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

In the opinion of Co-Bond Counsel, interest on the Bonds is excludable from gross income for purposes of federal income tax, assuming continuing compliance with the requirements of the federal tax laws. Interest on the Bonds is not a preference item for purposes of either individual or corporate federal alternative minimum tax; however, interest paid to corporate holders of the Bonds may be indirectly subject to alternative minimum tax under circumstances described under "TAX EXEMPTION" herein. Under the laws of the Commonwealth of Pennsylvania, the Bonds are exempt from personal property taxes and interest on the Bonds is exempt from Pennsylvania personal income tax and Pennsylvania corporate net income tax. For a more complete discussion of federal and state tax exemptions, see "TAX EXEMPTION" herein.

$70,370,000
CITY OF PHILADELPHIA, PENNSYLVANIA
Water and Wastewater Revenue Refunding Bonds
Series 2012

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 Refunding Bonds, Series 2012 (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"), as supplemented and amended from time to time, including by the Fifteenth Supplemental Ordinance, approved July 5, 2011 (the "Fifteenth Supplemental Ordinance" and together with the Restated General Ordinance, the "General Ordinance"), authorizing the issuance of Water and Wastewater Revenue Bonds, including without limitation, the Bonds, for the purposes of refunding Outstanding Bonds. The proceeds of the Bonds, together with other available funds of the Water Department (defined herein), will be used to finance (i) the current refunding of all of the City's outstanding Water and Wastewater Revenue Bonds, Series 2001A and the current refunding of all of the City's Water and Wastewater Revenue Refunding Bonds, Series 2001B maturing after November 1, 2012, and (ii) the costs of issuance relating to the Bonds.

The Bonds are special obligations of the City secured, equally and ratably with the City's Water and Wastewater Revenue Bonds currently outstanding (as of September 30, 2012) in the aggregate principal amount of $1,861,524,362 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 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 is 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 November 1 and May 1 of each year, beginning May 1, 2013.

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 opinion of Ballard Spahr LLP and The Smyler Firm, both of Philadelphia, Pennsylvania, Co-Bond Counsel. Certain legal matters will be passed upon for the Underwriters by Greenberg Traurig, LLP and Andre C. Dasent, P.C., both 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 November 1, 2012.

SIEBERT BRANDFORD SHANK & CO., L.L.C. **RAMIREZ & CO., INC.**

Morgan Stanley **Wells Fargo Securities**

October 24, 2012

$70,370,000
City of Philadelphia, Pennsylvania
Water and Wastewater Revenue Refunding Bonds
Series 2012

Maturity Date November 1	Principal	Interest Rate	Yield	Price	CUSIP† (717893)
2013	$2,645,000	1.00%	0.29%	100.708	XP1
2014	2,720,000	4.00	0.49	106.977	XQ9
2025*	9,690,000	5.00	2.62	120.818	XR7
2026*	10,220,000	5.00	2.71	119.941	XS5
2027*	10,695,000	5.00	2.77	119.361	XT3
2028*	34,400,000	5.00	2.83	118.784	XU0

*Price/Yield to the first optional redemption date of November 1, 2022.

† 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
Everett A. Gillison ..... Deputy Mayor for Public Safety
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
Adel Ebeid ..... Chief Information Officer
Katherine Gajewski ..... Director of Sustainability
Teresa A. Gillen ..... Director, Federal Legislative Affairs
Melanie Johnson ..... City Representative
Amy L. Kurland ..... Inspector General
Joan L. Markman ..... Chief Integrity Officer
Lewis Rosman ..... Director, Legislative and Government Affairs
Lori A. Shorr, Ph.D. ..... Chief Education Officer
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
Gerald D. Leatherman, General Counsel to the Water Department
Francis X. Meiers, General Manager, Human Resources
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

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

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

$70,370,000
City of Philadelphia, Pennsylvania
Water and Wastewater Revenue Refunding Bonds
Series 2012

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 Refunding Bonds, Series 2012 (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, will be used to finance (i) the current refunding of all of the City's outstanding Water and Wastewater Revenue Bonds, Series 2001A and the current refunding of all of the City's Water and Wastewater Revenue Refunding Bonds, Series 2001B maturing after November 1, 2012, and (ii) 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 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 "Charter"), 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 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 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, debt service or redemption price; that Net Revenues are currently sufficient to comply with the Rate Covenant in the General Ordinance 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 October 26, 2011, as updated on October 11, 2012 (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. 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 Fifteenth Supplemental Ordinance approved July 5, 2011, authorizing the issuance of Water and Wastewater Revenue Bonds, including without limitation, the Bonds, for the purpose of refunding Outstanding Bonds (the "Fifteenth Supplemental Ordinance"), 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 Act (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 the 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 Fifteenth Supplemental Ordinance on July 15, 2011, and no challenge to the validity of either proceeding was filed by the deadline.

Outstanding and Additional Indebtedness

As described below, the City has previously issued and there are outstanding Water and Wastewater Revenue Bonds pursuant to the Act and the Restated General Ordinance, as 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 (the "Series 1995 Bonds");

- Third Supplemental Ordinance approved October 27, 1997 (the "Third Supplemental Ordinance"), authorizing the issuance of the Water and Wastewater Revenue Bonds, Series 1997A (the "Series 1997A Bonds") 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 (the "Series 2001A Bonds") and the Water and Wastewater Revenue Refunding Bonds, Series 2001B (the "Series 2001B Bonds");

- 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");

- 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 the 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, to finance certain capital projects for the Water Department; and

- 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") and the Bonds, for refunding purposes.

The Restated General Ordinance, as so supplemented and amended, and as further amended by an Ordinance approved January 23, 2007 further described under "SECURITY FOR THE BONDS - Debt Reserve Account" (the "Debt Reserve Account Amendment"), is herein referred to as the "General Ordinance."

As of September 30, 2012, there is outstanding $1,861,524,362 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 2001A Bonds, the Series 2001B Bonds, 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 and the Series 2011B Bonds, which collectively are herein referred to as the "Outstanding Bonds") pursuant to the General Ordinance. The Outstanding Bonds are equally and ratably secured under the General Ordinance.

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

The Outstanding Bonds and bonds of all series hereafter issued under the General Ordinance, as amended or supplemented, 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. On November 26, 2007, the City deposited 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 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 August 31, 2012, in the amount of $138,470,317.48 was funded with Water and Wastewater Revenue Bond proceeds and earnings on the investment thereof.

On the date of issuance of the Bonds, the surety policy and cash on deposit in such Debt Reserve Account will be sufficient to meet the Debt Reserve Requirement for all Water and Wastewater Revenue Bonds outstanding after the issuance of the Bonds. 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, 2011, 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, 2011, may be downloaded at http://www.phila.gov/investor.

Financial statements of the Water Fund for the Fiscal Year ended June 30, 2011, 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 Fifteenth 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 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) the current refunding of all of the City's outstanding Water and Wastewater Revenue Series 2001A Bonds and the current refunding of all of the City's Water and Wastewater Revenue Refunding Bonds, Series 2001B maturing after November 1, 2012 and (ii) 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	
Par Amount of the Bonds	$70,370,000.00
Original Issue Premium	12,796,090.35
Total Sources of Funds	$83,166,090.35
Uses of Funds	
Refunding of Series 2001A and 2001B Bonds	$82,415,000.00
Costs of Issuance*	751,090.35
Total Uses of Funds	$83,166,090.35

* Includes Underwriters' discount, legal, printing, rating agency fees, consultant fees, Fiscal Agent fees, financial advisors' 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 and will be dated and bear interest at the rates and mature 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, will be issued in denominations of $5,000 or any integral multiple thereof and will mature in the years and in the amounts set forth on the inside front cover hereof. Interest on the Bonds will be payable semiannually on November 1 and May 1 of each year, beginning May 1, 2013 (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 October 15 and April 15. The Bonds will bear interest at the rates set forth on the inside front cover hereof and interest will be calculated on the basis of a 360-day year comprised of twelve 30-day months.

Redemption of the Bonds

Optional Redemption of the Bonds. The Bonds maturing on or prior to November 1, 2014, are not subject to optional redemption prior to maturity. The Bonds maturing on and after November 1, 2025 are subject to optional redemption prior to maturity on or after November 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.

Notice of Redemption. Notice of redemption of the Bonds shall be mailed by first class mail by the Fiscal Agent, not less than thirty (30) days nor more than sixty (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. Totals might not add, due to rounding.

