment or otherwise settled in a manner requiring payment by the Water Department. The aggregate loss for Fiscal Year 2010 which resulted from these claims and lawsuits was $4.0 million, $5.4 million in Fiscal Year 2011, $2.1 million in Fiscal Year 2012, and $1.3 million in Fiscal Year 2013. The Water Fund's budget for Fiscal Year 2014 contains an appropriation for Water Department claims in the amount of $6.5 million, although the current estimate, based on the prior four fiscal years' expenditures, is for only $3.2 million in Fiscal Year 2014. The Water Fund is the first source of payment for any of the claims against the Water Department.

In addition, various claims have been asserted against the Division of Aviation and in some cases lawsuits have been instituted. Many of these Division of Aviation claims have been reduced to judgment or otherwise settled in a manner requiring payment by the Division of Aviation. The aggregate loss for Fiscal Year 2010 which resulted from these claims and lawsuits was $1.2 million, $1.7 million for Fiscal Year 2011, $1.2 million in Fiscal Year 2012, and $1.1 million in Fiscal Year 2013. The Indemnities budget for Aviation Fund claims for Fiscal Year 2014 contains an appropriation in the amount of $2.5 million, although the current estimate, based on the prior four fiscal years' expenditures, is only $1.3 million in Fiscal Year 2014. The Division of Aviation is the first source of payment for any of the claims against the Division of Aviation.

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APPENDIX V

CITY OF PHILADELPHIA SOCIOECONOMIC INFORMATION

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APPENDIX V

CITY SOCIOECONOMIC INFORMATION

INTRODUCTION

The City of Philadelphia (the "City" or "Philadelphia") is the fifth-largest city in the nation, with the third largest residential downtown, and is at the center of the United States' sixth largest metropolitan statistical area. The Philadelphia MSA (further described below) includes the fourth largest retail sales market in the nation, as well as a diverse network of business suppliers and complementary industries. The Philadelphia MSA plus Mercer County, New Jersey, has the second largest concentration of students on the East Coast in a metropolitan statistical area with 101 degree granting institutions of higher education and a total enrollment of 300,000 students of whom approximately 155,000 live within the geographic boundaries of the City. Some of the City's top priorities include attracting and retaining knowledge workers, increasing educational attainment among Philadelphians, attracting development, and promoting Philadelphia as a desirable location for business.

According to the 2010 U.S. Census, the City increased its population by 0.6% in the ten years since 2000 to 1.526 million residents, ending six decades of population decline. Although the change was modest, it was an indicator of the growth and development that Philadelphia has witnessed throughout the last two decades. Since 2010, the City increased its population by 1.4% to 1.548 million residents, which exceeds the rate of population growth projected by the Philadelphia City Planning Commission in its 2011 comprehensive plan. The City is positioned for continued growth, given its diverse economy.

Since 2008, substantial private and public investment aggregating over $8.8 billion (based on building permit information) has led to a revitalization of the City. Philadelphia continues to capitalize on its assets to realize its economic priorities. The City benefits from its strategic geographical location, relative affordability, cultural and recreational amenities, and its growing strength in key industries. The City is a major business and personal services center with strengths in professional services like insurance, law, finance, healthcare and higher education, and leisure and hospitality. Philadelphia's cost of living is relatively moderate compared to other major metropolitan areas. In addition, the City, as one of the country's education centers, offers the business community a large and diverse labor pool.

Geography

The City includes within its boundaries an area of approximately 134 square miles along the southeastern border of the Commonwealth of Pennsylvania (the "Commonwealth") and is located at the confluence of the Delaware and Schuylkill Rivers. The City, highlighted in orange in Figure 1, lies at the geographical and economic center of the MSA and PMSA (described below). Philadelphia is the largest city in the Commonwealth, co-terminous with the County of Philadelphia.

Philadelphia Metropolitan Statistical Area (MSA), highlighted in blue, is the eleven-county area named the Philadelphia-Camden-Wilmington metropolitan statistical area, representing an area of approximately 5,118 square miles with approximately 5,992,414 residents.[1]

Philadelphia Primary Metropolitan Statistical Area (PMSA), outlined in grey, is a 5-county area that is within the Philadelphia MSA that lies in the Commonwealth. Sometimes called the Philadelphia Metropolitan Division, in this discussion it is referred to as the Philadelphia Primary Statistical Area (PMSA). The counties of Bucks, Chester, Delaware, and Montgomery are referred to as the Suburban PMSA herein.

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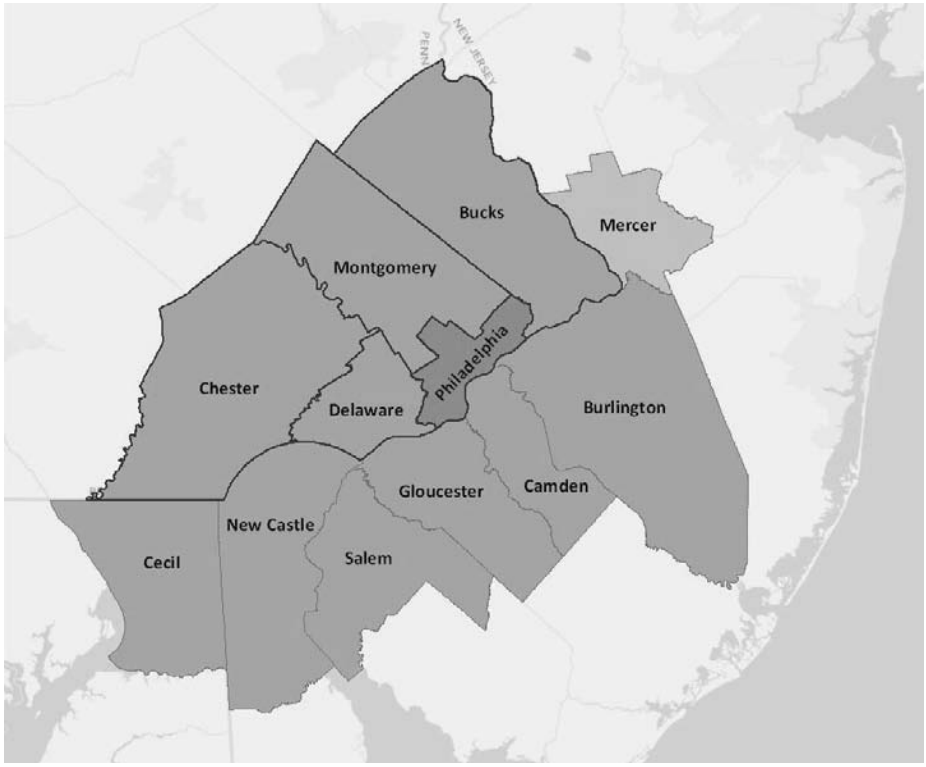
[1] Due to its close proximity and impact on the region's economy, Mercer County, NJ, highlighted in green, is included in the MSA by many regional agencies, although it is not included in the area defined by the U.S. Office of Management and Budget.

Figure 1. Map of Philadelphia Region, including the MSA, PMSA, and Mercer County, NJ
Source: 2009 TIGER County Shapefiles



Strategic Location

The City is within a day's drive of 50% of the nation's population and accessible to regional and international markets, due to the transportation infrastructure centered in the City, including the Philadelphia International Airport ("PHL" or the "Airport"), AMTRAK's Northeast Corridor service, major interstate highway access, regional SEPTA service and the Port of Philadelphia.

Notable Districts

Several key areas within the City have been instrumental in the economic development of Philadelphia over the past two decades and the population growth since 2000.

Center City - An area that has seen a resurgence over the last two decades, Center City is Philadelphia's central business and office region within the City. Center City is the strongest employment area in the city, accounting for 38% of all jobs found in Philadelphia. In addition, the area contains a sizeable residential population and provides ample access to retail, dining, arts and culture, entertainment, and mass transportation services, to both residents and daily commuters. It is estimated that approximately 295,500 riders take public transportation into Center City daily. The professional services and leisure and hospitality sectors play significant roles in the Center City area.

Greater Center City - The areas of greater Center City result from a growing desire for urban living among people who find these areas more affordable than Center City. Like Center City, these areas have experienced increased population, educational attainment, and family income within the last decade.

University City – Located west of Center City, University City is a hub for the health care, life sciences, and higher education sectors and accounts for 11% of the City's employment. It includes the campuses of the University of Pennsylvania, Drexel University, University of the Sciences, the University of Pennsylvania Health System, the Children's Hospital of Philadelphia and the Wistar Institute, as well as the University City Science Center, a biomedical incubator.

The Navy Yard - Deeded to the City by the U.S. Navy in 2000 as a result of the federal Base Realignment and Closure Act, the 1,000-acre Philadelphia Navy Yard represents a successful transition of a former naval property with a 125-year history as an active military base to a growing hub for business. Largely through the work of the Philadelphia Industrial Development Corporation, the City invests in infrastructure at the Navy Yard, providing an urban alternative to suburban office parks and a base for the rejuvenation of the industrial sector. With the arrival of GlaxoSmithKline, the Navy Yard surpassed 10,000 employees in February 2013, making the Navy Yard a growing employment area with 1% of the City's jobs.

City Identified Peer Group

Certain information about the City in this Appendix is presented in comparison to certain other cities determined by the City. The City has chosen its comparison cities based on a variety of factors, with some cities falling into multiple categories, including comparable population size, similar industrial history, similar assets such as a port or a redeveloped military base, comparable geography along the Northeast corridor and similar socio-economic statistics. Comparison cities are: Baltimore, Boston, Chicago, Cleveland, Detroit, Houston, Los Angeles, Memphis, Milwaukee, Phoenix, San Antonio, San Diego and Washington, DC.

POPULATION AND DEMOGRAPHICS

Philadelphia is the nation's fifth largest city, with 1.548 million residents, based on 2012 U.S. Census estimates. The City's population gain from 2000 to 2010, while modest, was its first in 60 years. In the two years following the 2010 Census, the City's population grew by an additional 1.4%, adding an additional 21,601 residents according to 2012 Census estimates.

Between 2006 to 2012, the share of the population represented by citizens age 20 to 34 grew from 20% to 26%, to become the largest share of Philadelphia's population. This demographic tends to be better educated than the City's adult population as a whole, with 37.5% of 25 to 34-year olds having a bachelor degree or higher compared to 31.5% for this age group nationally. The City's many universities and diverse employment bases are likely draws for residents in the 20 to 34 age group. In addition to young people, as noted in Pew Charitable Trusts Philadelphia Research Initiative report, *A City Transformed: the Racial and Ethnic Changes in Philadelphia Over the Last 20 Years*, the City's immigrant population also grew significantly, with the City's Asian population increasing 126.6% and the Hispanic or Latino population growing by 110.3%.

Table 1
Population
City, MSA, Pennsylvania & Nation

	1990	2000	2010	2012	% Change 2000-2010	% Change 2010-2012
Philadelphia	**1,585,577**	**1,517,550**	**1,526,006**	**1,547,607**	**0.60%**	**1.40%**
Philadelphia-Camden-Wilmington MSA	5,437,468	5,687,147	5,965,343	6,018,800	9.70%	0.90%
Pennsylvania	11,881,643	12,281,054	12,702,379	12,763,536	3.40%	0.50%
United States	248,709,873	281,421,906	308,745,538	313,914,040	9.70%	1.70%

Source: U.S. Census Bureau, American Community Survey 2012, Census 2010, Census 2000, Census 1990.

Philadelphia exceeds most cities in its share of students who are enrolled in an undergraduate, graduate or professional education program. Three of the top five peer cities that have the largest share of students in higher education are located in the Northeast region. However, because of the population differences of these cities, Philadelphia has 45,861 more students in higher education than top ranked Boston. Philadelphia has the fourth highest share of its residents in higher education of the selected cities shown in Table 2 below and the third largest university student population.

Table 2
2011 Total Number of Students, and as a Percent of Total Population of Selected Cities, Ranked by Percent of Total Population enrolled in Higher Education

City	*Total Number of Students Enrolled in School (all years)*	*Total Number of Students Enrolled in Higher Education*	*Percent of All Students Enrolled in Higher Education*	*Percent of Total Population enrolled in Higher Education*
Boston, MA	192,511	109,258	56.75%	17.66%
Washington, DC	156,264	73,848	47.26%	12.21%
San Diego, CA	376,351	153,015	40.66%	11.67%
Philadelphia, PA	**428,928**	**155,119**	**36.16%**	**10.16%**
Milwaukee, WI	187,674	60,367	32.17%	10.14%
Baltimore, MD	165,869	62,577	37.73%	10.09%
Los Angeles, CA	1,042,319	339,072	32.53%	8.92%
Chicago, IL	725,334	229,982	31.71%	8.52%
San Antonio, TX	393,247	109,231	27.78%	8.18%
Memphis, TN	180,032	51,336	28.51%	7.91%
Detroit, MI	209,638	55,309	26.38%	7.72%
Cleveland, OH	104,132	27,392	26.31%	6.90%
Houston, TX	556,082	141,836	25.51%	6.71%
Phoenix, AZ	402,148	92,809	23.08%	6.37%
United States	**82,440,699**	**23,202,120**	**28.14%**	**7.50%**

Source: 2011 American Community Survey, 3-Year Estimates

ECONOMIC DEVELOPMENT

Mission and Goals

The goal of the City's economic development strategy is to create, maintain, and develop: (1) jobs by fostering an improved business environment; (2) increases in population; and (3) enhanced quality of life within the City—all in order to grow the City's tax base and market competitiveness. Strategic public and private investments, as well as location-based assets, have created a stable economic base and positioned Philadelphia for growth. This economic development infrastructure strives to make Philadelphia a place of choice by increasing jobs and population in the City.

Economic Development Infrastructure

The Deputy Mayor for Economic Development and Commerce Director manages a portfolio of City and quasi-public agencies who work together to advance economic development strategies within the City. These agencies serve a variety of functions, including economic development, land use and planning, housing development and historical preservation and regulatory oversight. Furthermore, the City provides additional programs to businesses and individuals as incentive to relocate and/or develop within the City. These programs include tax incentives such as access to designated Keystone Opportunity Zones and real estate tax abatements. Finally, the City has found the private sector to be a valuable partner in advancing the overall economic development initiatives within the City, including but not limited to investment in the Parkway District, the Avenue of the Arts District and the Navy Yard. Economic Development functions that fall under the purview of the Deputy Mayor for Economic Development are further described below.

Economic Development

The Philadelphia Department of Commerce drives and implements policies to help both small businesses and major corporations in Philadelphia thrive. The Department coordinates activities along neighborhood commercial corridors, with small businesses and entrepreneurs, major real estate development projects, large-scale business attraction and retention efforts, as well as efforts to increase minority-owned business contracting opportunities. The City works closely with economic development

partners like the Philadelphia Industrial Development Corporation (PIDC), maintaining a relationship that is fully coordinated on business attraction and retention activities and development issues. At the direction of the Department of Commerce, PIDC plans and implements real estate and financing transactions that attract investment, jobs and tax ratables to the City.

Land Use and Planning

The Philadelphia City Planning Commission is responsible for the City's land use and strategic planning policies. The Commission maintains the City's comprehensive plan and monitors land use by applying the zoning code to proposed development. After four years of work, a revised zoning code was adopted by City Council in December 2011 and went into effect August, 2012. The new, streamlined code is designed to increase efficiency in the development process by expanding what is allowable by right; thus, limiting the number of variance requests. When variances are needed, the Zoning Board of Adjustment is the appointed arbiter of those land use requests.

Housing Development

The Office of Housing and Community Development (OHCD) manages planning, policy and investment in low income housing through several assistance programs. Most significantly, OHCD creates and manages implementation of the Consolidated Plan, a federally-mandated plan and budget that must be updated yearly in order to receive federal Community Development Block Grant funding. The Philadelphia Redevelopment Authority (PRA) is the public government agency charged with the redevelopment of the City. The PRA focuses on planning and developing balanced, mixed-use communities to create thriving, well-served neighborhoods. The PRA manages disposition of City-owned land. Philadelphia Housing Development Corporation (PHDC) focuses on service to Philadelphia's low- and moderate-income households through development of new housing and rehabilitation of existing homes in partnership with community development corporations. The Philadelphia Housing Authority (PHA) is funded primarily by the federal government and is the largest landlord in Pennsylvania. PHA develops, acquires, leases and operates affordable housing for City residents with limited incomes. PHA works in partnership with the City and state governments, as well as private investors.

Historical Preservation and Regulatory Oversight

The City is home to historic resources documenting more than three centuries of local, regional, and national history. The Philadelphia Historical Commission is the City's regulatory agency responsible for ensuring the preservation of that collection of historic resources including buildings, structures, sites, objects, interiors, and districts. The Philadelphia Art Commission is the City's charter-mandated design review board for architecture and public art. The City of Philadelphia has one of the largest collections of public art of any major city in the country, with more than 4,500 cataloged pieces.

The Department of Licenses & Inspections reviews construction plans and conducts building inspections to ensure the safety of workers and the public. Building permits are required before beginning projects to enlarge, repair, change, add to or demolish a structure, and to install equipment or systems in a structure. The Department also issues licenses, permits and certificates to conduct certain business operations.

Lending, Land Use and Employer-Based Strategies to Expand Business and Investment

As the City's landholding and financing arm, the Philadelphia Industrial Development Corporation (PIDC) manages public and private resources that are used to leverage even greater investments from a diverse range of governmental, for-profit and non-profit clients throughout Philadelphia. Since its founding in 1958, PIDC has placed more than $10 billion of PIDC financing and conveyed more than 3,000 acres of land in commercial and industrial projects. These transactions have leveraged $19 billion in total project investment and attracted or retained more than 400,000 jobs.

Through PIDC, the City offers a broad range of financing incentives, including below-market loans, grants, and tax-exempt financing designed to encourage economic growth in Philadelphia. Generally, financing is targeted to capital projects (building acquisition and renovation, new construction, machinery and equipment) that retain or grow employment in Philadelphia where the borrower is not otherwise able to fully fund the project with private-sector debt and equity. PIDC also offers financial assistance for working capital associated with business growth and employee training and additional capital programs for construction projects that incorporate sustainability measures. Incentives are capitalized by federal, state and local governmental resources, as well as private sector funds, and are available to for-profit and non-profit corporations both small and large.

The City also utilizes several place-based economic development strategies to spur development in Philadelphia. These strategies include: (i) a 10-year real estate tax abatement on all construction, as well as on improvements to existing properties; (ii) Commonwealth-designated Keystone Opportunity Zones (KOZ) in which eligible businesses may be exempt from all state and local business taxes until a specified date; (iii) tax increment financing; and (iv) commercial corridor revitalization through support of Business Development Districts (BIDs) and reimbursement for certain storefront improvements.

The City also supports business formation and job creation incentives in a variety of ways, including use of a Job Creation Tax Credit which may be applied against the City's Business Income and Receipts Tax liability. The City works with the Philadelphia business community to build internal and external alliances with minority, women and disabled owned business enterprises, and with private industries to help develop and promote these companies. The City also fosters entrepreneurship and small business formation through a dedicated office, the Office of Business Services. With the growth of Philadelphia's immigrant population, the City has actively pursued multilingual business outreach programming.

Key Development Achievements

Over the last two decades the efforts of these agencies, and others, have spurred significant economic changes. Today, Philadelphia is experiencing a construction boom, with over 45 major projects under construction concurrently, representing over $3.1 billion in combined public and private investment. Of those projects, 21 received no public subsidies. Higher education and health care institutions are currently most actively engaged in development, with $1.4 billion invested across 15 projects, the majority of which are concentrated in the University City and North Broad neighborhoods, while $769 million in new residential projects are currently under construction across various neighborhoods throughout the City. Table 3 reflects major real estate developments under construction as of May 2013.

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Table 3
Selected Major Development Investments Under Construction

Project Name, by Neighborhood	*Project Type*	*Cost in Millions*	*Est. Completion Date*
Center City		**$913.5**	
1900 Arch	Residential	$50.0	Q4 2014
2040 Market	Residential	$75.0	Q1 2013
2116 Chestnut Street	Residential	$100.0	Q2 2013
2400 South	Residential	$31.0	Q4 2013
Pennsylvania Convention Center Parking Garage	Parking	$27.0	Q1 2013
Dilworth Plaza	Public	$55.0	Q2 2014
Family Court	Public	$200.0	Q2 2014
Hilton Home2Suites	Hotel	$63.0	Q2 2013
Mormon Temple	Religious	$70.0	Q2 2014
Pennsylvania Medicine at Washington Square	Health Care	$75.0	Q3 2013
South Star Lofts	Mixed Use	$32.0	Q2 2014
The Granary	Residential	$90.0	Q3 2013
The Sansom	Residential	$26.0	Q2 2013
William Way	Residential	$19.5	Q4 2013
University City		**$1,232.0**	
Chestnut Square - Drexel Dormitory	University Residential	$97.0	Q3 2013
CHOP Ambulatory Care Center	University	$500.0	Q1 2015
Karabots Center	Health Care	$27.0	Q1 2013
Krishna P. Singh Center for Nanotechnology	University	$88.0	Q3 2013
LeBow College of Business Expansion - Drexel	University	$92.0	Q4 2013
Penn Presbyterian Medical Center	Health Care	$92.0	Q2 2014
Perelman Center - South Pavillion	Health Care	$100.0	Q1 2014
Science & Technology Center II University of the Sciences	University	$20.0	Q2 2014
Spectrum Health Center	Health Care	$14.0	Q3 2013
University Place	Office	$30.0	Q1 2013
URBN Center - Drexel	University	$70.0	Q1 2013
Wistar Institute	University	$102.0	Q2 2014
North Broad		**$569.9**	
PA Ballet Sidewalk Vault at 321 N. Broad St.	Commercial	$17.5	Q1 2013
Paseo Verde	Residential	$48.0	Q3 2013
Science, Education, & Research Center - Temple	University	$137.0	Q2 2014
Temple Dormitory	University Residential	$147.4	Q3 2013
Tower Place	Residential	$70.0	Q1 2013
Wanamaker Plaza - North Tower	Residential	$150.0	Q3 2014
Navy Yard		**$151.0**	
Building 661	Office	$30.0	Q1 2014
GlaxoSmithKline	Office	$80.0	Q1 2013
Marriott Courtyard	Hotel	$34.0	Q4 2013
Vincera Institute/Building 489	Office	$7.0	Q2 2013
Other Neighborhoods		**$245.8**	
Bakers Square	Commercial	$55.0	Q1 2013
Edison Square	Commercial	$12.6	Q4 2013
New Courtland Senior Health Center	Health Care	$10.0	Q3 2013
Rittenhouse Hill	Residential	$52.0	Q1 2014
Station at Manayunk	Residential	$40.0	Q4 2013
The Falls Center	Mixed Use	$12.8	Q3 2013
Belmont Mansion	Non-Profit	$1.4	Q1 2013
Centennial District Intermodal Transportation Center	Parking	$24.0	Q1 2013
Goldtex	Residential	$38.0	Q2 2013
Total		**$3,112.2**	

Table 4 below presents the 4-year trend of total value of building permits issued with a "Passed" final inspection by the City. The values shown include both new construction development as well as redevelopment of existing property.

Table 4
Total Building Permit Value with a "Passed" Final Inspection, by Year Completed

Calendar Year	Commercial	Residential	Institutional	Miscellaneous Site Work	Total
2008	$ 1,355,637,811	$ 424,677,243	$ 61,761,053	$ 92,882,179	**$ 1,934,958,286**
2009	1,023,643,944	647,304,077	398,496,674	97,336,048	**2,166,780,743**
2010	1,686,672,510	467,037,405	184,365,000	62,458,142	**2,400,533,058**
2011	984,851,222	524,312,029	242,804,057	68,149,412	**1,820,116,720**
2012	1,180,525,597	452,504,784	31,668,474	63,768,982	**1,728,467,836**
2013*	426,732,790	94,584,231	-	25,028,229	**546,345,250**
Total	**$ 6,658,063,874**	**$ 2,610,419,769**	**$ 919,095,258**	**$ 409,622,992**	**$ 10,597,201,893**

*Permits through May 14, 2013.
Source: City of Philadelphia Department of Licenses & Inspections

Convention, Hospitality and Tourism Achievements

With Philadelphia's historic assets, the City has natural appeal as a tourist destination. The City continues to invest and work to grow development and employment in the leisure and hospitality sector. In 1993, with support from the Commonwealth, the Pennsylvania Convention Center was completed, providing a total of 624,000 square feet of saleable space across its four exhibit halls, ballroom and banquet spaces. In 2011, a $786 million expansion, across 20 acres of central Philadelphia real estate, increased the facility to 2.3 million square feet. It is the largest single public works project in Pennsylvania history. In June 2013, the Pennsylvania Convention Center Authority selected SMG to manage and operate the Pennsylvania Convention Center.

The Pennsylvania Convention Center booked 225 meetings and conventions in 2012, with over 565,000 total hotel room nights, and an estimated economic impact of more than $813 million. Over 2.9 million room nights were sold in Center City in 2012, exceeding the previous all-time high, set in 2011, by 200,000 rooms.

The Pennsylvania Convention Center expects an average annual growth of five percent in hotel rooms booked each year from 2012 to 2018. In 2012, the Convention and Group segment of travelers purchased over one million rooms.

The number of hotel rooms available in the City in 1993 was 5,613, with annual demand of 1,331,684 hotel rooms, representing 65 percent occupancy. By the end of 2012, the City's hotel room inventory was 10,813 rooms, with an average occupancy at 73.4 percent. The City is working to support and encourage private hotel industry investment to build an additional 1,000 hotel rooms as an anchor to the Pennsylvania Convention Center. Table 5 lists notable hotel developments since 2008, representing $391 million dollars in investment.

Table 5
Notable Hotel Developments since 2008, in Millions

Four Points by Sheraton	$14.0 (Estimate)
Le Meridien	61.0 (Estimate)
Kimpton Hotel Palomar	94.0
Homewood Suites University City	43.0
Marriott Courtyard, Navy Yard	31.0
Hotel Monaco by Kimpton	88.0
Hilton Home2 Suites (Opening summer 2013)	60.0
Total	***$391.0 million***

Source: City of Philadelphia Commerce Department and PIDC

Despite a drop during the national recession beginning in 2008, employment in the leisure and hospitality sector exceeded pre-recession levels by 2011, with 60,684 people employed in the City within the sector. Preliminary data from the Bureau of Labor Statistics indicate that employment in this sector grew an estimated 3.5 percent in 2012.

In 2010, the City formed the Mayor's Hospitality Advisory Board, a collaborative effort between public, private, and nonprofit entities working to grow the hospitality sector in Philadelphia. The board proactively addresses issues such as customer experience and quality of life, hotel development, and marketing, including international marketing. Beyond working to increase convention business, the City and its regional partners work to increase leisure travelers as well. According to a 2011 report by the Greater Philadelphia Tourism and Marketing Corporation, since 1997, leisure hotel stays have more than tripled in Center City, Philadelphia, from 254,000 to 817,000 in 2012. This can be attributed to a number of factors, notably, an increased supply of hotel rooms and marketing of the region. The City, through the Greater Philadelphia Tourism and Marketing Corporation, supports domestic marketing efforts.

The City supports international marketing efforts through the Philadelphia Convention and Visitors Bureau (PHL CVB). The U.S. Office of Travel and Tourism Industries reported that international visitors to Philadelphia in 2011 numbered 613,000. While the PHL CVB continues to work to attract international visitors globally, 2012 priorities included increasing the share of visitors from growth markets like China, India, and Brazil. Table 6 shows the Greater Philadelphia Region's visitation growth from 1997 to 2011.