Fiscal Year Ending June 30	Series 2012 Bonds Principal	Series 2012 Bonds Interest	Aggregate Debt Service on Outstanding Bonds (1)(2)(3)(4)	Aggregate Debt Service
2013	--	$1,692,750	$198,130,978	$199,823,728
2014	$2,645,000	3,372,275	191,785,721	197,802,996
2015	2,720,000	3,304,650	189,712,809	195,737,459
2016	--	3,250,250	199,267,717	202,517,967
2017	--	3,250,250	177,224,074	180,474,324
2018	--	3,250,250	179,177,576	182,427,826
2019	--	3,250,250	130,090,861	133,341,111
2020	--	3,250,250	92,578,482	95,828,732
2021	--	3,250,250	93,391,093	96,641,343
2022	--	3,250,250	92,920,251	96,170,501
2023	--	3,250,250	93,768,142	97,018,392
2024	--	3,250,250	93,986,369	97,236,619
2025	--	3,250,250	94,192,697	97,442,947
2026	9,690,000	3,008,000	84,905,461	97,603,461
2027	10,220,000	2,510,250	85,097,897	97,828,147
2028	10,695,000	1,987,375	69,935,233	82,617,608
2029	34,400,000	860,000	61,258,560	96,518,560
2030	--	--	96,593,172	96,593,172
2031	--	--	96,583,966	96,583,966
2032	--	--	96,580,379	96,580,379
2033	--	--	58,874,365	58,874,365
2034	--	--	55,585,417	55,585,417
2035	--	--	55,121,081	55,121,081
2036	--	--	55,101,469	55,101,469
2037	--	--	27,673,875	27,673,875
2038	--	--	27,674,125	27,674,125
2039	--	--	27,674,125	27,674,125
2040	--	--	27,675,750	27,675,750
2041	--	--	27,676,125	27,676,125
Total	$70,370,000	$49,237,800	$2,780,237,770	$2,899,845,570

(1) Interest on the Series 1997B Bonds is assumed at a rate of 0.1841%, the weighted average interest rate on the Series 1997B Bonds during the 24 consecutive calendar month period preceding the date of calculation, in accordance with the Ordinance.
(2) Interest calculated at fixed swap rate of 4.53% per annum for the Series 2005B Bonds; actual results may vary.
(3) Includes debt service for the 1999 Pennvest Bond, 2009 Pennvest Bonds, and 2010 Pennvest Bond.
(4) Does not include debt service for the Series 2001A and 2001B Bonds, which are refunded with the 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 each series 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 3.5 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. 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.

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.

(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.

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" 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.

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 $67,000,000 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 August 31, 2012, in the amount of $138,470,317.48 was funded with Water and Wastewater Revenue Bond proceeds and earnings on the investment thereof.

On March 20, 2012, Moody's issued a press release stating that it had placed AGM's "Aa3" insurance financial strength rating on review for possible downgrade. On November 30, 2011, S&P downgraded AGM's financial strength rating to "AA-" with a stable outlook. 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.

On the date of issuance of the Bonds, the surety policy and cash on deposit in such Debt Reserve Account will be sufficient to meet the Debt Reserve Requirement for all Water and Wastewater Revenue Bonds outstanding after the issuance of the Bonds.

Rate Covenants

The Rate Covenant contained in 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 the Series 2005A Bonds, the Series 2005B Bonds and 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 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 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, 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. 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 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, 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 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. See "HISTORICAL AND PROJECTED FINANCIAL INFORMATION – Compliance with Rate Covenants" below. 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. See APPENDIX I – "FINANCIAL STATEMENTS OF THE WATER FUND FOR FISCAL YEAR ENDED JUNE 30, 2011" 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 US 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, US Green Building Council, The Conservation Fund and the Mayors' Institute on City Design. She is a certified planner, with a BA in Design of the Environment from the University of Pennsylvania and a Master of 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.

Gerald D. Leatherman was appointed Divisional Deputy City Solicitor and General Counsel to the Water Department in 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.

Francis X. Meiers was appointed General Manager for Human Resources Administration in January, 2009. He holds a B.A. in Political Science from Temple University. Prior to his appointment as General Manager for Human Resources Administration, he served in the Water Department's Personnel Office where for 28 years he worked at a variety of human resources functions, most recently as the Water Department's Employee & Labor Relations Officer. In that capacity he facilitated performance management of the Water Department's workforce through supervisory and performance appraisal training, and by overseeing the Water Department's use of progressive discipline. In addition he played a central role in defending the Water Department's position during litigation resultant from the Water Department's actions related to employee and labor relations activities.

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 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.

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 August, 2012, the Water Department employed approximately 1,907 permanent employees, of whom 1,397 are represented by District Council 33, and 246 by District Council 47, both of the American Federation of State, County and Municipal Employees. The balance (264) 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.

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 $7,754,262 for Fiscal Year 2011, $9,498,869 for Fiscal Year 2010 and $10,396,707 for Fiscal Year 2009. Preliminary data for Fiscal Year 2012 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, as discussed in the next paragraph.

The City is the largest customer of the Water Department. For Fiscal Year 2011 data indicates the amount due from the City to be $25,888,232 with $1,095,694 due from the Division of Aviation. For Fiscal Year 2010, the City paid $24,113,187 for water, sewer, stormwater and fire connection charges and other services provided by the Water Department, which represented 4.41% of the Water Department's total revenues for that year. The Water Department also charged the City's Division of Aviation $768,056 for water, sewer, stormwater and fire connection charges and other services provided by the Water Department for Fiscal Year 2010. The Fiscal Year 2013 budget included an estimate of $28,400,000 for charges to the City's General Fund and $2,000,000 for charges to the City's Aviation

Fund. Preliminary Fiscal Year 2012 data indicates the amount due from the City to be $26,809,515 with $2,794,544 for the Division of Aviation of which $1,659,307 has already been paid. Projections in the Engineering Report include $25,799,000 in Fiscal Year 2012 and $26,835,000 in Fiscal Year 2013. City payments to the Water Fund are made as of the close of each Fiscal Year.

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 in debt service and $82,430,000 in 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 in debt service and $68,542,599 in employee fringe benefits. The interfund charges from other departments totaled $9,498,869 for Fiscal Year 2010. Preliminary data for Fiscal Year 2012 indicates total interdepartmental direct obligations incurred by the Water Department for non-Water Department services for Fiscal Year 2012 were $ 343,704,172, including $196,176,667 in debt service and $95,802,000 in employee fringe benefits. Preliminary data for Fiscal Year 2012 for total interfund charges from these departments is not yet available. The Engineering Report includes interdepartmental charges of $61,561,000 (excluding debt service of $192,867,000 and fringe benefits of $86,033,000) in Fiscal Year 2012 and $64,369,000 (excluding debt service of $202,934,000 and fringe benefits of $98,575,000) in Fiscal Year 2013. The Fiscal Year 2013 budget includes an estimate of interdepartmental charges of $54,026,650 (excluding debt service of $201,986,000 and fringe benefits of $99,890,000).

The Water System

The Water System provides water to the City, which comprises a service area of approximately 130 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. The population served by the Water System was approximately 1,738,000 as of the 2010 census, of which 1,526,000 individuals live in the City and 155,000 live in Bucks County. The Water Department's sales to Aqua Pennsylvania serve approximately 57,000 people in Montgomery and Delaware Counties. See "HISTORICAL AND PROJECTED FINANCIAL INFORMATION – Wholesale Contracts" herein.

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 2012, the Water System served 471,916 active retail customer accounts using 3,175 miles of mains and provided fire protection using approximately 25,200 fire hydrants. As of June 2012, approximately 52,746 water and/or wastewater accounts were in non-service status for a variety of reasons largely including non-payment.

The City obtains approximately 57% 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 683 MGD. The storage capacity for treated and untreated water in the combined plant and distribution system totals 1,065.5 MG. In Fiscal Year 2011, the Water System distributed 91,250 MG of water at an average rate of 250.0 MGD. In Fiscal Year 2011, the maximum water production experienced by the Water System in one day was 313.6 MG and occurred on July 6, 2010.

The Wastewater System

The Wastewater System service area totals 360 square miles, of which 130 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. The population served by the Wastewater System was approximately 2,283,000 as of the 2010 census, of which 1,526,000 individuals lived in the City and 757,000 lived in the suburbs. The current projections on which the Engineering Report is based assume that the total population in the present service area will stabilize at approximately these levels for the remainder of this decade. This was confirmed in the 2010 census. As of August 2012, the Wastewater System served 548,507 retail customer accounts, including 49,541 Stormwater-only accounts, which were created as a result of the Water Department's Stormwater Billing initiative.