Table 6
Greater Philadelphia† Visitation Growth, 1997-2011
(in millions)

	1997	*2011*	*Net Change*	*Percent Growth*
Total Visitation	**26.7**	**37.9**	**11.2**	**41.9%**
Day	18.0	23.1	5.1	28.3%
Overnight	8.7	14.8	6.1	70.1%
Leisure	22.8	33.4	10.6	47%
Business	3.9	4.5	0. 6	15%

†Bucks, Chester, Delaware, Montgomery and Philadelphia counties.
Source: Greater Philadelphia Tourism and Marketing Corporation, Tourism Economics, Longwoods International

A significant driver of visitation to Philadelphia is the City's robust arts and culture sector. The Center City District reports that one-in-three tourists who come to Center City Philadelphia cite museums and cultural events as the primary reason for their visit. In 2011, Travel + Leisure magazine ranked Philadelphia as the number one city for arts and culture in the United States. According to the Cultural Vitality Index, developed by the City's Office of Arts, Culture and the Creative Economy with assistance from the Western States Art Federation, when comparing Philadelphia to national benchmarks, the City's creative economy was 54% stronger than the nation as a whole in 2010.

Organizations like the Philadelphia Museum of Art, the Kimmel Center, FringeArts, and the more than 400 smaller cultural organizations throughout the City help improve the quality of life for residents and visitors, as well as contribute to the estimated $580 million in revenue that the Philadelphia MSA's cultural organizations generated in 2010. Part of the wider economic impact generated by this revenue is demonstrated in the over 48,900 creative jobs that the sector supports within Philadelphia.

Table 7 lists attendance levels for many key attractions in Philadelphia. In 2012 these destinations had more than 15 million visitors.

Table 7
2012 Attendance Levels Philadelphia Visitor Center & Select Attractions

Visitor Center/Attraction	*Attendance*
Reading Terminal Market	6,425,376
Independence Visitor Center	2,427,585
Liberty Bell Center	2,006,157
Philadelphia Zoo	1,230,087
Franklin Institute	894,334
Franklin Square	856,630
Philadelphia Museum of Art	836,275
National Constitution Center	828,208
Independence Hall	686,788
Please Touch Museum	583,071
Eastern State Penitentiary	254,623
Academy of Natural Sciences	206,175
University of Pennsylvania Museum of Archaeology and Anthropology	197,397

Source: Philadelphia Area Hospitality Snapshot, PKF Consulting; Greater Philadelphia Tourism Marketing Corporation, 2012.

Historic District Investments

Key to the City's leisure and hospitality growth is the maintenance and investment in the City's extraordinary historic assets. As the birthplace of the country, Philadelphia remains a major tourist destination year-round, particularly the City's Historic District, which includes such national treasures as the Liberty Bell, Independence Hall, Carpenters' Hall, Betsy Ross' house and Elfreth's Alley, the nation's oldest residential street. The City continues to invest in the maintenance and expansion of the Historic District's tourist experience.

Since 2001, $538 million worth of improvements and construction have occurred in Philadelphia's historic district, with an additional $175 million either under construction or planned over the next three years. Table 8 lists certain key attractions, the investment in which have complemented the City's notable existing historic assets. Coupled with proposed developments, public and private, this district is expected to remain competitive in the national and international tourism markets for years to come.

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Table 8
Select Historic District Investments since 2001

Select Completed Investments	***Estimated Cost (Millions)***
Independence Visitors Center	$38.0
Independence National Historic Park Landscaping	18.0
National Constitution Center	185.0
Liberty Bell Center	13.0
Presidents House	8.2
Historic Philadelphia Franklin Square	10.0
Independence Park Institute	2.0
National Museum of Jewish American History	150.0
Hotel Monaco by Kimpton	88.0
Independence Hall Tower Investments	4.8
Select Completed Investment Total	***$517.0***
Select Future Investments	
Franklin Court Museum (Underway)	21.0
Penn Medicine at Washington Square (Underway)	$75.0
National Center For the American Revolution (Planned)	100.0
Select Future Investment Total	***$176.0***
Total	***$713.0***

Source: City of Philadelphia Department of Commerce and PIDC

Avenue of the Arts and North Broad Street Investment

The Avenue of the Arts is located along a mile-long section of South Broad Street between City Hall and Washington Avenue. Reinventing South Broad Street as the Avenue of the Arts, a world class cultural destination, has been a civic goal in Philadelphia for nearly two decades. Serious consideration of a performing arts district began with the work of the Central Philadelphia Development Corporation and others in the early 1980s. Cultural institutions, the William Penn Foundation, local property owners and civic leaders advanced the idea of a performing arts district on South Broad Street anchored by the Academy of Music and modeled after successful performing arts districts around the country. The transformation of South Broad Street into the Avenue of the Arts progressed in the 1990s. The Avenue of the Arts became a key element of the City's strategy to strengthen Center City as the region's premier cultural destination and an important element in the City's bid to expand its convention and tourism industries. Table 9 provides an overview of investment to date in this district.

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Table 9
Avenue of the Arts Completed and Planned Development Projects

Selected Completed Investments	***Estimated Cost (Millions)***
Academy of Music Upgrades 1994-2002	$30.0
Wilma Theater 1996	8.0
Philadelphia High School for the Creative and Performing Arts (CAPA) 1997	25.0
Ritz Carlton Hotel 2000	88.0
Kimmel Center 2001	235.0
University of the Arts 2008	3.0
Symphony House Condominiums 2008	165.0
Philadelphia Theatre Company 2007	19.5
Brandywine Workshop Upgrades 2009	1.0
Philadelphia Clef Club Upgrades 2009	0.5
Dranoff Residential/Restaurant/Retail 777 N. Broad 2009 / 2010	60.0
Residences at the Ritz 2010	175.0
Union League Civil War Museum 2011	2.4
Marine Club Condo	20.0
Rock School/PA Ballet	2.0
Broad Street Improvements	6.3
Kimmel Center Improvements	14.0
Selected Completed Investment Total	***$854.7***
Select Future Investments	
Academy of Music Upgrades (Underway)	2.2
South Star Lofts, Mixed-use Development (Underway)	32.0
260 S. Broad St (Proposed)	-
Selected Future Investment Total	***$34.2***
Total	***$888.9***

Source: City of Philadelphia Department of Commerce and PIDC

The 2011 expansion of the Pennsylvania Convention Center reignited development efforts along the key corridor of Broad Street north of City Hall (North Broad Street). Improvements include Lenfest Plaza, which is adjacent to the Pennsylvania Academy of Fine Arts (PAFA) and across from the Pennsylvania Convention Center expansion's entrance. Lenfest Plaza is also home to Paint Torch, a sculpture by world-renowned American artist Claes Oldenburg. Further north at Broad and Wood Streets, the Pennsylvania Ballet is poised to build their new $17.5 million headquarters, which will house rehearsal spaces and corporate offices when it opens in 2013.

At Spring Garden Street, the former State office building as well as the former headquarters of the Philadelphia Inquirer and Philadelphia Daily News have been sold and are slated for housing and commercial development. Just north of Spring Garden, previously closed commercial businesses have been redeveloped to include 101 new residential lofts, new restaurants and a catering facility. The redevelopment of this block was initiated with the conversion of an empty building into a mixed use development with 250 fully-leased apartments.

Temple University has undergone a significant transformation over the past three decades from a university with a mostly commuter-based enrollment to one in which on- and near-campus housing is now in high demand. To meet the increasingly residential nature of its student population, Temple University has invested heavily in the renovation of its various existing student housing inventory as well as, most recently, the development of the new state-of-the art 33-story Morgan Hall residence facility, which will house approximately 1,275 students in a combination of singles, four-bed and five-bed apartment-suites. Morgan Hall is scheduled to open mid-summer 2013. Temple University has also actively partnered with private developers in the expansion of on-campus housing alternatives for students. There are currently an estimated 12,000 students living on or around the Temple University campus, not including its satellite regional campuses or international campuses in Rome, Italy and Tokyo,

Japan. Temple University has begun $1.2 billion of investment, which will occur over the next decade, to further develop its North Broad Street frontage. Planned upgrades include a new student recreation facility, new academic buildings such as a 21st Century Library and a new science research lab.

Tying the corridor together is a planned streetscape enhancement project featuring trees, landscaping and decorative light masts, funded with a mix of federal, state and City funding. Table 10 is a list of recent, planned, and proposed, projects on the north Broad Street corridor.

Table 10
North Broad Street Development Projects

Development Project	***Estimated Cost (Millions)***
Pennsylvania Academy of the Fine Arts Hamilton Bldg 2005	$21.0
School District Administration Building Renovation 2005	92.0
640 N. Broad Apts/Retail 2006	50.0
Pennsylvania Convention Center Expansion 2011	786.0
PAFA Lenfest Plaza 2011	3.5
600 N. Broad Apts/Retail 2011	43.0
Ave Arts N. Beech (1600 N. Broad)	20.0
Progress Plaza/Fresh Grocer	14.0
1220 N. Broad Apt. Building Renovations	2.3
Beech Int'l House	22.0
Community Legal Services N. HQ	8.0
Selected Completed Investment Total	***$1,061.8***
Select Future Investments	
PA Ballet (Underway)	17.0
Paseo Verde Residential (Underway)	48.0
Morgan Hall (Temple University Student Residence) (Underway)	148.0
Science, Education, & Research Center – Temple University (Underway)	137.0
Tower Place (Underway)	70.0
Avenue of the Arts N. Streetscape Improvements (Planned)	12.0
Uptown Theatre (Proposed)	2.0
Inquirer Building Development (Proposed)	100.0
Blue Horizon Development (Proposed)	14.0
Divine Lorraine (Proposed)	42.0
Hannover North Broad (Proposed)	-
Selected Future Investment Total	***$590.0***
Total	***$1,651.8***

Source: City of Philadelphia Department of Commerce and PIDC

Parkway Investments

Conceived as early as 1871, and opening in 1929, the Benjamin Franklin Parkway runs from the area of City Hall to the Philadelphia Museum of Art and is at the heart of the City's museum district. A signature public investment, the Parkway was originally designed to ease traffic and beautify the City. Today it is central public space and is a principal tourist attraction. Key Parkway features include the Philadelphia Museum of Art, the Rodin Museum, the Franklin Institute, the Barnes Foundation, the Free Library of Philadelphia, the Academy of Natural History, the Swann Memorial Fountain, Cathedral Basilica of Saints Peter and Paul on Logan Square and numerous pieces of public art.

As detailed in Table 11, since 2004 the Parkway has undergone additional transformation, improving streetscape and pedestrian access, and adding additional amenities that serve citizens of Philadelphia and visitors alike. Improvements include parks and open space and additions to the City's

inventory of arts assets: The Barnes Foundation Philadelphia Campus and improvements to the Rodin Museum.

Table 11
Select Parkway Investments Since 2004

Select Investments	***Estimated Cost (Millions)***
Art Museum Renovations and Improvements	$141.0
Sister Cities Plaza, Café Cret, Aviator Park & Other Improvements	17.2
Perelman Wing – Philadelphia Museum of Art	90.0
Franklin Institute	50.0
Waterworks	5.8
Rodin Museum Renovations	20.9
Barnes Foundation	100.0
Philadelphia Museum of Art Loading Dock	81.0
Select Completed Investment Total	***$505.9***
Select Future Investments	
Mormon Temple (Underway)	70.0
Free Library Renovations (Underway)	20.0
Paines Skate Park (Underway)	5.0
Dilworth Plaza Renovation (Underway)	55.0
Franklin Institute (Underway)	65.0
Philadelphia Museum of Art Expansion (Planned)	419.0
Holocaust Memorial (Planned)	3.5
Select Future Investment Total	***$637.5***
Total	***$1,143.4***

Source: City of Philadelphia Department of Commerce and PIDC

Opened in May 2012 the Barnes Foundation is a welcome addition to the City's impressive roster of arts facilities, and has already had a significant impact on the City's leisure and hospitality industry. In its first seven months after opening, total attendance at the Barnes Foundation was more than 216,000, and with membership over 25,000, it is ranked among the top institutions of its kind in the country. Of overnight visitors, arts and culture visitors represent 17%, or about 1.36 million, of visitors to Philadelphia annually. According to a 2011 report from the Greater Philadelphia Tourism Marketing Corporation, arts and culture visitors spend 54% more than the average visitor, stay longer, and are more likely to stay in a hotel.

South Philadelphia Sports Complex

Another key element of Philadelphia's hospitality industry is professional sports. Philadelphia is the only city to have a professional hockey, basketball, baseball, and football team playing in a single district within a city, the Sports Complex Special Services District, created by the City in 2000.

Today, the South Philadelphia Sports Complex houses three professional sports facilities: The Wells Fargo Center opened in 1996 and is home to the Philadelphia Flyers (NHL) and Philadelphia 76ers (NBA); Lincoln Financial Field opened in 2003 and is home to the Philadelphia Eagles (NFL); and Citizens Bank Park opened in 2004 and is home to the Philadelphia Phillies (MLB). The City leveraged its $300 million investment to obtain $200 million in State funding, and significant team contributions to new stadium development, $172 million from the Phillies and $310 million from the Eagles; the total project represents $1.01 billion in total investment. The Phillies and the Eagles are contractually obligated to play in Philadelphia for 30 years and each team is required to make a $30 million contribution to a special Philadelphia Children's fund.

The Phillies have enjoyed one of the strongest home attendance figures of any team in Major League Baseball. In the 2009 through 2012 seasons, the Phillies had a paid home season attendance in excess of 100 percent of actual seating at Citizen's Bank Park. In 2010, the Phillies had the second highest attendance of any team in Major League Baseball and in both 2011 and 2012 the Phillies registered the highest home attendance of any team in Major League Baseball. Paid home season attendance for the Eagles in Lincoln Financial Field has exceeded 100 percent of actual seating, since its opening in 2003.

The most recent development for the area is Xfinity Live! Philadelphia, a 50,000 square foot sports entertainment and dining complex which opened in March 2012. The privately funded, $60 million venue includes a miniature sports field, hosting free concerts and other activities, an outdoor theater accommodating sports games and family films, and a dozen dining and bar establishments. The complex, a Comcast-Spectacor and Cordish owned company, also hosts the first ever, NBC Sports Arena, featuring a 32-foot LED HD television, displaying the NBC Sports Ticker, and in-game promotions. The entire complex is open year-round and sustains 276 full-time equivalent jobs.

Gaming

The Pennsylvania Race Horse Development and Gaming Act of 2004 ("Act 71") authorized 14 slot machine gaming operator licenses to be awarded to applicants approved by the Pennsylvania Gaming Control Board. In 2010 subsequent legislation was passed by the Pennsylvania General Assembly authorizing table games at properly licensed facilities and also provided for an additional casino resort license to be awarded at a future date. Act 71 designated two stand-alone casino licenses for the City of Philadelphia. The first of the two licenses was awarded to SugarHouse Casino, which opened on September 23, 2010.

SugarHouse Casino sits on the Delaware River waterfront offering an array of slot machines, table games and dining options. In 2012 the Casino's total revenue was $274,133,869, and it employed 1,098 people. SugarHouse currently has a high level of financial success. While average monthly revenue per slot machine is commensurate with competing casinos at $9,882, SugarHouse's average monthly revenue per table game is nearly double that of its top competitors in Pennsylvania and Atlantic City, NJ, at $128,007. After previously receiving local approval for its plan, on May 15, 2013 SugarHouse received approval from the Pennsylvania Gaming Control Board to undertake an expansion of its operations, including additional parking and a larger gaming floor.

The Pennsylvania Gaming Control Board is also reviewing six applications to award a second casino license in Philadelphia County. An announcement of the winning proposal is expected in fall 2013. Pennsylvania ranks behind only Nevada in terms of total gambling revenue and total slot machine revenue. Gross slot terminal revenues for SugarHouse increased by 60.1% from 2011 to 2012, while gross table game revenue increased by 54.5% over the same period.

Waterfront Developments

Taking advantage of the City's geographic assets, the Schuylkill River and the Delaware River, the City is redeveloping its waterfront to accommodate a variety of developments, including mixed-use projects and housing, parks and recreational trails, and hotels. These projects improve quality of life for residents and improve the visitor experience, but also are a catalyst for environmental remediation of former industrial property within the City.

Delaware River Waterfront Corporation. The Delaware River has historically been a center of activity, industry, and commerce, bounded at its north and south ends by active port facilities. The Master Plan for the Central Delaware, adopted by the City in 2011, recognizes this character and aims to create region-serving amenities while also reconnecting the City's residents and visitors with the waterfront. Delaware River Waterfront Corporation (DRWC), in partnership with the City, is a nonprofit corporation that works to transform the central Delaware River waterfront into a vibrant destination for recreational,

cultural, and commercial activities, and serves as a catalyst for investment in public parks, trails, maritime, residential, retail, hotel and other improvements that create a vibrant amenity for residents and visitors.

Schuylkill River Development Corporation. The tidal Schuylkill River has more than 16 miles of riverfront through 27 neighborhoods, and includes four national historic landmarks. Redevelopment along the river is managed by a partnership between the Schuylkill River Development Corporation (SRDC), the Department of Parks & Recreation, and the Department of Commerce. SRDC works with federal, state, City and private agencies to coordinate, plan and implement economic, recreational, environmental and cultural improvements and tourism initiatives on the Schuylkill River. From 1992 to 2012, SRDC worked with the City to create 1.8 miles of riverfront trails within 17 acres of premiere park space in the heart of the City, and added amenities to the Schuylkill River Park such as floating docks, fishing piers, and composting toilets. SRDC continues to work towards meeting its goal of creating and maintaining 10 miles of trail and 70 acres of green space along the tidal Schuylkill River in Philadelphia.

Penn Park. Although not a publically funded project, The University of Pennsylvania's Penn Park is a significant piece of infrastructure that strengthens the connection between University City and Center City, improving the resident and visitor experience. It lies along the west bank of the Schuylkill River, and complements the work of the SRDC.

The University of Pennsylvania opened Penn Park in 2011, increasing the University's green space by 20%. The park includes 24 acres of playing fields, open recreational space and pedestrian walkways located between Walnut and South Streets. Formerly parking lots, the park embraces sustainable features, including underground basins that capture rainwater and mitigate storm water overflow into the Schuylkill River. 45,000 cubic yards of soil, 2,200 pilings and more than 500 trees were installed to create canopied hills and picnic areas.

Strategic Business Improvement Districts (BID)

In partnership with business owners, residents, and non-profit organizations, a driver of the revitalization of commercial corridors in Philadelphia has been the successful creation of key business improvement districts (BIDs) starting in 1990. BIDs provide an agreed-upon set of business services and improvements to businesses within an established boundary in exchange for a mandatory annual assessment from those businesses. BIDs are authorized by City Council. Currently, Philadelphia has twelve (12) BIDs/Special Services Districts and two (2) voluntary services districts. Since their inception, these districts have seen population growth, increased property values, lowered vacancy rates, and are some of the most desirable places to live and work in Philadelphia.

The Center City District and the University City District are the largest business improvement districts in the City which have played a pivotal role in the resurgence of their service areas,

The Center City District was founded in 1990 as a private-sector business improvement district. The district encompasses 120 blocks and more than 4,500 individual properties in an area that extends beyond the central business district, roughly from Vine Street to Spruce Street and 30th Street to 4th Street. Center City District provides security, cleaning and promotional services that supplement, but do not replace, basic services provided by the City and the fundamental responsibilities of property owners. Center City District also makes physical improvements to the downtown, installing and maintaining lighting, signs, banners, trees and landscape elements. The type of improvements managed by the Center City District are often credited with the area's increased desirability as a place to live and work, attracting a population with higher educational attainment and higher household income than national averages. At 28 percent of the population, greater Center City has more than twice the national average of residents ages 25-34, and 66 percent of Center City residents 25 and older had a Bachelor of Arts degree or higher, compared to the national average of 28 percent. From 2000 to 2010, household income in Center City increased 49 percent to $59,345 from $39,715.

The University City District, founded in 1997, is Philadelphia's second largest business improvement district by area, population, and employment. The 2.2 square mile area holds 64,893 jobs, with an economy centered on its universities and hospitals. Like the Center City District, the University City District provides security, cleaning and promotional services. The District serves as an economic development entity through assisting both start-up and established businesses with regulatory compliance and in applying for grants, coordinating technical resources with neighborhood commercial corridors, and providing career networking opportunities for its residents. University City District works with city agencies in planning and implementing improvements for public spaces and transportation infrastructure.

Office Market and New Development

Philadelphia currently has approximately 41.9 million square feet of office space in the central business district, and the market continues to build momentum in 2013. Total net absorption during the first quarter of 2013 was negative, mostly due to GlaxoSmithKline's move from downtown Philadelphia to a new facility in the Navy Yard. Despite this, Philadelphia's other office real estate submarkets experienced positive absorption, and the overall outlook is positive.

In the fourth quarter of 2012, Cushman & Wakefield ranked Philadelphia's downtown office market as having the eleventh best vacancy rate among the twenty largest downtown office markets in the United States, with a vacancy rate of 14.5 percent. The Class A Gross Rental Rate in Philadelphia's central business district rose just slightly from the first quarter of 2012 to the first quarter of 2013 to $26.78 per sq. ft.

Table 12
Comparative Office Vacancy Rates, 20 Largest Office Markets
Fourth Quarter 2012

Market	*Direct Vacancy Rate*
Manhattan (Midtown South)	6.20%
Pittsburgh	8.20%
Manhattan (Midtown)	8.40%
San Francisco	9.20%
Cleveland	11.80%
Washington DC	11.80%
Houston	12.10%
Portland	13.40%
Denver	14.10%
Boston	14.10%
Philadelphia	**14.50%**
All Markets	**14.80%**
Orange County	15.50%
Seattle	15.50%
Chicago	16.40%
Los Angeles	17.60%
Minneapolis	18.00%
Atlanta	19.70%
Dallas	19.90%
Detroit	22.90%
Phoenix	23.00%

Source: Cushman Wakefield US Market Beat, Fourth Quarter 2012

Navy Yard

Acquired in 2000 by PIDC through the Base Realignment and Closure process of the federal government, the Philadelphia Navy Yard represents the successful transition of a former naval property with a 125-year history as an active military base to a growing industrial asset. The Navy Yard is a 1,200 acre mixed-use office, research and industrial park, serving more than 120 companies. Currently 10,000

people work on site, supporting diverse tenants such as: the Aker Philadelphia Shipyard, one of the world's most advanced commercial shipbuilding facilities, the corporate headquarters for retailer Urban Outfitters, a new 205,000 square foot, LEED certified office building for pharmaceutical company GlaxoSmithKline, and a LEED-Silver certified baking facility for the Tasty Baking Company. In excess of 6.0 million square feet of space is currently occupied with significant additional capacity available for office, industrial, retail and residential development.

The Navy Yard is also home to the Energy Efficient Buildings Hub (EEB Hub), a consortium of universities, businesses, and economic development groups, working to develop energy efficient building technologies. The EEB Hub is the recipient of $160 million in State and Federal funding and part of a U.S. Department of Energy program to create national Energy Innovation Hubs.

In February of 2013, PIDC released an updated Navy Yard master plan, detailing a new, comprehensive vision for the Navy Yard. In the plan are specific recommendations for adding over 12 million square feet of new construction and historic renovation supporting office, R&D, industrial and residential development, complemented with commercial retail amenities, open spaces and expanded mass transit. At full build, The Navy Yard will support more than 20,000 employees and over $2 billion in private investment.

Retail Market

Data from the Bureau of Labor Statistics show that 46,837 people were employed in retail trades and 42,407 in food service and drinking establishments in 2011. The number of private retail establishments and private food services and drinking establishments has recovered from pre-recession levels, increasing by 92 and 71 establishments respectively from 2007 to 2011. According to Cushman and Wakefield, Philadelphia continues to establish itself as a retail destination.

Opening in a prime location at One South Broad Street, Walgreens plans to open a 26,000 square foot luxury concept store in summer 2013. Additionally, cosmetic store Ulta recently announced its first Center City location, opening in summer 2013.

Plans to revitalize East Market Street continue. In April 2013, the Pennsylvania Real Estate Investment Trust (PREIT) acquired 430,000 square feet of retail and commercial space at 907 Market Street, giving a single entity ownership of The Gallery at Market East, a 130-store retail mall complex. Within a block, Marshalls opened a 60,000 square foot store in October 2012, also on East Market Street. Revitalizing East Market Street is a priority for the City, and City officials are working closely with PREIT to bring additional commercial and retail tenants to the area

Table 13 reflects taxable retail sales for the City from Fiscal Years 2007 to 2012

Table 13
Taxable Retail Sales 2007-2012
(Amounts in Thousands of USD)

Fiscal Year	Taxable Sales
2007	13,643,582
2008	13,704,958
2009	13,211,446
2010	13,050,202
2011	12,403,442
2012	12,721,337

Source: Figures determined by dividing the City's local sales tax reported by the Pennsylvania Department of Revenue by the applicable local sales tax rate.

Food and Dining

Philadelphia has experienced a revival in restaurant establishments especially in the Center City District, indicating an improved quality of life and vibrancy of that area. The Center City District's investment in the beautification of the area as well as the City's support in making the area more welcoming to visitors and diners sparked a significant increase in the number of indoor/outdoor dining establishments throughout the Center City District and other neighborhoods throughout the City. In 1995 no sidewalk cafes existed in Center City. By 2012 the same area had 296 sidewalk cafes. Additionally. from 1992 to 2010, the number of fine dining establishments within the Center City District increased 322%. Rapid development is also reflected in South Philadelphia, where East Passyunk was named a Top Ten Best Foodie Street in America by Food and Wine Magazine in May 2013.

Airport

The Airport System consists of Philadelphia International Airport (the "Airport" or "PHL") and the Northeast Philadelphia Airport ("PNE") and is owned by the City and operated by the Division of Aviation.

Since 2000, $1.5 billion has been invested in capital improvements at PHL. The Airport completed a 10-year planning and environmental review process in January 2011 as the Federal Aviation Administration (the "FAA") issued a Record of Decision approving the Airport's Capacity Enhancement Program (the "CEP") and in September 2011 awarded a $466.5 million letter of intent to provide funding for certain elements of the CEP. The CEP provides for a new runway, which will allow independent simultaneous aircraft operations in poor weather conditions, to significantly reduce delays; two runway extensions; enlarging and reconfiguring the existing terminal complex; relocating several off-airport facilities; developing a centralized ground transportation center; developing additional parking facilities; and constructing an automated people mover for the transport of passengers between terminals that will interface with the existing SEPTA rail line. In 2010, the cost of the CEP was estimated to be $6.4 billion and the total period for the phased construction is anticipated to be approximately 13 calendar years, lasting from 2013 through 2025. A portion of the funding for this longer-term capital program will require the issuance of additional airport revenue bonds.

Port of Philadelphia

The Port of Philadelphia is located on the Delaware River within the City limits. Port facilities are serviced by three Class I railroads (CP Rail, CSX and Norfolk Southern) and provide service to major eastern Canadian points as well as Midwestern, southern and southeastern U.S. destinations. Terminal facilities, encompassing 4 million square feet of warehousing, are located in close proximity to I-95 and I-76. Over 300 local trucking companies operate in the MSA, with a combined total of over 15,000 trucks.

The Port of Philadelphia moved 4,418,674 metric tons of cargo in 2012, and is in the midst of an $120 million expansion project which will ultimately increase cargo capacity in the MSA. The Port of Philadelphia is the top ranked port for meat importing in the United States, and is among the nation's leaders for fruit, cocoa, forest products and steel. In 2012 the port handled 197,854 tons of steel, an increase of 21 percent.

ECONOMIC BASE AND EMPLOYMENT

The Philadelphia Economy

The City's economy is composed of diverse industries, with virtually all classes of industrial and commercial businesses represented. The City is a major business and personal services center with strengths in insurance, law, finance, health, education, and utilities. Given the geographic proximity of the City to the four adjacent and contiguous counties (Bucks, Chester, Delaware and Montgomery) that, together with the City, comprise the Philadelphia PMSA, the Philadelphia economy can be viewed to

include portions of these counties. As of 2010, there were approximately 174,000 residents of the four Pennsylvania suburban counties working within the City. An additional 117,000 commuters came to Philadelphia from counties outside the PMSA. The City also provides a destination for entertainment, arts, dining and sports for residents of the suburban counties, as well as for those residents of the counties comprising the extended Philadelphia MSA. (See Philadelphia Metropolitan Statistical Area (MSA) herein for further information.)