The Wastewater System consists of three water pollution control plants ("WPCPs"), 21 pumping stations, approximately 3,657 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 461 MGD of wastewater in calendar year 2011 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 were scheduled to expire on August 31, 2012. The existing permits remain in place during the development of the new permits. Permit renewal applications were submitted to PaDEP as required in February of 2012 and as a result the permits continue until renewed. 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 additional projects that reduce CSO frequency and volume. The agreed upon Long Term Control Plan was signed on June 1, 2011 by the Water Department and PaDEP. 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 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.

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 2007, 2008, 2009, 2010 and 2011 and the City of Philadelphia's basic financial statements for Fiscal Years 2009 and 2010. See also, GOVERNMENT AND FINANCIAL INFORMATION OF THE CITY OF PHILADELPHIA – Summary Financial Information – Independent Audit and Opinion of the City Controller." 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)

	FY07	FY08	FY09	FY10	FY11
Operating Revenues:					
Sales to General Customers	$419,839	$427,007	$424,824	$460,278	$488,406
Service (Sales) to Other Municipalities	$27,314	$28,681	$28,982	$37,357	$32,020
Services to Other Philadelphia Agencies (Includes Fire Protection)	$32,175	$24,334	$23,427	$24,881	$26,984
Private Fire Connections	$1,953	$1,604	$1,370	$1,593	$1,846
Industrial Sewer Surcharge	$4,754	$4,382	$4,484	$4,576	$5,481
Other Operating Revenue	$19,322	$20,886	$21,813	$25,822	$25,374
Subtotals - Water	$191,675	$195,420	$196,890	$217,127	$235,459
Wastewater	$313,683	$311,474	$308,010	$337,380	$344,653
Total Operating Revenue	$505,357	$506,894	$504,900	$554,507	$580,112
Operating Expenses:					
Water	$130,348	$143,935	$147,303	$143,639	$153,786
Wastewater	$172,787	$190,797	$195,261	$190,406	$203,856
Total Operating Expenses	$303,135	$334,732	$342,564	$334,045	$357,642
Excess of Operating Revenues over Operating Expenses	$202,222	$172,162	$162,336	$220,462	$222,470
Non-Operating Revenues					
Interest on Investments	$24,963	$84,955	$12,131	$3,474	$1,530
Operating Grants	$520	$464	$674	$2,631	$2,869
Other Non-Operating Revenues	$5,488	$5,493	$9,803	$6,137	$5,183
Total Non-Operating Revenues	$30,971	$90,912	$22,608	$12,242	$9,582
Excess of Revenues over Expenses before Interest Expenses and Principal Payments on Bonded Indebtedness	$233,193	$263,074	$184,944	$232,704	$232,052
Interest Expenses:					
General Obligation Bonds	$0	$0	$0	$0	$0
Revenue Bonds	$89,856	$82,433	$92,678	$96,770	$82,736
Less: Interest Capitalized					
Bond Anticipation Notes					
Pennvest Loan	$64	$53	$41	$29	$17
Total Interest Expenses	$89,920	$82,486	$92,719	$96,799	$82,753
Excess of Revenues over Expenses Exclusive of Debt Principal Payments	$143,273	$180,588	$92,225	$135,905	$149,299
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	$84,002	$92,501	$91,534	$100,118	$102,790
Net Unapplied Project Revenues	$59,271	$88,087	$691	$35,787	$46,509
Deduct: Funds Transferred to General Fund	$4,994	$4,994	$4,185	$2,304	$0
Deduct: Funds Transferred to Residual Fund	$11,330	$75,930	$14,052	$18,920	$17,523
Deduct: Funds Transferred to Capital Account	$16,988	$16,926	$17,140	$17,265	$18,113
Transfer (TO)/FROM The Rate Stabilization Fund	($25,959)	$9,763	$34,686	$2,702	($10,873)
Unencumbered Funds Available for Appropriation at end of Fiscal Year	$0	$0	$0	$0	$0
Debt Service Coverage Ratio:					
Total Debt Service	1.08	1.42	1.09	1.09	1.09
Revenue Bond Debt Service	1.20	1.57	1.20	1.20	1.20

Analysis of Comparative Statement of Revenues and Expenses

Fiscal Year 2007

Revenues. Total operating revenues increased $22,900,000 primarily due to a 6.7% water and sewer rate increase effective July 1, 2006. Total non-operating revenues increased $9,400,000 due to increased interest on investments.

Expenses. Total operating expenses increased $18,900,000 due primarily to a $3,200,000 increase in purchase of services, a $2,200,000 increase in payroll services, coupled with a $9,300,000 increase in the cost of employee benefits and a $4,200,000 increase in the cost of materials and supplies.

In Fiscal Year 2007, a deposit of $26,000,000 was made to the Rate Stabilization Fund. Deposits of $17,000,000 to the Capital Account and $11,300,000 to the Residual Account were made from the Water Fund Account.

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 Account, 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 Account 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 Account 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 Account were made from the Water Fund Account.

Fiscal Year 2012

The Water Department's Fiscal Year 2012 ended on June 30, 2012. Final end of year results are not yet available; however, preliminary end of year budgetary projections indicate a final revenue level of approximately $619,000,000 (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 final expense level of approximately $619,000,000, due to an $11,400,000 increase in pension costs and a $6,900,000 increase in debt service costs from the prior fiscal year. A Rate Stabilization Fund withdrawal of $4,900,000 million is also projected.

Although the City's Fiscal year 2012 ended on June 30, 2012, the City is still in the process of closing out its books and making final year-end adjustments and transfer and completing other calculations necessary to produce both GAAP and legally enacted financial statements. Therefore, preliminary data is being provided.

Fiscal Year 2013 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 2013 in September 2011, 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 2011. 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 December 2011. The Mayor reviewed and approved the Water Department's 2013 Operating Budget and included it as part of his proposed budget to City Council, which was presented to City Council on March 8, 2012. City Council approved the proposed budget in June, 2012.

The operating budget reflected projected revenue (including prior year liquidations) and expense levels of $671,889,000, including a projected Rate Stabilization Fund withdrawal of $55,435,000. These projections included debt service of $201,986,000. The projections indicate the Water Department will be in compliance with all of its coverage requirements. The Engineering Report projects a Rate Stabilization Fund withdrawal of $14,435,000 for Fiscal Year 2012 and a withdrawal of $43,140,000 for Fiscal Year 2013 and that the Water Department will be in compliance with all of its coverage requirements for Fiscal Year 2012 and 2013.

Compliance with Rate Covenants

In Fiscal Years 2007, 2008, 2009, 2010 and 2011 the Water Department met bond coverage requirements with a revenue bond debt coverage ratio of at least 1.20 each year, and a total debt service coverage ratio of at least 1.08 each year. Net revenues after operating expenses exceeded the amounts necessary to manage senior debt service coverage requirements resulting in deposits to the Rate Stabilization Fund totaling $25,959,000 in Fiscal Year 2007. Senior debt coverage requirements for Fiscal Years 2008, 2009, 2010 and 2011 resulted in transfers of amounts from the Rate Stabilization Fund to the Revenue Fund of $9,763,000, $34,686,000 $2,702,000 and $10,872,000, respectively. Preliminary data for Fiscal Year 2012 indicates that the Water Department met bond coverage requirements with a revenue bond debt 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 deposit in an aggregate amount of $4,880,190 will be made to 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 coverage formula under the General Ordinance. Historically, the Water Department has used the Rate Stabilization Fund to manage coverage to 1.20 each year, with any revenue which would raise coverage over 1.20 deposited into the Rate Stabilization Fund. The Department's current financial plan calls for gradually increasing coverage ratios as noted in the projected revenue and expense table.

For a summary of revenues, expenses and debt service coverages for Fiscal Years 2007 through 2011, 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)

	FY07	FY08	FY09	FY10	FY11
Excess of Revenues over Expenses before Interest Expenses and Principal Payments on Bonded Indebtedness	$233,193	$263,074	$184,944	$232,704	$232,052
Transfer (TO)/FROM The Rate Stabilization Fund	($25,959)	$9,763	$34,686	$2,702	($10,873)
Net Revenues including Rate Stabilization Fund	$207,234	$272,837	$219,630	$235,406	$221,179
Net Revenues excluding Rate Stabilization Fund	$207,234	$263,074	$184,944	$232,704	$221,179
Revenue Bond Debt Service **	$172,696	$173,759	$183,026	$195,690	$184,316
Ratio (minimum 90%)	120%	151%	101%	119%	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 Fiscal Year 2012 through Fiscal Year 2018, 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 as of October 26, 2011, as updated on October 11, 2012. 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			2012	2013	2014	2015	2016	2017	2018
OPERATING REVENUE									
Water Service - Existing Rates			233,546	233,780	232,370	230,658	228,939	227,219	225,496
Wastewater Service - Existing Rates			331,850	332,913	331,597	330,215	328,823	327,435	326,042
Total Service Revenue - Existing Rates			565,396	566,693	563,967	560,873	557,762	554,654	551,538
Additional Service Revenue Required									
Year	Percent Increase	Months Effective							
FY 2013	4.48%	6		9,546	25,266	25,127	24,988	24,848	24,709
FY 2014	4.48%	12			26,398	26,253	26,107	25,962	25,816
FY 2015	4.48%	12				27,429	27,277	27,125	26,972
FY 2016	5.10%	12					32,443	32,262	32,081
FY 2017	5.10%	12						33,907	33,717
FY 2018	5.10%	12							35,436
Total Additional Service Revenue Required			0	9,546	51,664	78,809	110,815	144,104	178,731
Total Water & Wastewater Service Revenue			565,396	576,239	615,631	639,682	668,577	698,758	730,269
Transfer From/(To) Rate Stabilization Fund			14,435	43,140	12,095	2,245	10,635	(14,355)	(11,645)
Other Income (a)									
Other Operating Revenue			16,663	19,622	19,676	19,631	19,485	19,440	19,395
Construction Fund Interest Income			1,156	1,215	2,018	1,454	2,083	3,137	4,443
Debt Reserve Fund Interest Income			0	0	0	0	0	0	0
Operating Fund Interest Income			356	550	735	943	1,173	1,363	1,606
Rate Stabilization Interest Income			749	908	934	1,079	1,199	1,433	1,903
Total Revenues			598,755	641,674	651,089	665,034	703,152	709,776	745,971
OPERATING EXPENSES									
Water & Wastewater Operations			320,010	344,788	354,719	357,559	369,134	378,802	388,901
Direct Interdepartmental Charges			48,523	51,331	51,511	50,878	52,014	52,551	53,097
Total Operating Expenses			368,533	396,119	406,230	408,437	421,148	431,353	441,998
NET REVENUES AFTER OPERATIONS			230,222	245,555	244,859	256,597	282,004	278,423	303,973
DEBT SERVICE									
Senior Debt Service									
Revenue Bonds									
Outstanding Bonds (b)			187,537	190,262	185,279	177,241	183,171	155,359	155,440
Pennvest Parity Bonds (c)			3,180	10,211	11,839	12,175	12,175	12,310	12,844
Projected Future Bonds			1,128	2,461	3,584	19,198	32,073	55,069	72,963
Total Senior Debt Service			191,845	202,934	200,702	208,614	227,419	222,738	241,247
TOTAL SENIOR DEBT SERVICE COVERAGE (L22/L26)			1.200 x	1.210 x	1.220 x	1.230 x	1.240 x	1.250 x	1.260 x
Subordinate Debt Service									
Outstanding General Obligation Bonds			0	0	0	0	0	0	0
Pennvest Subordinate Bonds			1,022	0	0	0	0	0	0
Total Subordinate Debt Service			1,022	0	0	0	0	0	0
Total Debt Service on Bonds			192,867	202,934	200,702	208,614	227,419	222,738	241,247
CAPITAL ACCOUNT DEPOSIT			18,476	19,000	19,380	19,767	20,163	20,566	20,977
TOTAL COVERAGE (L22/(L31+L32))			1.08 x	1.10 x	1.11 x	1.12 x	1.13 x	1.14 x	1.15 x
RESIDUAL FUND									
Beginning of Year Balance			34,909	50,169	2,412	7,689	15,404	15,826	15,944
Interest Income (d)			237	398	0	0	0	0	0
Plus:									
End of Year Revenue Fund Balance			18,879	23,621	24,777	28,216	34,422	35,119	41,749
Deposit for Transfer to City General Fund (e)			1,351	2,073	2,153	2,762	3,433	4,011	4,589
Less:									
Transfer to Construction Fund			0	0	19,500	20,500	34,000	35,000	42,300
Transfer to City General Fund			1,351	2,073	2,153	2,762	3,433	4,011	4,589
Transfer to Debt Service Reserve Fund			3,856	71,776	0	0	0	0	0
End of Year Balance			50,169	2,412	7,689	15,404	15,826	15,944	15,394
RATE STABILIZATION FUND									
Beginning of Year Balance			156,563	142,128	98,988	86,893	84,648	74,013	88,368
Deposit From/(To) Revenue Fund			(14,435)	(43,140)	(12,095)	(2,245)	(10,635)	14,355	11,645
End of Year Balance			142,128	98,988	86,893	84,648	74,013	88,368	100,013

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

(b) Excludes debt service refunded by proposed 2012 Bonds.

(c) Includes 2009 Pennvest Loans.

(d) Includes interest earnings on Debt Service Reserve substitution funds deposited in the Special Water Infrastructure Account.

(e) Transfer of interest earnings from the Bond Reserve Account to the Residual Fund as shown in Line 35 to satisfy the requirements for the Transfer to the City 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 change of water and sewer 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 Rate Determination.

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 August 31, 2012, the notional amount under the Swaption is $83,275,000 and the fair value of the Swaption, from the City's perspective inclusive of all net accrued payments, is ($10,614,720).

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 current rate schedule, results in an annual charge of $312.96 for water service, $212.28 for wastewater service and $163.92 for stormwater service, for a total of $689.16 per year.

The Water Department is currently in the process of implementing an increase in rates and charges for water, wastewater and stormwater service. This process commenced on February 3, 2012, when the 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 concerns revenues, revenue requirements, cost allocation and rate design issues. Phase II concerns 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 2 hearings are scheduled to begin October 23, 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 revenue requirements from $173,000,000 to $140,000,000. Upon approval by the Hearing Officer and the Water Commissioner, the impact of the proposed settlement would be to authorize an increase in revenues by 4.48% on an average annual basis for the three-year period Fiscal Years 2013 through 2015, as compared to the originally proposed 6.50% average annual increase over a four year period Fiscal Years 2013 through 2016. Any additional revenues necessary for Fiscal Year 2016 will be the subject of a future rate increase. The proposed 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 Water Department also is negotiating the withdrawal of the rate challenge to the 2008 Water Commissioner Rate Determination. The basis for the resolution of this civil action is the subject of an agreement that the Department will undertake a limited scope management audit of certain data, practices and procedures. The negotiation of this agreement will be concluded in September 2012 and will take effect simultaneously with the implementation of the 2012 Rate Determination.

The legality of the previous Water Commissioner Rate Determination in October of 2008 had 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 purported 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 established three successive increases in water and sewer rates implemented during the period including Fiscal Years 2010 through 2012.

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 the 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 2011 data indicates the amount due from the City to be $25,888,232 with $1,095,694 due from the Division of Aviation. For Fiscal Year 2010, the City paid $24,113,187 for water, sewer, stormwater and fire connection charges and other services provided by the Water Department, which represented 4.41% of the Water Department's total revenues for that year. The Water Department also charged the City's Division of Aviation $768,056 for water, sewer, stormwater and fire connection charges and other services provided by the Water Department for Fiscal Year 2010. The Fiscal Year 2013 budget included an estimate of $28,400,000 for charges to the City's General Fund and $2,000,000 for charges to the City's Aviation Fund. Preliminary Fiscal Year 2012 data indicates the amount due from the City to be $26,809,515 with $2,794,544 due from the Division of Aviation. Projections in the Engineering Report include $25,799,000 in Fiscal Year 2012 and $26,835,000 in Fiscal Year 2013. 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.

Top 10 Water Customers, FY2012

	Customer	Billing ($)	% Total Billings	Consumption (ccf)	Total Consumption
1	City of Philadelphia	$33,707,136.39	6.02%	4,658,348	6.23%
2	Philadelphia Housing Authority	11,729,572.58	2.10%	1,778,939	2.38%
3	School District	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	UPHS	1,919,217.21	0.34%	405,451	0.54%
	Total	$72,288,035.63	12.92%	11,664,102	15.59%
	Total Overall Billing/Consumption	$559,688,584.42	100.00%	74,817,165	100.00%

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 will be included on the ballot for consideration by the voters in November 2012. If an amendment of the Charter is approved by referendum, City Council would be 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.

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 and $2,600,000 in Fiscal Year 2011. Collection agencies are also being utilized to collect on commercial delinquencies.