The cost of living in the City is relatively moderate compared to other major metropolitan areas. The City, as one of the country's education centers, offers the business community a large, diverse, and industrious labor pool.

Key Industries

Philadelphia has developed an increasingly diverse economy centered on healthcare, higher education, professional and business services, and leisure and hospitality. In its January 2012 Monthly Labor Review, the Bureau of Labor Statistics predicted that these sectors would grow nationally in the decade between 2010 and 2020. Healthcare and social assistance is predicted to grow 3% annually, educational services 2.3% annually, and professional and business services 2.1% annually, while financial activities and leisure and hospitality are predicted to both see a 1% annual gain.

In 2011 these four sectors - health services, higher education, professional and business services, and leisure and hospitality - collectively represented 60% of total employment in the City, and 63 percent of total wages. Philadelphia has recovered 14,500 private sector jobs since the peak of the recession in 2009, and the 2012 annual average total employment is now slightly higher than it was in 2005. As reflected in Table 17, employment has generally trended upwards in education and health services and leisure and hospitality over the period shown. These sectors provide stability to the City's overall economy.

Compared to the nation, Philadelphia demonstrates concentrations in seven sectors: educational services, health care and social assistance, management of companies and enterprises, finance and insurance, professional and technical services, arts, entertainment, and recreation, and transportation and warehousing. Of these seven sectors, the City has a higher concentration of employment than the Commonwealth of Pennsylvania in five sectors: education services, health care and social assistance, finance and insurance, professional and technical services, and arts, entertainment and recreation.

The concentration of education services not only provides stable support to the local economy, but also generates a steady and educated workforce, especially fueling the City's professional services and healthcare industries. The City is capitalizing on the region's assets to become a leader in research generated by life sciences and educational institutions. Several sites now foster incubator facilities, including the Navy Yard, the Science Center in West Philadelphia and the west bank of the Schuylkill River bordered by the University of Pennsylvania, Children's Hospital of Pennsylvania and Drexel University.

The City's economy also enjoys a large market share of for-profit creative industry companies which are entrepreneurial and technology-driven, known as businesses representing the "creative economy." The sector includes architecture, communications, design and merchandising, digital media, engineering, fashion design, graphic arts, information technology, interior and industrial design, marketing, music, film and video production, multimedia design, photography, planning product design and software development.

In September of 2012, the third largest national venture capital firm by volume, First Round Capital, moved its headquarters from West Conshohocken, PA to a 10,000 square foot facility in Philadelphia that includes incubator and co-working space. The move follows other large suburban firms, Bentley Systems and Fiberlink that have opened "satellite" offices in close proximity to Philadelphia universities.

Today Philadelphia entrepreneurs can access a burgeoning network of incubator, multi-tenant, and co-working spaces across the city. More than 44 organizations house a diverse range of startups from fashion and video gaming, to bio-tech and clean energy. Other incubators and advocates like Ben Franklin Technology Partners, DreamIt Ventures, Philly Startup Leaders, University City Science Center, and Technically Philly provide networking opportunities and access to venture capital. Capitalizing on this momentum, the City launched an initiative called Startup PHL in partnership with PIDC in October of 2012. The initiative includes a $6 million seed-stage investment fund managed by First Round Capital, and a grants to organizations that offer programming to entrepreneurs.

Table 14
Ratio of Philadelphia and Pennsylvania Industry Concentrations Compared to the United States

Industry	Pennsylvania	Philadelphia County
Educational Services	1.62	4.74
Health Care and Social Assistance	1.23	1.74
Management of Companies and Enterprises	1.44	1.37
Finance and Insurance	1.02	1.20
Professional and Technical Services	0.90	1.13
Arts, Entertainment, and Recreation	1.07	1.11
Transportation and Warehousing	1.13	1.09

Source BLS: 2011 Location Quotient, Quarterly Census of Employment and Wages Data. Ratio of analysis-industry employment in the analysis area to base-industry employment in the analysis area divided by the ratio of analysis-industry employment in the base area to base-industry employment in the base area.

Educational Institutions

The Philadelphia MSA plus Mercer County, New Jersey, has the second largest concentration of students on the East Coast with 101 degree granting institutions of higher education and a total enrollment of over 300,000 students. Included among these institutions are the University of Pennsylvania, Temple University, Drexel University, St. Joseph's University, and LaSalle University. Within a short drive from the City are such schools as Villanova University, Bryn Mawr College, Haverford College, Swarthmore College, Lincoln University, and the Camden Campus of Rutgers University.

Hospitals and Medical Centers

The City is a center for health, education, research and science facilities with the nation's largest concentration of healthcare resources within a 100-mile radius. There are presently more than 30 hospitals, five medical schools, two dental schools, two pharmacy schools, as well as schools of optometry, podiatry and veterinary medicine, and the Philadelphia Center for Health Care Sciences in West Philadelphia. The City is one of the largest health care and health care education centers in the world, and a number of the nation's largest pharmaceutical companies are located in the Philadelphia area.

Major research facilities are also located in the City, including those located at its universities, its medical schools, The Wistar Institute, the Fox Chase Cancer Center, and the University City Science Center. The Children's Hospital of Philadelphia has recently completed the construction of a new $400 million biomedical research facility located within the Philadelphia Center for Health Care Sciences in West Philadelphia. Philadelphia is home to two of the nation's 41 National Cancer Institute-designated Comprehensive Cancer Centers (the Abramson Cancer Center at the University of Pennsylvania and Fox Chase Cancer Center, which is part of the Temple University Health System). Additionally, Philadelphia is also home to two NCI-designated Cancer Centers (Kimmel Cancer Center and the Wistar Institute Cancer Center).

Table 15 lists the number of beds in each of the major hospitals and medical centers in the City, as of June 2012, and does not reflect any mergers, consolidations or closures that have occurred since that date.

Table 15
Hospitals and Medical Centers as of June 2012

Institution Name	Total Beds
Aria Health[1]	485
Belmont Center for Comprehensive Treatment	147
Chestnut Hill Hospital	119
Einstein Medical Center-Philadelphia	514
Fox Chase Cancer Center	100
Girard Medical Center/Continuing Care Hospital of Philadelphia	51
Hahnemann University Hospital	510
Hospital of the University of Pennsylvania	784
Jeanes Hospital	160
Kensington Hospital	35
Magee Rehabilitation Hospital	96
Mercy Philadelphia Hospital	180
Methodist Hospital Division - TJUH	165
Nazareth Hospital	193
Penn Presbyterian Medical Center	272
Pennsylvania Hospital	435
Roxborough Memorial Hospital	140
St. Joseph's Hospital	121
St. Mary Medical Center	301
St. Christopher's Hospital for Children	175
Shriners Hospitals for Children - Philadelphia	39
Temple University Hospital[2]	740
The Children's Hospital of Philadelphia	486
Thomas Jefferson University Hospital	738

Source: Delaware Valley Healthcare Council of HAP, Monthly Utilization Report, June 2012.
[1]Aria Health System includes data for all three divisions - Frankford, Torresdale and Bucks County.
[2]Temple includes data for Episcopal Hospital.

Children's Hospital Expansion. Top ranked Children's Hospital of Philadelphia (CHOP) is one of the largest and oldest children's hospitals in the world. Since 2002, CHOP has invested over $2.6 billion in its expansion in Philadelphia, which is one of the largest hospital expansions in the U.S. The $500 million Ruth and Tristram Colket, Jr. Translational Research Building opened in 2010. The Trustees of CHOP recently approved an additional investment of $2.7 billion in CHOP's ambitious expansion in Philadelphia through 2017. The $500 million, 700,000 square foot Buerger Center for Advanced Pediatric Care is currently under construction and is scheduled to open in 2015. Future proposals include a nine-acre, 1.5 million square foot medical research campus along on the east banks of the Schuylkill River.

University of Pennsylvania. The University of Pennsylvania, a private Ivy League institution, sits on a 300 acre campus in West Philadelphia across the river from downtown Philadelphia. Its more than 20,000 undergraduate, graduate and professional full time students attend more than 12 graduate and professional schools on its single campus within the City. The University and its health system is the largest private sector employer in Philadelphia employing over 30,000 staff with an annual budget of $6 billion. The University recently completed a $400 million medical research building, the Smilow Center for Translational Research, which opened in May 2011, and has since invested additional amounts to fit out three floors in the facility. In 2011, the University broke ground on the Krishna P. Singh Center for Nanotechnology, an $88 million nanotechnology research facility combining expertise from both its School of Arts and Sciences and its School of Engineering and Applied Science. This newest research facility will open in November 2013.

The Wistar Institute. The Wistar Institute was founded in 1892 and was the nation's first independent biomedical research facility. The Institute has started construction on a $100 million expansion and renovation project that will significantly increase its ability to carry out its mission.

Drexel University. Founded in 1891 as the Drexel Institute of Science, Art and Industry, the University occupies a 74-acre University City Main Campus. Drexel's student body has grown considerably in the past two decades, from 4,500 in 1996 to over 10,000 students today, resulting in expansion of both curriculum and campus. Drexel's 2007 Master Plan not only lays the foundation for the expansion of its institutional facilities and student housing, but calls for considerable investment in green space, streetscape improvements, and mixed-use development that includes retail.

To date, $232 million is allocated for construction already in progress, and an estimated $300 million will be allocated for projected construction projects through 2016. In September, 2011 Drexel University opened the doors to its new $69-million science building, the Constantine N. Papadakis Integrated Sciences Building. The University has begun construction of a $92 million 12-story facility for its LeBow School of Business, scheduled to open in 2014, and a new mixed use residential and retail project on Chestnut Street. Design is also complete for a $44 million renovation of a 161,000 square foot building housing the College of Media Arts and Design.

Principal Employers in the City

Table 16 lists Philadelphia's 15 largest employers, by wage tax revenue. Five are hospitals and providers of other medical services, three are renowned universities, and four are in the finance and insurance industry. Other sectors represented include manufacturing, information, and leisure and hospitality: GlaxoSmithKline LLC, an international researcher and manufacturer of pharmaceuticals, the headquarters for Comcast Corporation, one of the country's largest IT and communications providers, and Aramark Corporation, an employer of food service workers are among Philadelphia's largest wage tax contributors. This list highlights Philadelphia's strength in its centers of medicine and higher learning.

Two of the City's largest employers, Aramark Corporation and Comcast Corporation are also Fortune 500 companies. Although not among the largest employers, other Fortune 500 companies found in Philadelphia are Crown Holdings Inc., Cigna Corporation, and Sunoco Inc. A number of Fortune 1000 companies are also within the City: FMC Corporation, Urban Outfitters Inc., and Radian Group Inc.

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Table 16
Principal Employers by Wage Tax Revenue, May 2013

Employer	*Sector*	*Employees within Philadelphia*
University of Pennsylvania	Education	16,539+
University of Pennsylvania Health System	Health	15,488
Children's Hospital of Philadelphia	Health	9,788
Drexel University	Education	9,356
Thomas Jefferson University Hospitals	Health	7,899
Temple University	Education	7,673+
Aramark Corporation	Food Service	6,353
Albert Einstein Medical	Health	5,900
Temple University Hospital, Inc.	Health	5,414
Thomas Jefferson University	Education	4,192
Independence Blue Cross	Insurance	3,534
Comcast Corporation	Communications	3,250+
Tenet Healthsystems Hahnemann LLC	Health	2,782
Ace Insurance Company	Insurance	1,388+
GlaxoSmithKline LLC	Bio-tech	1,300*
Radian Group, Inc.	Insurance	585
	Total	101,441

Source: City of Philadelphia Department of Commerce
* Estimate as of January 2012
+As of January 2012

The Labor Force

The City demonstrates strength in education and health services relative to its surrounding Pennsylvania suburbs. Just under a third of Philadelphia's employment is in education and health services. While considerable in suburban counties, this sector represents under one-fifth of their combined economy.

Both Philadelphia and its surrounding suburbs experienced employment losses during the economic contraction in the early 2000's and as a result of the 2008 subprime mortgage crisis and the recession that followed. Associated with the housing bubble years of 2004 and 2008, both Philadelphia and its surrounding suburbs experienced employment gains.

Table 17 shows non-farm payroll employment in the City over the last decade by industry sectors.

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Table 17
Philadelphia
Non-Farm Payroll Employment[1]
(Amounts in Thousands)

Sector	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	Change from 2002	Average Annual % Change	Share of Total Employment
Construction & Mining	12.9	12.3	11.4	12.0	12.4	11.9	12.1	10.1	10.0	10.0	10.3	-20.2%	-2.2%	1.6%
Manufacturing	37.7	34.0	32.6	31.2	29.9	28.5	27.8	25.7	24.7	23.7	23.3	-38.2%	-4.7%	3.5%
Trade, Transportation, & Utilities	98.5	95.8	90.9	90.0	88.5	87.8	87.6	85.9	86.6	87.4	89.2	-9.4%	-1.0%	13.5%
Information	17.0	15.9	13.6	13.2	12.8	12.6	12.5	12.6	12.2	12.0	11.9	-30.0%	-3.5%	1.8%
Financial Activities	52.3	50.7	49.0	48.2	47.7	47.1	46.5	44.9	42.6	41.6	41.1	-21.4%	-2.4%	6.2%
Professional & Business Services	82.9	80.9	80.3	82.4	84.2	85.8	85.3	80.1	81.6	83.0	83.3	0.5%	0.0%	12.6%
Education & Health Services	181	185.3	184.1	186.8	192.2	197.1	201.6	204.8	207.7	212.0	213.7	18.1%	1.7%	32.3%
Leisure & Hospitality	54.2	52.9	54.6	56.6	58.0	58.0	57.9	56.9	58.4	60.6	62.6	15.5%	1.5%	9.5%
Other Services	29.9	29.0	28.5	28.5	28.2	28.0	27.8	26.6	26.5	26.4	26.7	-10.7%	-1.1%	4.0%
Private Sector Total	566.4	556.8	545.0	548.9	553.9	556.8	559.1	547.6	550.3	556.7	562.1	-0.76%	-0.1%	85.0%
Government	117.1	114.7	113.0	111.4	108.6	105.9	104.3	105.1	106.8	103.4	99.3	-15.2%	-1.6%	15.0%
Total	683.5	671.5	658.0	660.3	662.5	662.7	663.4	652.7	657.1	660.1	661.4	-3.2%	-0.3%	100.0%

Source: Bureau of Labor Statistics (BLS) 2012.
[1] Includes persons employed within the City, without regard to residency.