The Water Department is currently obligated to adhere to 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, 74,338 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 32,628 accounts and collected $6,068,655 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 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 sale initiative whereby properties with high water delinquencies are identified for Sheriff 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. The Water Department also has been accepting credit cards on-site as an alternative to the on-site discontinuance of service and plans to expand the types of electronic payments accepted.

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.

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. 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 Year 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 and executed on May 18, 2011. For more information about this new contract see the section below, "Bucks County Water and Sewer Authority." Sales to Aqua Pennsylvania ("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, 2011 are $116,406,862. Wholesale customer revenues for Fiscal Year 2012 are set forth below.

Wholesale Customer Revenues, FY2012

Wastewater	**O & M**	**Capital**	**Total**
Delcora	$8,440,530	N/A	$8,440,530
Bucks County Water & Sewer Authority	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
Bucks (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
Total	$34,321,789	$620,989	$4,942,778
Water	**O & M**	**Capital**	**Total**
Bucks County Water & Sewer Authority	7,203,094	N/A	7,203,094
Aqua Pennsylvania	3,797,974	N/A	3,797,974
Total	$11,001,067		$11,001,067
Total Wholesale Revenues	**$45,322,857**	**$620,989**	**$4,943,846**

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-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 Aqua Pennsylvania 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 (the "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 as opposed to just the part of the water system that directly serves BCWSA. This is similar to the rate methodology used for the Aqua Pennsylvania contract.

The Water Department and the BCWSA executed an amendment to their 1988 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 July 1, 2012 Bucks County's contract capacity was reduced at their request by 4.0 MGD to reflect reduced sales for portions of Bucks County served by Aqua Pennsylvania. Projected sales volume has also been reduced in the engineering report by 3.5 MGD. On August 22, 2012 Bucks County filed a dispute letter with the department regarding their 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 Bucks' request on September 12, 2012 with a plan for resampling each of the standardized connections as required by the contract over subsequent quarters as time and resources permit. A response has not yet been received.

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 on new capital projects begun after January 1, 2010. 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.

Delaware County Regional Water Quality Control Authority. The Water Department had been serving the Delaware County Regional Water Quality Control Authority ("DELCORA") under a thirty 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 their management fee to 12%, maintained their contractual flow limits at current levels, and re-structured their exceedance charges for any exceedances in flows or pollutant loadings.

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. Discussions regarding a new contract are nearly complete. The proposed 15 year contract would maintain the current capacity and require DELCORA to contribute towards a portion of the City's LTCP costs.

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

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 the Township's future wastewater billings.

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. Current stormwater rates and charges became effective on July 1, 2010 (Fiscal Year 2011), and are being phased in over a four year period. New stormwater rates are planned for January 2013 after conclusion of the phase 2 rate process.

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 $11.06 plus a billing and collection charge of $2.60 for a combined charge of $13.66 monthly as part of the monthly service charge. This charge is currently based upon the weighted average residential parcel gross and impervious area of a residential property, is currently still associated with the standard 5/8-inch residential meter.

Beginning in Fiscal Year 2011, all residential properties, regardless of meter size, were assessed a separate service charge for stormwater management services and related billing and collection costs. The current meter based stormwater charge component has been removed from the wastewater service charge portion of their bill.

All non-residential properties are being transitioned from a meter based charge to a charge based on gross and impervious area for stormwater charges across its entire customer base over a four-year period, which began on July 1, 2010. This transition 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 water and sewer 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. Currently, 33,036 new parcels are billed for these charges.

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 low interest loans 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 and that will provide the customer with a stormwater credit. The proposal for an expanded assistance program in the current rate case would temporarily suspend this program.

- A temporary Stormwater Assistance Phase-in Program ("SWAPP") that caps non-residential customers who see more than a 10% increase and more than a $100 increase in their monthly bill between their Fiscal Year 2011 and Fiscal Year 2012 monthly stormwater fees. This program is in place for Fiscal Year 2012 with the option for the Water Department to renew it in Fiscal Year 2013. Currently, 303 accounts are enrolled in this program. It should be noted that 93 accounts have applied for this program and were denied because of eligibility criteria.

- The Water Department expanded the SMIP to include a grant component. The first series of Fiscal Year 2012 SMIP grants have been awarded.

- 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 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 pending the outcome of the phase 2 hearings and the examination of an enhanced CAP program in the rate process.

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 2013 through 2018 and the Water Department's 2013 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 and Planning and Engineering Division is continuing to implement improvements to the Water Department's capital program planning process to better anticipate future needs for the 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.

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 between the Operations and Planning and Engineering 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 2013 through 2018.

Fiscal Years 2013-2018
Capital Improvement Program
(In Dollars)

Capital Budget Summary	2013	2013-2018
Collector System/CSO/Flood Relief	$103,160,000	$718,860,000
Conveyance System	35,085,000	210,410,000
Engineering, Administration & Material Support	30,328,000	197,458,785
Treatment Facilities	60,000,000	381,000,000
Totals	$228,573,000	$1,507,728,785

Development of Fiscal Year 2013 Capital Budget

The Charter requires City Council to adopt a balanced capital budget for the fiscal year on or before May 31 of each 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 2013 in October 2011. The proposed 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 28, 2012. City Council approved the Fiscal Year 2013 capital budget in June 2012.

Development of Fiscal Year 2014 Capital Budget

The Water Department is nearing the preparation of its capital budget request for Fiscal Year 2014. Such request has not yet been finalized or endorsed by the City Planning Commission, the Mayor or City Council.

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 2013 through 2018. 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 several transactions as necessary to fund the approved Capital Improvement Program. The City expects to issue up to $200,000,000 principal amount of bonds in the second half of Fiscal Year 2013 under the Fourteenth Supplemental Ordinance. 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 our CSO consent order. As described in the Engineering Report, certain additional revenue bond issues are anticipated. As part of the Capital Improvement Program, the Water Department anticipates additional borrowings of $160,000,000 in Fiscal Year 2015, $195,000,000 in early Fiscal Year 2016 and $265,000,000 in late Fiscal Year 2016, $275,000,000 in early Fiscal Year 2018 and $300,000,000 in late Fiscal Year 2018. The remaining anticipated bond issues in Fiscal Years 2014 through 2015 and $90,000,000 of the bonds issued in 2016 are authorized under the Fourteenth Supplemental Ordinance. The remaining anticipated bond issues in Fiscal Year 2015 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 drawn down $141,854,362.24 on these Pennvest loans through August 31, 2012.

New River City Program

Under the terms of the General Ordinance, 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 Debt Reserve Account Amendment and 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) were deposited into the Special Water Infrastructure Account of the Residual Fund as required by the General Ordinance. There have been no subsequent surety substitutions to 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 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, $10,688,271.51 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.

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 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.

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. The AL for

lead is defined as less than or equal to 0.015 mg/L in 90% of the home tap samples. 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 met the action levels for both lead and copper.

Lead and Copper Monitoring History

			Lead		Copper	
Year	**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.

In January 2006, EPA promulgated the Long Term Stage 2 Enhanced Surface Water Treatment Rule ("LT2ESWTR") and the Stage 2 Disinfection and Disinfection Byproducts Rule ("Stage 2 D/DBPR"). Full implementation of these regulations began in April 2012 with reporting to the PaDEP. The Water Department, through previous treatment changes, already complies at all three water treatment plants. All three water treatment facilities, Baxter, Queen Lane and Belmont, are operating the enhanced coagulation process to achieve the total organic carbon removal goals established in the IESWTR. Belmont and Queen

Lane dose potassium permanganate at the raw water intake mains to control algae and odors during the March through October period. Baxter utilizes powdered activated carbon for odor control (algae growth is not a problem in the Delaware River) and to enhance total organic carbon removal during storm events. Chlorine contact goals ("CT") are achieved by dual feed chlorine application points at each facility. Combined filter effluent turbidity at each facility routinely averages 0.06 NTU, well under the 0.30 NTU regulatory limit. Total trihalomethanes (TTHM) and haloacetic acids (HAA5) average about 50% and 65% of the regulatory limits, respectively, of 80 and 60 ppb. In January 2006, EPA promulgated the Long Term Stage 2 Enhanced Surface Water Treatment Rule ("LT2ESWTR") and the Stage 2 Disinfection and Disinfection Byproducts Rule ("Stage 2 D/DBPR"). Full implementation of these regulations began in March, 2012 with reporting to the PaDEP, but the Water Department, through previous treatment changes, already complies with these new rules for its Baxter and Belmont water treatment plants and is prepared to comply in 2012 for the Queen Lane water treatment plant. The Queen Lane water treatment plant is in bin 2 for the *Cryptosporidium* removal credit requirements under the LT2ESWTR. A second round of regulatory monitoring for *Cryptosporidium* will begin in 2013 and last for two years, after which revised calculations will be made upon which to base the bin levels. BLS has approved analysts who will perform the testing and reporting to PaDEP for *Cryptospodium* in 2013-2014. The combined filter effluent (CFE), individual filter effluent (IFE), and source water protection credits allowed under the rule will be pursued by the Water Department. Each of these programs award a 0.5 log removal credit. An additional 1 log removal is required for bin 2. Queen Lane has over five years of experience achieving the CFE and IFE credit requirements. Water quality improvements, especially in the area of reducing disinfection byproduct formation, will still be pursued. 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 Individual Distribution Sampling 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 new rule will be achieved in March 2013 when locational running annual averages (LRAA) can first be calculated for compliance determinations.