Unemployment

Philadelphia continues to experience unemployment at a rate higher than the national average. However at the start of the recession, from 2008 to 2009, Philadelphia's unemployment rate increased by 2.5 percent, a full percent lower than the overall increase in unemployment for the country during the same period. Mayor Nutter has made lowering unemployment a top priority in his second term. To that end, the City has created a Jobs Commission, which in January 2013 released a strategic plan to lower unemployment.

Table 18 below shows five years of unemployment information for Philadelphia, the MSA, the Commonwealth and the United States.

Table 18
Unemployment
Five-Year Unemployment in Selected Geographical Areas, 2008-2012

Geographical Area	**2008**	**2009**	**2010**	**2011**	**2012**	***Change 2008-2012***
United States	5.8%	9.3%	9.6%	8.9%	8.1%	2.3%
Pennsylvania	5.4	7.9	7.9	7.9	7.9	2.5
Philadelphia-Camden-Wilimington MSA	5.3	8.2	8.6	8.6	8.5	3.2
Philadelphia	**7.1**	**9.6**	**10.8**	**10.8**	**10.8**	**3.7**

Source: Local Area Unemployment Statistics, Bureau of Labor Statistics

Throughout the 1990s and as late as 2009, Philadelphia narrowed the gap between its unemployment levels and national levels. The effects of the recession are reflected in 2010 and 2011.

Median and Average Household Income

Table 19 and 20 show median family income, which includes related people living together, and median household income, which includes unrelated individuals living together, for Philadelphia, the MSA, the Commonwealth and the United States. Table 20 shows the average household income for the same areas. Over the period 2005-2011, median household income for Philadelphia increased by 9.8 percent, while average household income increased by 29.6 percent as a result of an influx of higher income households.

Table 19
Median Family Income* for Selected Geographical Areas, 2005-2011

Geographical Area	2005	2006	2007	2008	2009	2010	2011	*Change 2005-2011*
United States	$55,832	$58,526	$60,374	$63,211	$62,367	$62,112	$62,735	$6,903
Pennsylvania	55,904	58,148	60,243	63,071	62,772	63,040	64,331	8,427
Philadelphia-Camden-Wilmington MSA	67,830	70,781	73,536	76,978	76,812	76,710	78,083	10,253
Philadelphia	**40,534**	**43,049**	**44,134**	**46,365**	**45,826**	**45,148**	**45,044**	**4,510**

*Includes related people living together.
Source: American Community Survey, Annual and 3-Year Estimates

Table 20
Median Household Income* for Selected Geographical Areas, 2005-2011

Geographical Area	2005	2006	2007	2008	2009	2010	2011	Change 2005 - 2011
United States	$46,242	$48,451	$50,007	$52,175	$51,369	$51,222	$51,484	**$5,242**
Pennsylvania	44,537	46,259	47,913	50,272	50,028	50,289	51,016	6,479
Philadelphia-Camden-Wilmington MSA	53,555	55,593	57,831	60,331	60,232	60,037	60,625	7,070
Philadelphia	**32,753**	**33,229**	**34,767**	**36,222**	**36,725**	**35,952**	**35,956**	**3,203**

*Includes unrelated people living together.
Source: American Community Survey, Annual and 3-Year Estimates

Given the City's high percentage of knowledge-based industries, including higher education, healthcare and other professional services, such as law, accounting and finance, the average household income within the City is materially higher than the median household income. Also contributing to this effect is the fact that Philadelphia has the fifth largest college and graduate program enrolled population among major U.S. cities. These individuals, numbering approximately 155,000, or 10% of the City's overall population, generally have very low or no income, as they are either unemployed or working only part-time while they complete their education. The City's large student population has also historically led to an overstatement of the City's percentage of residents living at or below the poverty level. Average household income, which more accurately adjusts for the City's large student population and strong, well-paying knowledge-based industries, is summarized in Table 21 below.

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Table 21
Average Household Income for Selected Geographical Areas
2000-2011

Year	City of Philadelphia	Philadelphia-Camden-Wilmington MSA	Pennsylvania	United States	Philadelphia as % of US
2000	$ 63,975	$ 91,695	$ 77,278	$ 79,979	$ 79.99%
2001	65,744	93,854	78,414	81,858	80.31
2002	69,410	96,609	80,121	82,472	84.16
2003	72,077	99,382	82,135	84,241	85.56
2004	74,191	103,811	85,426	88,626	83.71
2005	76,764	107,515	88,016	92,565	82.93
2006	81,298	115,487	94,112	98,442	82.58
2007	85,595	119,561	98,745	102,911	83.17
2008	90,461	124,272	102,787	107,153	84.42
2009	89,759	119,819	99,086	101,927	88.06
2010	95,131	123,645	102,422	105,199	90.43
2011	99,513	128,864	107,237	109,465	90.91

Source: IHS Global Insight

Consumer Price Index

Philadelphia has the second lowest consumer price index among major cities along the Northeast Corridor, as shown in Table 22 below. The City markets its relatively low labor costs and cost of living to attract businesses considering locating to the region. Additionally, the City intends to resume reductions in the Wage, Earnings, and Net Profits Tax in 2014, which will further incentivize both business and residents to relocate into the City.

Table 22
2012 Consumer Price Index of Cities in the Northeastern U.S.

Metropolitan Area	CPI
New York-Northern New Jersey-Long Island	150.75
Washington-Arlington-Alexandria	141.48
Boston-Cambridge-Quincy	139.4
Philadelphia-Camden-Wilmington	122.57
Baltimore-Towson	116.6

Source: Select Greater Philadelphia, 2012 ACCRA Cost of Living Index

HOUSING

The 2011 American Community Survey reported 670,240 housing units in Philadelphia, with 576,168 occupied and 94,072 vacant, representing a vacancy rate of 14%. Of occupied housing units, 53.9% were owner-occupied and 46.1% were renter-occupied. The homeowner vacancy rate was just 3.2% while rental vacancy rate was 8%.

Although home sales volume was slightly down in the first quarter of 2013, to 2,928 from 3,164 in the previous quarter, this is consistent with the most recent years of transactions. First quarter prices citywide are up 5.6 percent from the previous year, at a median sales price of $112,500, and show a modest recovery from previously weaker performance, according to a Real Estate Value Trends Report published by Econsult Solutions. Consistent with demographic shifts of population growth in Greater Center City, districts that had the largest annual increase in median sales price are areas adjacent to Center City: Lower North at 16.56 percent and South Philadelphia at 13.4 percent. Philadelphia's housing market continues to outperform the Philadelphia Metropolitan Area and national averages.

KEY CITY-RELATED SERVICES AND BUSINESSES

Transportation

The residents of the City and surrounding counties are served by a commuter transportation system operated by SEPTA. This system includes two subway lines, a network of buses and trolleys, and a commuter rail network joining Center City and other areas of the City to PHL and to the surrounding counties. A high speed train line (PATCO) runs from southern New Jersey to Center City and is operated by the Delaware River Port Authority. An important addition to the area's transportation system was the opening of the airport high speed line between Center City and the Airport in 1985. The line places PHL less than 25 minutes from the City's central business district and connects directly with the commuter rail network and the Pennsylvania Convention Center. The opening of the commuter rail tunnel in 1984 provided a unified City transportation system linking the commuter rail system, the SEPTA bus, trolley, and subway lines, the high speed line to New Jersey, and the airport high speed line.

Amtrak, SEPTA, Norfolk Southern, CSX Transportation, Conrail and the Canadian Pacific provide inter-city commuter and freight rail services connecting the City to the other major cities and markets in the United States. According to a February 2010 Amtrak report, Philadelphia's 30th Street Amtrak Station is the 3rd busiest station in the United States. More than 100 truck lines serve the Philadelphia area.

The City now has one of the most accessible downtown areas in the nation with respect to highway transportation by virtue of I-95; the Vine Street Expressway (I-676), running east-to-west through the Central Business District between I-76 and I-95; and the "Blue Route" (I-476) in suburban Delaware and Montgomery Counties which connects the Pennsylvania Turnpike and I-95 and connects to the Schuylkill Expressway (I-76) which runs to Center City Philadelphia.

The Airport was opened in 1940, is owned by the City and operated by the Division of Aviation, and serves residents of and visitors to a broad geographic area that includes portions of four states: Pennsylvania, New Jersey, Delaware and Maryland. The primary service region of the Airport consists of the Philadelphia and Wilmington Metropolitan Statistical Areas. The Airport is located partly in the southwestern section of the City and partly in the northeastern section of Delaware County 7.2 miles from Center City Philadelphia. PHL is situated over 2,300 acres of land. It is adjacent to I-95 and is served by a SEPTA commuter rail line with direct service to Center City Philadelphia. Philadelphia Northeast Airport (PNE), located on the northeast part of the City, provides for general aviation, air taxi, corporate, and occasional military use. PNE currently has no scheduled commercial service.

PHL is classified as a large air traffic hub by the Federal Aviation Administration (the "FAA"). According to the Airport Council International, in calendar year 2010, the Airport was ranked 18th in passenger traffic among U.S. airports and served a total of approximately 30.8 million passengers. According to Airport Council International Traffic Movements 2010, with 460,779 aircraft movements in 2010, PHL ranked the 12th busiest airport in the world in terms of aircraft movements. Origin-destination traffic for Fiscal Year 2011 accounted for approximately 56% of annual passengers, with the remaining 44% being passengers who connected between flights. As of July 2011, the airlines serving the Airport provided a total of 590 average daily departures to 118 cities, including 86 domestic and 32 international destinations.

Water and Wastewater

The water and wastewater systems of the City are owned by the City and operated by the City's Water Department. The water system provides water to the City (130 square mile service area), to Aqua Pennsylvania, Inc., formerly Philadelphia Suburban Water Company, and to the Bucks County Water and Sewer Authority. The City obtains approximately 57% of its water from the Delaware River and the balance from the Schuylkill River. The water system serves approximately 476,100 retail customers through 3,159 miles of mains, 3 water treatment plants, 15 pumping stations and provides fire protection through more than 25,200 fire hydrants. The water treatment plants continue to meet and /or exceed their Safe Drinking Water Act as well as partnership for Safe Water standards.

The wastewater system services a total of 360 square miles of which 130 square miles are within the City and 230 square miles are in suburban areas. The total number of retail customer accounts is approximately 478,900, excluding approximately 35,150 stormwater only accounts. The wastewater and stormwater systems contain three water pollution control plants, a biosolids processing facility, 21 pumping stations, and approximately 3,657 miles of sewers. The wastewater treatment plants continue to meet and/or exceed their National Pollutant Discharge Elimination System permit limits.

Solid Waste Disposal

The City is responsible for collecting solid waste, including recycling, from residential households and some commercial establishments. On average, approximately 2,400 tons of solid waste per day are collected by the City. Municipal solid waste is disposed of through a combination of recycling processing facilities, private and City transfer stations within the City limits, and at various landfills operated outside the City limits.

Parks

The City was originally designed by William Penn and Thomas Holme around five urban parks, each of which remains in Center City to this day. The City's parklands total over 10,300 acres, and include Fairmount Park, which at 9,200 acres is the world's largest landscaped urban park, Pennypack Park and the Philadelphia Zoo, the country's first zoo. The City also offers its residents and visitors America's most historic square mile, which includes Independence Hall and the Liberty Bell.

Libraries

The Free Library of Philadelphia, the City's public library system, is one of the pre-eminent libraries in the world, comprised of 54 branches and an extensive online resource system.

Streets and Sanitation

The Philadelphia Streets Department and the divisions within it are responsible for the City's large network of streets and roadways. The Department is also responsible for the ongoing collection and disposal of residential trash and recyclables, as well as the construction, cleanliness and maintenance of the street system. The streets system in Philadelphia totals 2,575 miles - 2,180 miles of city streets, 35 miles of Fairmount Park roads and 360 miles of state highways. The Highway Unit and Sanitation Division annually collects and disposes of approximately 700,000 tons of rubbish and 100,000 tons of recycling, completes over 42,000 miles of mechanical street cleaning, clears 1,500 major illegal dump sites, and removes over 150,000 abandoned tires.

Sustainability and Green Initiatives

The Mayor has stated one of his top priorities is to make Philadelphia the greenest and most sustainable city in America. To aid in achieving this goal, the newly created Philadelphia Energy Authority has been tasked with improving energy sustainability and affordability in the City and with educating consumers on their energy choices. The City is also actively evaluating options and investing in green infrastructure to better manage storm water reclamation and reduce pollution of the City's public waters. There has been extensive investment in creating more and better public green spaces, such as Love Park in Center City as well as green spaces along both the Delaware and Schuylkill Rivers. Finally, the City has been taking steps to further reduce automobile traffic, congestion and pollution by making Philadelphia's streets increasingly friendly to bicyclists. The Mayor has proposed a new bicycle sharing program, which has been successfully implemented in other cities throughout the country. If approved, the new program would add over 600 new bicycles in its first phase expected to be completed by June 2014.