The US EPA's third Unregulated Contaminant Monitoring Rule ("UCMR-3") was published in May, 2012. The US EPA is required to collect national occurrence data on unregulated contaminants from a list of up to 30 parameters every 5 years. The first and second UCMR programs took place already and the Water Department complied with both of them. The UCMR-3 monitoring will begin in January 2013 and will last for 3 years wherein the Water Department must collect quarterly samples across one year. BLS is set up to comply with sampling beginning in 2013. 27 chemicals and 2 viruses are on the list of contaminants in the UCMR-3. This is a requirement to collect new data and report the data to the US EPA. Therefore, the Water Department will be able to comply. The results will be published in the Water Department's annual water quality report of Consumer Confidence Report, as required by the US EPA for full disclosure to the customers.

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. 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 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 for 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 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, commonly 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 I&I program to reduce infiltration into the Township's 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 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, commonly known as Act 537, to place a moratorium on the addition of any new connections to the Main Intercepting Sewer until the City submits a Corrective Action Plan

("CAP") to address the overflow and a Connection Management Plan (CMP) to insure 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. 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 Consent Order and Agreement (COA) regarding the overflows at Relief Point R-20. The COA requires the Water Department to construct a 3 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 a 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. The construction of this project is currently on schedule.

Stormwater Management

The Water Department delivers many of the City's stormwater management services, including maintenance of the City's 720 miles of separate storm sewers, 1,827 miles of combined sewers and approximately 76,214 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 83,870 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 2010. 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 2011. In Fiscal Year 2012, the Water Department cleaned 83,870 inlets, removing over 9,850 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, in Fiscal Year 2012. More recently, the Water Department has set for itself the goal of cleaning all inlets at least once per year, averaging 6,400 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 finalized 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 was submitted on March 29, 2010, in advance of the April 1, 2010 deadline, 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 in by December 2012. 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 recently contracted with the PaDEP to conduct a county-wide Act 167 Plan, focusing on the Pennypack (completed Summer 2011), Poquessing (Winter 2011) and Wissahickon (Fall 2012) watersheds over the next four years.

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 1,550 conceptual plans for stormwater zoning permits, over 1,150 final technical plans for stormwater building permits, over 475 coordinated reviews with the State Department of Environmental Protection, and over 530 erosion and sediment control site inspections. Plans reviewed cover approximately 2.7 square miles of earth disturbance, in which the first one inch of rainfall is required to be captured or infiltrated. As of September 2012, over 1,700 acres (2.7 square miles) of development have been approved resulting in a total of 1.6 billion gallons of runoff managed/reduced. Implementation of these approved plans will result in the reduction or management of over 1.6 billion gallons of runoff, or 4.0 % of the City's annual runoff.

RECENT DEVELOPMENTS

Iodine-131 Watershed Characterization Program

Iodine-131 (I-131) 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. Following the nuclear accidents in Japan in 2011, the EPA and the PaDEP increased monitoring of radionuclides, including Iodine-131, 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 Iodine-131 sampling program to characterize and better understand I-131 concentrations in Philadelphia's sourcewater and drinking water. the Water Department partnered with PaDEP and EPA, to undertake and coordinate a one year cross-agency sampling effort, information sharing and to develop a comprehensive radiological monitoring and communication strategy.

During the yearlong Iodine-131 sampling program, April 12, 2011 to April 11, 2012, the Water Department collected and analyzed over 500 samples of source water and drinking water. The Water Department results show I-131 levels in drinking water averaged less than 1.0 pCi/l, well below federal Maximum Contaminant Level (MCL) of 3 pCi/L. All source water results indicate that there are detectable levels of I-131 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 I-131 in the environment have documented the impact of Iodine-131 thyroid disorder treatments, in which a large portion of the Iodine 131 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 program confirms wastewater plant effluent as a pathway for I-131. the Water Department and joint partners PaDEP and EPA are in agreement that Iodine-131 is not just a local/regional issue. Iodine-131 is 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. Trace amounts are present in waterways around the world and in Philadelphia's rivers; however, the Water Department drinking water Iodine-131 levels are well below EPA limits and pose no risk to public health.

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 insure the current reliable operation of the CWB, weekly visual inspections of the repair site are conducted and additional inspections scheduled post rain/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, develop contingency plans and for long term replacement plan 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 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 need 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.

Oak Lane Reservoir

The Oak Lane Reservoir was taken out of service on Tuesday, 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 two-basin reservoir was originally installed in May 1997. The reservoir capacity is 70 MG and provided water to the East Oak Lane and West Oak Lane Pumping Stations. These pumping stations are now supplied directly from

Lardner's Point Pumping Station, and no supply disruptions have been encountered since the reservoir went out of service. After studying several options it was determined to replace the cover and liner at this reservoir site. Design work was expedited and the project was bid and awarded in March 2011. The low bid was $4,300,000. The contractor was issued a Notice to Proceed in March 2011. The cover and liner replacement work is 90% complete.

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 76.6 MGD at the close of Fiscal Year 2010. The Water Department has been very active in promoting new methods through the American Water Works Association ("AWWA"), and has attained the 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 the 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.

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Philadelphia Water Department – Water Revenue Bureau Annual Water Audit Summary

Component	FY2011	FY2010	FY2009	FY2008	FY2007	FY2006	FY2005	FY2004	FY2003	FY2002
Water Supplied, mgd (A)	250.0	244.5	245.8	250.7	255.3	253.8	260.3	263.0	270.2	263.0
Billed Consumption, mgd (B)	158.4	165.9	174.6	175.8	169.5	177.0	176.9	176.9	183.4	178.2
Unbilled Authorized Consumption, mgd (C)	2.1	2.0	2.1	2.1	2.3	2.4	2.3	2.4	3.0	2.5
Unbilled Authorized Consumption Costs	$866,917	$778,548	$713,800	$717,200	$214,300	$191,000	$155,200	$159,700	$180,400	$145,900
Total Authorized Consumption, mgd (D=B + C)	160.5	167.9	176.6	177.9	171.8	179.4	179.2	179.3	186.4	180.7
Water Losses, mgd (A-D)	91.2	76.6	71.2	72.8	83.5	74.4	81.1	83.7	83.8	82.3
Apparent Losses, mgd (E)	23.1	17.0	15.0	19.0	21.9	15.2	14.2	11.1	13.3	13.1
Apparent Losses costs, million	$43.5	$30.0	$22.2	$27.3	$30.8	$20.3	$19.1	$10.9	$10.0	$9.0
Real Losses, mgd (F)	66.3	59.6	56.2	53.8	61.6	59.2	66.9	72.6	70.5	69.2
Real Losses costs, million	$7.36	$5.87	$4.84	$4.9	$5.1	$4.3	$3.9	$4.1	$3.7	$3.4
Infrastructure Leakage Index, dimensionless	11.5	9.9	8.9	9.0	10.3	9.9	11.0	12.1	11.9	13.1
Non-revenue Water, mgd	91.6	78.6	73.3	74.9	85.8	76.8	83.4	86.1	86.8	84.8
Percent Non-revenue Water by volume*	39.7	34.9	32.3	32.4	36.3	32.7	34.6	35.4	32.1	32.2
Percent Non-revenue Water by cost	23.2	16.3	12.5	15.1	17.5	13.0	12.4	9.0	8.3	8.1

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 has been quantified at 158.4 MGD.