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APPENDIX VI

FORM OF OPINION OF CO-BOND COUNSEL

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FORM OF OPINION OF CO-BOND COUNSEL

August 22, 2013

City of Philadelphia, Pennsylvania

Re: $170,000,000 City of Philadelphia, Pennsylvania Water and Wastewater Revenue Bonds, Series 2013A

We have acted as Co-Bond Counsel in connection with the authorization, issuance and sale by the City of Philadelphia, Pennsylvania (the "City") of its $170,000,000 Water and Wastewater Revenue Bonds, Series 2013A (the "Bonds"). The Bonds are being issued under and pursuant to: (a) The First Class City Revenue Bond Act, P.L. 955, Act No. 234 of the General Assembly of the Commonwealth of Pennsylvania (the "Commonwealth"), approved October 18, 1972, as amended (the "Act"), (b) the City's Restated General Water and Wastewater Revenue Bond Ordinance of 1989, approved June 24, 1993 (the "Restated Ordinance"), as amended and supplemented from time to time, including by the Fourteenth Supplemental Ordinance approved July 5, 2011 (the "Fourteenth Supplemental Ordinance"), and (c) a Bond Committee Determination dated August 14, 2013 (the "Bond Committee Determination"). The Restated Ordinance, as amended and supplemented from time to time, is hereinafter referred to as the "General Ordinance." All initially capitalized terms used, but not otherwise defined, herein shall have the meanings set forth in the General Ordinance.

The Bonds are being issued for the purpose of providing funds that will be used to finance: (a) capital improvements to the City's Water and Wastewater Systems; (b) a deposit to the Debt Reserve Account of the Sinking Fund; and (c) the costs of issuance relating to the Bonds.

The City has previously issued, pursuant to the General Ordinance, and there are currently outstanding, Water and Wastewater Revenue Bonds, consisting of the Series 1997B Bonds, the Series 1998 Bonds, the Series 1999A Pennvest Bond, the Series 2005A Bonds, the Series 2005B Bonds, the Series 2007A Bonds, the Series 2007B Bonds, the Series 2009A Bonds, the Series 2009B Pennvest Bonds, the Series 2009C Pennvest Bonds, the Series 2009D Pennvest Bonds, the Series 2010A Bonds, the Series 2010B Pennvest Bonds, the Series 2010C Bonds, the Series 2011A Bonds, the Series 2011B Bonds and the Series 2012 Bonds (the "Outstanding Bonds"). The Outstanding Bonds, the Bonds and all other Water and Wastewater Revenue Bonds hereafter issued by the City under the General Ordinance are and will be equally and ratably secured, to the extent provided in the General Ordinance and the Act, by the pledge of, and the security interest created in, all Project Revenues derived from the System and all amounts on deposit in or standing to the credit of the funds and accounts (other than the Rebate Fund) established pursuant to the General Ordinance.

The City has made certain covenants designed to assure compliance with the requirements of the Internal Revenue Code of 1986, as amended (the "Code"), including that it will not, directly or indirectly, use or permit the use of any proceeds of the Bonds or any other funds of the City, or take or omit to take any action, that would cause the Bonds to be arbitrage bonds within the meaning of the Code. The City has further covenanted that it will comply with all requirements of Section 148 of the Code to the extent applicable to the Bonds, including the requirements of Section 148(f) of the Code which provides for the rebate of certain arbitrage profits to the United States. An officer of the City responsible for issuing the Bonds has executed a certificate stating the reasonable expectations of the City on the date of issue as to future events that are material for purposes of the Code pertaining to arbitrage and the exclusion of interest on the Bonds from the gross income of the holders thereof for federal income tax purposes (the

"Tax Certificate"). Also, the City has caused or will cause to be filed with the Internal Revenue Service a report of the issuance of the Bonds, as required by Section 149(e) of the Code as a condition of the exclusion from gross income of the interest on the Bonds.

In our capacity as Co-Bond Counsel, we have examined such matters of law and fact and such documents, records of the City and other instruments as we deemed necessary, including original counterparts, or certified copies of all other documents listed in the closing memorandum in connection with the issuance of the Bonds, in order to enable us to render the opinions set forth below. We have also examined an executed Bond and assume that all other Bonds have been similarly executed and delivered.

In rendering the opinions set forth below, we have relied upon the genuineness, accuracy and completeness of all documents, records, certifications and other instruments we have examined, including, without limitation, the authenticity of all signatures appearing thereon.

On the basis of the foregoing, we are of the opinion that:

1. The City has the power under the Constitution and the laws of the Commonwealth to perform its obligations under the General Ordinance, the Fourteenth Supplemental Ordinance, the Bond Committee Determination and the Bonds.

2. Under the Constitution and the laws of the Commonwealth, including the Act, the City is authorized to issue the Bonds, and the terms of the Bonds comply with the requirements of the Act, the General Ordinance, the Fourteenth Supplemental Ordinance and the Bond Committee Determination.

3. The purposes for which the Bonds have been issued are lawful purposes under the Act and the General Ordinance.

4. The General Ordinance has been duly enacted, and the Bond Committee Determination has been duly authorized, executed and delivered by the City, and each is a legal, valid and binding obligation of the City enforceable in accordance with its terms, except as the enforcement thereof may be limited by bankruptcy, insolvency, moratorium or other laws or legal or equitable principles affecting the enforcement of creditors' rights.

5. The issuance and sale of the Bonds have been duly authorized by the City and the Bonds have been duly executed, issued and delivered and are the legal, valid and binding obligations of the City, enforceable in accordance with their terms, except as the enforcement thereof may be limited by bankruptcy, insolvency, moratorium or other laws or legal or equitable principles affecting the enforcement of creditors' rights.

6. Under the Act and the General Ordinance, the Bonds constitute special obligations of the City, payable solely from Project Revenues and all amounts, if any, at any time on deposit in or standing to the credit of the funds and accounts (other than the Rebate Fund) established pursuant to the General Ordinance, together with interest earnings, if any, on amounts in such funds and accounts (other than the Rebate Fund).

7. Assuming the accuracy of the certifications of the City in the Tax Certificate and its continued compliance with its covenants described therein and herein, under existing law, as enacted and construed on the date hereof, interest on the Bonds is excludable from gross income of the holders thereof for federal income tax purposes; in addition, interest on the Bonds will not be treated as a preference item in calculating the alternative minimum taxable income of holders of the Bonds for purposes of determining the alternative minimum tax imposed on individuals and corporations by the Code. It should

be noted, however, that interest on any Bond held by a corporation (other than an S corporation, regulated investment company, real estate investment trust or real estate mortgage investment conduit) may be indirectly subject to alternative minimum tax because of its inclusion in the corporation's earnings and profits, in calculating the corporation's alternative minimum taxable income for such purposes.

8. Under the laws of the Commonwealth of Pennsylvania as enacted and construed on the date hereof, the Bonds are exempt from personal property taxes in Pennsylvania and interest on the Bonds is exempt from Pennsylvania personal income tax and Pennsylvania corporate net income tax.

Except as expressly stated in paragraphs 7 and 8 of this opinion, we express no opinion as to any federal, state or local tax consequences of the ownership of, receipt of interest on, or disposition of, the Bonds. In giving the opinions set forth in such paragraphs, we have assumed the accuracy of certain representations made by the City, which we have not independently verified, and compliance by the City with covenants described herein and in the Tax Certificate that must be satisfied subsequent to the issuance of the Bonds. We call your attention to the fact that interest on the Bonds may become subject to federal income taxation retroactively to the date hereof if such representations or assumptions are determined to have been inaccurate or if the City fails to comply with one or more of such covenants. We have not undertaken to monitor compliance with such covenants or to advise any party as to changes in law or events that may take place after the date hereof that may affect the tax status of interest on the Bonds.

The Bonds do not pledge the credit or taxing power or create any debt or charge against the tax or general revenues of the City or create any lien against the property of the City, other than Project Revenues and all amounts on deposit in or standing to the credit of the funds and accounts (other than the Rebate Fund) established pursuant to the General Ordinance, together with interest earnings, if any, on amounts in such funds and accounts (other than the Rebate Fund).

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

Very truly yours,

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APPENDIX VII

FORM OF CONTINUING DISCLOSURE AGREEMENT

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CONTINUING DISCLOSURE AGREEMENT

CITY OF PHILADELPHIA, PENNSYLVANIA

WATER AND WASTEWATER REVENUE BONDS, SERIES 2013A

This Continuing Disclosure Agreement (this "Disclosure Agreement") dated August__, 2013, is executed and delivered by and between the City of Philadelphia, Pennsylvania (the "City") and Digital Assurance Certification, LLC, as dissemination agent (the "Dissemination Agent") in connection with the issuance and sale by the City of its $170,000,000 Water and Wastewater Revenue Bonds, Series 2013A (the "Bonds").

The Bonds are as described in the Official Statement (hereinafter defined) and are being issued and secured under The First Class City Revenue Bond Act, P.L. 955, Act No. 234 of the General Assembly of the Commonwealth of Pennsylvania, approved October 18, 1972 (the "Act") and the City's Restated General Water and Wastewater Revenue Bond Ordinance of 1989, approved June 24, 1993 (the "Restated General Ordinance"), as supplemented and amended, including by the Fourteenth Supplemental Ordinance approved July 5, 2011 authorizing the issuance of bonds for various purposes, including the Bonds. The Restated General Ordinance, as supplemented and amended is herein referred to as the "General Ordinance."

In consideration of the mutual covenants, promises and agreements contained herein and intending to be legally bound hereby, the parties hereto agree as follows:

Section 1: <u>Definitions</u>

In this Disclosure Agreement and any agreement supplemental hereto (except as otherwise expressly provided or unless the context clearly otherwise requires) terms defined in the recitals hereto shall have such meanings throughout this Disclosure Agreement, and, in addition, the following terms shall have the meanings specified below:

"Annual Financial Information" shall mean the financial information or operating data with respect to the City, delivered at least annually pursuant to Section 3 hereof, substantially similar to the type set forth in Appendix A attached hereto and made a part hereof, and in accordance with the Rule. The financial statements comprising the Annual Financial Information are prepared according to accounting methods and procedures which conform to generally accepted accounting principles for governmental units as prescribed by the Governmental Accounting Standards Board.

"Bond Committee Determination" shall mean the Bond Committee Determination for the Bonds adopted by the Bond Committee (consisting of the Mayor, the City Solicitor and the City Controller and acting by a majority thereof) on August 14, 2013.

"Business Day" or "Business Days" shall mean any day other than a Saturday or Sunday or, in the City, a legal holiday or a day on which banking institutions are authorized by law to close or a day on which the Dissemination Agent is closed.

"Disclosure Representative" shall mean the Director of Finance of the City, the City Treasurer or such other official or employee of the City as the Director of Finance of the City or the City Treasurer shall designate in writing to the Dissemination Agent.

"EMMA" means the Electronic Municipal Market Access System maintained by the MSRB.

"Fiscal Agent" shall mean U.S. Bank National Association, as Fiscal Agent for the Bonds.

"Listed Event" shall mean any of the events listed in Section 4(a) of this Disclosure Agreement.

"MSRB" means the Municipal Securities Rulemaking Board.

"Official Statement" shall mean the Official Statement dated August 14, 2013, relating to the Bonds.

"Participating Underwriters" shall mean any of the original underwriters of the Bonds required to comply with the Rule in connection with their purchase and reoffering of the Bonds.

"Registered Owner" or "Registered Owners" shall mean the person or persons in whose name a Bond is registered on the books of the City maintained by the Fiscal Agent in accordance with the General Ordinance and the Bonds. For so long as the Bonds shall be registered in the name of the Securities Depository or its nominee, the term "Registered Owner" or "Registered Owners" shall also mean and include, for the purposes of this Disclosure Agreement, the owners of book-entry credits in the Bonds evidencing an interest in the Bonds; provided, however, that the Dissemination Agent shall have no obligation to provide notice hereunder to owners of book-entry credits in the Bonds except those who have filed their names and addresses with the Dissemination Agent for the purposes of receiving notices or giving direction under this Disclosure Agreement.

"Repository" shall mean each nationally recognized municipal securities information repository under the Rule. The Securities and Exchange Commission has designated EMMA as the sole Repository.

"Rule" shall mean Rule 15c2-12(b)(5) promulgated by the Securities and Exchange Commission under the Securities Exchange Act of 1934, as amended, as such Rule may be amended from time to time.

"Securities Depository" shall mean The Depository Trust Company, New York, New York, or its nominee, Cede & Co., or successor thereto appointed pursuant to the General Ordinance.

All words and terms used in this Disclosure Agreement and not defined above or elsewhere herein shall have the same meanings as set forth in the General Ordinance.

Section 2: <u>Authorization and Purpose of Disclosure Agreement</u>

This Disclosure Agreement is authorized to be executed and delivered by the City pursuant to the General Ordinance and Section 7 of the Bond Committee Determination in order to assist the Participating Underwriters in complying with the requirements of the Rule.

Section 3: <u>Annual Financial Information</u>

(a) Within 240 days of the close of each fiscal year of the City, commencing with the fiscal year ended June 30, 2013, the Disclosure Representative shall file with the Dissemination

Agent, Annual Financial Information for such fiscal year. The Dissemination Agent shall promptly upon receipt thereof file the Annual Financial Information with the Repository.

(b) As soon as audited financial statements for the City are available, commencing with the audited financial statements for the fiscal year ended June 30, 2013, the Disclosure Representative shall file the audited financial statements with the Dissemination Agent. The Dissemination Agent shall promptly upon receipt thereof file the audited financial statements with the Repository.

Section 4: <u>Listed Events</u>

(a) The City agrees that it shall provide through the Dissemination Agent, not later than ten Business Days after its occurrence, to the Repository, notice of any of the following events with respect to the Bonds (each a "Listed Event"):

(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 Bonds, or other material events affecting the tax status of the Bonds;

(vii) Modifications to the rights of the holders of the Bonds, if material;

(viii) Optional or unscheduled redemptions of any of the Bonds , if material, and tender offers;

(ix) Defeasances;

(x) Release, substitution or sale of property securing repayment of the Bonds;

(xi) Rating changes;

(xii) Bankruptcy, insolvency, receivership or similar event of the City;

(xiii) Consummation of a merger, consolidation, or acquisition involving the City or the sale of all or substantially all of the assets of the City (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.

(xiv) Appointment of a successor or additional paying agent, or the change of name of a paying agent, if material.

The foregoing 14 events are quoted from the Rule. Mandatory redemption of the Bonds shall not be deemed a Listed Event.