Over recent years the Water Department has implemented a host of programs to economically 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 Revenue Protection Program

Fiscal Year	Water Recovered (MGD)	Revenue Recovered
2000	1.39	$2,107,175
2001	5.81	3,001,906
2002	0.69	1,067,894
2003	1.14	5,209,030
2004	1.67	2,170,658
2005	1.74	2,891,680
2006	1.01	1,823,836
2007	0.36	982,494
2008	0.40	636,254
2009	1.00	1,603,539
2010	1.49	2,384,528
2011	2.30	3,683,600
Total	19.00	$27,562,594

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, 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. 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 six years of the program a total of over 36 miles of piping was scanned and 76 hidden leaks were pinpointed. 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 2011, hydrant availability was 99.7%. 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 2011, the Water Department coordinated with the Philadelphia Fire Department to inspect virtually all of the City's 25,353 fire hydrants and conducted 5,630 repairs, painted 3,675 hydrants and installed 514 tamper-proof hydrant locks on hydrants. Over 67.5% 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 226.2 breaks per 1,000 miles is significantly better than the national average of 270 breaks per 1,000 miles. By reducing the emergency repairs required, the Water Department is better able to manage its crews and other resources, and continually provide better service to its customers. The Water Department also closely monitors water main conditions to determine that adequate capital investment is made to ensure the integrity of the Water System.

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 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 $60,000,000 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 will continue until early fall. The 2012 trial protocol calls for a 1 week chlorine application within the sedimentation basin after every 30 days of zero chlorine operation. This chlorine "shock" to the basins is designed to minimize the growth of algae and fish within the basins. Anionic polymer in the rapid mix is also being tested on the south plant during the 2012 trial.

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 in 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 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 developing a 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 this issue effectively to the public. Examples of risk communication efforts include lead and copper corrosion, pharmaceuticals, haloacetic acids, and chloramines.

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 and pump stations, 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 the PaDEP and the EPA rulemaking for distribution systems.

Water Treatment Research

The Water Department is utilizing over 10 years of pilot plant research and full scale plant trails to plot out the future of water treatment. The Planning and Research Unit has conducted research on pre and post ozone, biologically active filtration, magnetic ion exchange (MIEX) technology, alternative coagulants, manganese control strategies, and biofilm in the distribution system. By conducting this research and additional plant full scale studies, the Water Department has developed a database which allows assessment of process alternatives, or combination of processes based on the impact on DBP levels. The Water Department will conduct a treatment alternatives evaluation using the internal water quality & pilot plant database, coupled with operational expertise and external consulting experts to develop and rank conceptual design strategies. The technologies investigated by the pilot plant, along with membrane filtration and ultraviolet radiation will be compared and potential benefits and costs analyzed using water quality goals, feasibility, and economics to produce conceptual designs. The final conceptual designs and assessments will be evaluated by Planning and Research, Operations, and the Water Department's Bureau of Laboratory Services to determine and recommend a plan for future advanced treatment technologies for each treatment plant and for the Water Department.

The Water Department's water research team is developing a 5-year and 25-year plan using a decision matrix to weigh the pros and cons of various alternatives. Metrics such as water quality, residual production, energy consumption, cost and hydraulic suitability are being used to discern which treatment

system will be the best in the long run. The research aspect of the water research team is being shifted from water treatment to distribution system water quality. Limited and specific research has started into measurement of biodegradable dissolved organic carbon, nitrification and biofilm growth.

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 declared 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

Completed in Fiscal Year 2005, a $6,000,000 pilot sewer assessment program 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. In Fiscal Years 2006-2012, the Water Department began to use 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 will continue the video inspections and perform additional excavations and repairs.

Wastewater Research

A wet weather monitoring program was established at the three WPCPs between 2008 and 2009 to evaluate the relationships between flow, TSS, and BOD along a storm's hydrograph in order to properly size high rate treatment facilities for the Water Department's CSO Long Term Control Plan ("LTCP") compliance. One year of sampling has been conducted at all three WPCP and this data is currently being summarized.

The dissolved air flotation thickeners ("DAFTs") at the Northeast and Southwest plants are being evaluated to optimize process performance. The purpose of this research is to optimize the performance of the existing DAFTs to maintain a consistent percent solids concentration between 4% and 5%. Currently, the percentage of solids in the DAFTs can drop below that range, particularly during winter months. The research for this project includes testing of the DAFT saturator tank efficiencies, an examination of current DAFT configuration and operation parameters, and a preliminary design of recommended improvements.

Nutrient removal is emerging as the next major water quality challenge for wastewater treatment. In 2009, EPA released a draft nationwide ammonia criteria for surface water based on ammonia toxicity for mussels. The DRBC Nutrient Subcommittee continues to express concern about the dissolved oxygen depletion in the Lower Delaware and the relationship between oxygen depletion and ammonia. Research is currently being done to determine how ammonia in the Southwest Water Pollution Control Plant effluent can be reduced by treating the biosolids centrate prior to entering the plant. This side stream treatment research project will utilize an existing aeration tank at the plant, which allows for low cost treatment by applying new research.

Algae are currently receiving a significant amount of attention both as biomass, which can be added to the anaerobic digester for, and as a good source of quality biofuel. Several initiatives are underway to use algae to increase energy sustainability at WPCPs in general, and these initiatives are being followed to determine applicability for the Water Department.

Computational Fluid Dynamics

Within the auspices of the Engineering Division, the capacity to conduct computational fluid dynamic (the "CFD") modeling has been generated. This tool allows for better design and/or analysis of hydraulic processes, which is the majority of processes utilized in water and wastewater treatment. This capacity is utilized by both the water and wastewater side of the Water Department. For example, it is being used at the wastewater treatment plants to identify and debottleneck flow restrictions in the aerobic digesters, design a chlorine feed injector to maximize mixing efficiency, and predict the impact of installing new equipment in a raw water pump station The CFD tool was successfully used to modify a wastewater effluent channel for improved flow capacity, with construction implemented in 2012. The development of this capacity is in line with the Water Department's history of strong internal engineering.

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.

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 OWW 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 recently contracted with the PaDEP to conduct a county-wide Act 167 Plan, focusing on the Pennypack completed in the summer of 2011, the Poquessing (spring 2012) and Wissahickon (fall 2013) watersheds over the next year.

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 (the "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. The SAN team members include the EPA Region III, the PaDEP, the Water Department, the DRBC, conservation districts, locally elected officials, watershed organizations, and other stakeholders assisting with crafting local solutions. In 2004, the SAN was awarded a $1,500,000 grant from the EPA's Targeted Watershed Program - one of only 13 awarded nationally in 2004. Funding from the grant is being applied to priority projects identified by the SAN's working groups.

The SAN working groups include a Steering Committee, a Planning Workgroup, and Technical Workgroups to address the complex issues in the Schuylkill River watershed. The SAN has been developing and implementing projects that restore and protect the watershed as a regional drinking water source; promoting stewardship and education; transferring the experience and lessons learned to other communities; and enhancing intergovernmental communication and coordination.

Most notably, the SAN initiated the first Early Warning System ("EWS") of its kind. The early notification of changes in river water quality is important to public water suppliers with drinking water intakes on both the Schuylkill and Delaware Rivers. The Delaware Valley EWS, which covers both the Schuylkill and lower Delaware Rivers, 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 emergency or contamination events.

In addition, the SAN also launched the first recreational advisory system of its kind in the summer of 2005. The Philly RiverCast System is a forecast of water quality that predicts potential levels of pathogens in the Schuylkill River between Flat Rock Dam and Fairmount Dam (i.e., between Manayunk and Boathouse Row). The Philly RiverCast System uses a three-tier color scale to designate the suitability of water quality for contact recreational activities.

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, RiverCast has experienced approximately 490,000 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. 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 and Washington Square West, Germantown) have experienced significant basement flooding during intense rain events. The frequency and intensity of flood producing rain events have increased over 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 the 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 Washington Square West area. These projects by their complex nature will take many years to design and construct. In order to provide relief for properties as quickly as possible while the 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 for a total of $225,675.48. In Fiscal Year 2012 the Basement Protection Program installed 40 backwater valves and other preventive devices for a total of $115,636.00.

This Backwater Valve installation program will consist of the Water Department, through private plumbers, evaluating flood prone properties to determine if they would benefit from the installation of a backwater valve(s). If the determination is positive, then a backwater valve configuration shall 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 valve(s). 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.

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 waste water 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 Department's Geographical Information System (GIS) in the mid-2000s, the 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 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 their assets. The Water Department currently has a suite of programs in place to manage and assess its infrastructure in order to best meet their 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. Consideration of 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 can 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 Philadelphia Water Department (the Water Department) is undertaking the development of a new process to determine renewal/replacement of water distribution system pipes. The overall goal of this undertaking is to report a test case in undertaking asset management strategies for a specific application and use its success to expand asset management to other areas of the Department. Distribution System capital planning was chosen as the test case.