(b) Whenever the City concludes that a Listed Event has occurred, the Disclosure Representative shall promptly notify the Dissemination Agent in writing of such occurrence, specifying the Listed Event. Such notice shall instruct the Dissemination Agent to file a notice of such occurrence with the Repository. Upon receipt, the Dissemination Agent shall promptly file such notice with the Repository. In addition, the Dissemination Agent shall promptly file with the Repository, notice of any failure by the City or the Disclosure Representative to timely file the Annual Financial Information as provided in Section 3 hereof, including, any failure by the City or the Dissemination Agent to provide the Annual Financial Information on or before the date specified in Section 3 (a) hereof.

(c) Notwithstanding the foregoing, the Dissemination Agent shall, promptly after obtaining actual knowledge of an event listed in clauses (a)(i), (iii), (iv), (viii) or (ix) notify the Disclosure Representative of the occurrence of such event and shall, within five Business Days of giving notice of such occurrence with the Repository, unless the Disclosure Representative gives the Dissemination Agent written instructions not to file such notice because the event has not occurred or the event is not a Listed Event within the meaning of the Rule.

(d) The Dissemination Agent shall prepare an affidavit of filing for each notice delivered pursuant to clauses (b) and (c) of this Section 4 and shall deliver such affidavit to the City no later than three Business Days following the date of delivery of such notice.

(e) Upon the return of any completed acknowledgment of a filing, the Dissemination Agent shall prepare an affidavit of receipt specifying the date and hour of receipt of such notice by each recipient to the extent such information has been provided to the Dissemination Agent. Such affidavit of receipt shall be delivered to the City no later than three Business Days following the date of receipt by the Dissemination Agent of the last completed acknowledgment.

(f) For purposes of the event identified in clause (a)(xii) of this Section 4, the event is considered to occur when any of the following occur: the appointment of a receiver, fiscal agent or similar officer for the City 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, 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 City.

Section 5: <u>Amendment; Waiver</u>

(a) Notwithstanding any other provision of this Disclosure Agreement, the City and the Dissemination Agent may amend this Disclosure Agreement or waive any of the provisions hereof, provided that no such amendment or waiver shall be executed by the parties hereto or effective unless:

(i) the amendment or waiver is made in writing and in connection with a change in circumstances that arises from a change in legal requirements, change in law or change in identity, nature or status of the City or the governmental operations conducted by the City;

(ii) this Disclosure Agreement, as amended by the amendment or waiver, would have been the written undertaking contemplated by the Rule at the time of original issuance of the Bonds after taking into account any amendments or interpretations of the Rule, as well as any change in circumstances; and

(iii) the amendment or waiver does not materially impair the interests of the Registered Owners of the Bonds.

(b) Evidence of compliance with the conditions set forth in clause (a) of this Section 5 shall be satisfied by the delivery to the Dissemination Agent of an opinion of counsel having recognized experience and skill in the issuance of municipal securities and federal securities law, acceptable to both the City and the Dissemination Agent, to the effect that the amendment or waiver satisfies the conditions set forth in clauses (a)(i), (ii), and (iii) of this Section 5.

(c) Notice of any amendment or waiver containing an explanation of the reasons therefor shall be given by the Disclosure Representative to the Dissemination Agent upon execution of the amendment or waiver and the Dissemination Agent shall promptly file such notice with the Repository. The Dissemination Agent shall also send notice of the amendment or waiver to each Registered Owner, including owners of book-entry credits in the Bonds who have filed their names and addresses with the Dissemination Agent.

Section 6: <u>Other Information; Duties of Dissemination Agent</u>

(a) Nothing in this Disclosure Agreement shall preclude the City from disseminating any other information with respect to the City or the Bonds, using the means of communication provided in this Disclosure Agreement or otherwise, in addition to the Annual Financial Information and the notices of Listed Events specifically provided for herein, nor shall the City be relieved of complying with any applicable law relating to the availability and inspection of public records. Any election by the City to furnish any information not specifically provided for herein in any notice given pursuant to this Disclosure Agreement or by the means of communication provided for herein shall not be deemed to be an additional contractual undertaking and the City shall have no obligation to furnish such information in any subsequent notice or by the same means of communication.

(b) Nothing in this Disclosure Agreement shall relieve the Dissemination Agent of any of its duties and obligations under the General Ordinance or the Bond Committee Determination.

(c) Except as expressly set forth in this Disclosure Agreement, the Dissemination Agent shall have no responsibility for any continuing disclosure to the Registered Owners, the MSRB, or any Repository.

Section 7: <u>Default</u>

(a) In the event that the City or the Dissemination Agent fails to comply with any provision of this Disclosure Agreement, the Dissemination Agent or any Registered Owner of the Bonds shall have the right, by mandamus, suit, action or proceeding at law or in equity, to compel the City or the Dissemination Agent to perform each and every term, provision and covenant contained in this Disclosure Agreement. The Dissemination Agent shall be under no obligation to take any action in respect of any default hereunder unless it has received the direction in writing to do so by the Registered Owners of at least 25% of the outstanding principal amount of a series of the Bonds and if, in the Dissemination Agent's opinion, such action may tend to involve expense or liability, unless it is also furnished with indemnity and security for expenses satisfactory to it.

(b) A default under the Disclosure Agreement shall not be or be deemed to be a default under the Bonds, the Act, the General Ordinance, the Bond Committee Determination or any other agreement related thereto and the sole remedy in the event of a failure of the City or the Dissemination Agent to comply with the provisions hereof shall be the action to compel performance described in Section 7(a) above.

Section 8: <u>Concerning the Dissemination Agent</u>

(a) The Dissemination Agent accepts and agrees to perform the duties imposed on it by this Disclosure Agreement, but only upon the terms and conditions set forth herein. The Dissemination Agent shall have only such duties in its capacity as are specifically set forth in this Disclosure Agreement. The Dissemination Agent may execute any powers hereunder and perform any duties required of it through attorneys, agents, and other experts, officers, or employees selected by it, and the written advice of such counsel or other experts shall be full and complete authorization and protection in respect of any action taken, suffered or omitted by it hereunder in good faith and in reliance thereon. The Dissemination Agent shall not be answerable for the default or misconduct of any attorney, agent, expert or employee selected by it with reasonable care. The Dissemination Agent shall not be answerable for the exercise of any discretion or power under this Disclosure Agreement or liable to the City or any other person for actions taken hereunder, except for its own willful misconduct or negligence.

(b) The City shall pay the Dissemination Agent reasonable compensation for its services hereunder, and also all of its reasonable expenses and disbursements, including reasonable fees and expenses of its counsel or other experts, as shall be agreed upon by the Dissemination Agent and the City. Nothing in this Section 8(b) shall be deemed to constitute a waiver of governmental immunity by the City. The provisions of this paragraph shall survive termination of this Disclosure Agreement.

(c) The Dissemination Agent may act on any resolution, notice, telegram, request, consent, waiver, certificate, statement, affidavit, electronic mail or other paper or document which it in good faith believes to be genuine and to have been passed or signed by the proper persons or to have been prepared and furnished pursuant to any of the provisions of this Disclosure Agreement; and the Dissemination Agent shall be under no duty to make any investigation as to any statement contained in any such instrument, but may accept the same as conclusive evidence of the accuracy of such statement in the absence of actual notice to the contrary. The Dissemination Agent shall be under no obligation to institute any suit, or to undertake any proceeding under this Disclosure Agreement, or to enter any appearance or in any way defend in any suit in which it may be made a defendant, or to take any steps in the execution of the duties hereby created or in the enforcement of any rights and powers hereunder, until it shall be indemnified by the Registered Owners to its satisfaction against any and all costs and expenses, outlays and counsel fees and expenses and other reasonable disbursements, and against all liability; the Dissemination Agent may, nevertheless, begin suit or appear in and defend suit, or do anything else in its judgment proper to be done by it as Dissemination Agent, without indemnity.

(d) All documents, reports, notices, statements, information and other materials provided to the Respository under this Disclosure Agreement shall be provided in an electronic format and accompanied by identifying information, as prescribed by the MSRB.

Section 9: Term of Disclosure Agreement

This Disclosure Agreement shall terminate upon (1) payment or provision for payment in full of the Bonds, or (2) repeal or rescission of the Rule, or (3) a final determination that the Rule is invalid or unenforceable.

Section 10: Beneficiaries

This Disclosure Agreement shall inure solely to the benefit of the City, the Dissemination Agent and the Registered Owners from time to time of the Bonds and nothing herein contained shall confer any right upon any other person.

Section 11: Notices

Any written notice or demand may be served, presented or made to the persons named below and shall be sufficiently given or filed for all purposes of this Disclosure Agreement if deposited in the United States mail, first class postage prepaid, or in a commercially recognized form of overnight mail, or by E-mail or facsimile with confirmation of receipt, addressed:

(a) to the Dissemination Agent at:

Digital Assurance Certification, LLC
390 North Orange Avenue, Suite
1750 Orlando, FL 32801
Attention: Jenny Emami
Fax: (407) 515-6513
E-mail: jemami@dacbond.com

(b) to the City or the Disclosure Representative at:

City of Philadelphia
Office of the Director of Finance
1330 Municipal Services Building
1401 John F. Kennedy Boulevard
Philadelphia, PA 19102
Attention: Director of Finance
Fax: (215) 568-1947
E-mail: rob.dubow@phila.gov; or

Office of the City Treasurer
640 Municipal Services Building
1401 John F. Kennedy Boulevard
Philadelphia, PA 19102
Attention: City Treasurer
Fax: (215) 686-3815
E-mail: nancy.winkler@phila.gov

(c) to the MSRB and the Repository at http://emma.msrb.org/; or such other address as may be designated by the MSRB

or such other addresses as may be designated in writing to all parties hereto.

Section 12: Personal Recourse

No personal recourse shall be had for any claim based on this Disclosure Agreement against any member, officer, or employee, past, present or future, of the City (including without limitation the Disclosure Representative), or of any successor body as such, either directly or through the City or any such successor body, under any constitutional provision, statute or rule of law or by the enforcement of any assessment or penalty otherwise.

Section 13: Controlling Law

This Disclosure Agreement and all matters arising out of or related to this Disclosure Agreement shall be governed by and construed in accordance with the laws of the Commonwealth of Pennsylvania.

Section 14: Removal and Resignation of Dissemination Agent

(a) The City may discharge the Dissemination Agent upon not less than 30 days written notice in writing mailed postage prepaid to the Dissemination Agent; provided, however, that the City shall provide written notice to the Fiscal Agent upon the engagement or discharge of any Dissemination Agent, and shall provide the name, address and telephone number of any successor Dissemination Agent. The City shall cause any successor Dissemination Agent appointed hereunder and any further successors to execute and deliver an acknowledgement of acceptance of the designation and duties of Dissemination Agent. If at any time there is not any other designated Dissemination Agent, the City shall be the Dissemination Agent.

(b) The Dissemination Agent may resign and thereby become discharged from its duties as such under this Disclosure Agreement by notice in writing mailed postage prepaid to the City, such resignation to become effective on the later of (i) the 30th Business Day following the City's receipt of notice thereof (or at such different date and time as stated in such notice) and (ii) the City's appointment of a new Dissemination Agent hereunder or the City's notice to the Dissemination Agent and the Fiscal Agent that the City has determined to act itself in such capacity.

Section 15: Filing with EMMA; Other Filings

All filings with the Repository shall be done electronically through EMMA at http://emma.msrb.org, and in the form specified by the Repository, or as otherwise specified by the MSRB.

In addition to filings through EMMA, the Dissemination Agent may file any of the information necessary to be filed hereunder with such other electronic filing systems and entities as are approved by the Securities and Exchange Commission by interpretative letter or "no action" letter for receipt of such information in compliance with the requirements of paragraph (b)(5) of the Rule.

Section 16: Successors and Assigns

All of the covenants, promises and agreements contained in this Disclosure Agreement by or on behalf of the City or by or on behalf of the Dissemination Agent shall bind and inure to the benefit of their respective successors and assigns, whether so expressed or not.

Section 17: **Headings for Convenience Only**

The descriptive headings in this Disclosure Agreement are inserted for convenience of reference only and shall not control or affect the meaning or construction of any of the provisions hereof.

Section 18: **Counterparts**

This Disclosure Agreement may be executed in any number of counterparts, each of which when so executed and delivered shall be an original, but such counterparts shall together constitute but one and the same instrument.

Section 19: **Entire Agreement**

This Disclosure Agreement sets forth the entire understanding and agreement of the City and the Dissemination Agent with respect to the matters herein contemplated and no modification or amendment of or supplement to this Disclosure Agreement shall be valid or effective unless the same is in writing and signed by the parties hereto.

[The remainder of this page is left blank intentionally.]

IN WITNESS WHEREOF, the CITY OF PHILADELPHIA, PENNSYLVANIA, has caused this Disclosure Agreement to be executed by the Director of Finance and DIGITAL ASSURANCE CERTIFICATION, LLC, as Dissemination Agent, has caused this Disclosure Agreement to be executed by one of its authorized officers, all as of the day and year first above written.

THE CITY OF PHILADELPHIA, PENNSYLVANIA

By:_____
Name: Rob Dubow
Title: Director of Finance

DIGITAL ASSURANCE CERTIFICATION, LLC,
as Dissemination Agent

By:_____
Name:
Title:

APPENDIX A

1. Commencing with the fiscal year ended June 30, 2013, a copy of the Comprehensive Annual Financial Report ("CAFR"), which contains the audited combined financial statements of the City, prepared by the office of the Director of Finance of the City in conformance with guidelines adopted by the Governmental Accounting Standards Board and the American Institute of Certified Public Accountants' audit guide, Audits of State and Local Government Units; and

2. Commencing with the fiscal year ended June 30, 2013, to the extent such information is not contained in the CAFR, an update of the information in Appendix IV of the Official Statement under the captions "DISCUSSION OF FINANCIAL OPERATIONS," "REVENUES OF THE CITY," "EXPENDITURES OF THE CITY" and "DEBT OF THE CITY."

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CITY OF PHILADELPHIA, PENNSYLVANIA • WATER AND WASTEWATER REVENUE BONDS, SERIES 2013A

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