Innovyze CapPlan software is being developed to the Water Department distribution system characteristics with predictive break rates assigned to each era of water main and the risk consequence of each of the water mains. A long-term financial analysis of how much to replace of the target water main population and is expected to be completed by the end of this fiscal year. The final product should be integrated into our water main replacement capital planning by the end of 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 it is 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 Philadelphia 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 process 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, and potentially fats, oils, and grease (FOG), to the anaerobic digesters at the Southwest WPCP.

In February of 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. The 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 and 10,688,271.51 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 $172,043.68 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 and the Water Department delivered its report to the EPA on March 31, 2003. Details of the enhanced security measures already taken and those presently under consideration cannot be disclosed.

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 were assigned to the main entrance at each water plant in 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 is scheduled to come to completion in 2013.

BLS became a member of the US EPA's Emergency Response 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 Fund and only secondarily out of the City's General Fund, in the event cash balances in the Water Fund are insufficient at the time of payment of the claim. The General Fund is then reimbursed by the Water Fund 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 $2.5 million in Fiscal Year 2007, $4.6 million in Fiscal Year 2008, $5.0 million in Fiscal Year 2009, $5.0 million in Fiscal Year 2010, $5.4 million in Fiscal Year 2011 and an estimated $4.5 million in Fiscal Year 2012 for claims against the Water Department. The Water Department's budget for Fiscal Year 2013 and 2014 each contains an appropriation for Water Department claims in the amount of $6.5 million.

TAX EXEMPTION

Federal Taxation

In the opinion of Ballard Spahr LLP and The Smyler Firm, Co-Bond Counsel, interest on the Bonds (including original issue discount, if any) is excludable from gross income for purposes of federal income tax under existing laws as enacted and construed on the date of initial delivery of the Bonds, assuming the accuracy of the certifications of the City and continuing compliance by the City with the requirements of the Internal Revenue Code of 1986, as amended (the "Code"). Interest on the Bonds is not an item of tax preference for purposes of either individual or corporate federal alternative minimum tax; however, interest on Bonds held by a corporation (other than an S corporation, regulated investment company, or real estate investment trust) may be indirectly subject to federal alternative minimum tax because of its inclusion in the adjusted current earnings of a corporate holder. Co-Bond Counsel express no opinion regarding other federal tax consequences of ownership or disposition of, or the accrual or receipt of interest on, the Bonds.

The Bonds are offered at a premium ("original issue premium") over their principal amount. For federal income tax purposes, original issue premium is amortizable periodically over the term of a Bond through reductions in the holder's tax basis for the Bond for determining taxable gain or loss from sale or from redemption prior to maturity. Amortization of premium does not create a deductible expense or loss. Holders should consult their tax advisers for an explanation of the amortization rules.

Commonwealth of Pennsylvania Taxation

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 presidential proposals, proposal of various federal committees, and legislative proposals in the Congress and in the states that, if enacted, could alter or amend the federal and state tax matters referred to herein or adversely affect the marketability or market value of the Bonds or otherwise prevent holders of the Bonds from realizing the full benefit of the tax exemption of interest on the Bonds. Further, such proposals may impact the marketability or market value of the Bonds simply by being proposed. It cannot be predicted whether or in what form any such proposals may be enacted or whether if enacted such proposals would apply to bonds issued prior to enactment. In addition, regulatory actions are from time to time announced or proposed and litigation is threatened or commenced which, if implemented or concluded in a particular manner, could adversely affect the market value, marketability or tax status of the Bonds. It cannot be predicted whether any such regulatory action will be implemented, how any particular litigation or judicial action will be resolved, or whether the Bonds would be impacted thereby.

Purchasers of the Bonds should consult their tax advisors regarding any pending or proposed legislation, regulatory initiatives or litigation. The opinions expressed by Co-Bond Counsel are based upon existing legislation and regulations as interpreted by relevant judicial and regulatory authorities as of the date of issuance and delivery of the Bonds, and Co-Bond Counsel has expressed no opinion as of any date subsequent thereto or with respect to any proposed or pending legislation, regulatory initiatives or litigation.

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 firms listed on the front cover page of the Official Statement (collectively, the "Underwriters"), at a purchase price of $82,777,445.13, which equals the principal amount of the Bonds, plus original issue premium of $12,796,090.35 and less an aggregate Underwriters' discount of $388,645.22. 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, an underwriter of the Bonds, has entered into a retail brokerage joint venture with Citigroup Inc. As part of the joint venture, Morgan Stanley & Co. LLC will distribute municipal securities to retail investors through the financial advisor network of a new broker-dealer, Morgan Stanley Smith Barney LLC. This distribution arrangement became effective on June 1, 2009. As part of this arrangement, Morgan Stanley & Co. LLC will compensate Morgan Stanley Smith Barney LLC for its selling efforts with respect to the Bonds.

Wells Fargo Securities is a trade name for certain capital markets and investment banking services of Wells Fargo & Company and its subsidiaries, including Wells Fargo Bank, N.A. ("WFBNA"). Wells Fargo Bank, National Association has entered into an agreement (the "Distribution Agreement") with Wells Fargo Advisors, LLC ("WFA") for the retail distribution of certain municipal securities offerings, including the Bonds. Pursuant to the Distribution Agreement, WFBNA may share a portion of its underwriting compensation with respect to the Bonds with WFA. WFBNA and WFA are both subsidiaries of Wells Fargo & Company.

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.

Such ratings reflect only the views of such ratings organizations and 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., 99 Church Street, New York, New York 10007; Standard & Poor's Ratings Service, 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 Ballard Spahr LLP and The Smyler Firm, both of Philadelphia, Pennsylvania, 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 Greenberg Traurig, LLP and Andre C. Dasent, P.C., both 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

Ballard Spahr LLP and The Smyler Firm, Co-Bond Counsel, each provide ongoing legal services to the City and the Water Department. The Smyler Firm also represents certain of the Underwriters in transactions unrelated to the issuance of the Bonds. Andre C. Dasent, P.C., Co-Underwriter's Counsel, provides ongoing legal services to the City and the Water Department. Black & Veatch Corporation, the Consulting Engineer, provides ongoing consulting and engineering services to the Water Department and other departments of the City.

Certain subsidiaries of Wells Fargo & Company (parent company of Wells Fargo Bank, National Association, a co-manager for the Bonds), have provided, from time to time, investment banking services, commercial banking services or advisory services to the City, for which they have received customary compensation. Wells Fargo & Company or its subsidiaries may, from time to time, engage in transactions with and perform services for the City in the ordinary course of their respective businesses.

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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

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APPENDIX I

FINANCIAL STATEMENTS OF THE WATER FUND
FOR FISCAL YEAR ENDED JUNE 30, 2011

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Financial Statements
For Fiscal Year Ended June 30, 2011

UNAUDITED AS OF JANUARY 30, 2012

CITY OF PHILADELPHIA WATER DEPARTMENT

2011 FINANCIAL STATEMENTS

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The City of Philadelphia Water Department
Management Discussion and Analysis

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 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, 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 58 percent of its water from the Delaware River and the balance from the Schuylkill River. The water system serves approximately 476,100 accounts through 3,159 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 478,900. 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 245 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 432 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 1.26 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 $778.0 million resulting from an excess of its assets over its liabilities; its unrestricted net assets showed a balance of $147.8 million.

The Water Fund's net assets showed an increase of $22.8 million during the current Fiscal Year compared with $39.3 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 $778.0 million.

Capital assets, such as land, buildings, meters, water mains, and sewer lines, less any outstanding debt issued to acquire these assets comprise $254.8 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, $375.4 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 $147.8 million.

Bond Issuance

On August 4, 2010, PWD settled on $185,000,000 in new money revenue bonds. The bonds were issued as the City of Philadelphia, Pennsylvania-Water and Wastewater Revenue Bonds, Series 2010C. The net proceeds of $170.5 million from these bonds will be used to fund a portion of the Water Department's 2011 to 2016 Capital budget and to pay costs related to the transaction. The City also terminated the two forward starting 2007 Swap agreements as further described in the forepart of the Official Statement for

this transaction. The bonds were issued at true interest cost of 4.373226%. The final bond maturity was in 2040 had yield of 4.884%. The 2010C issue was insured by AGM. The financing included the termination of the Wachovia (now Wells Fargo) forward starting swap agreement on July 27, 2010 which resulted in a termination payment of $15,015,000 which was funded with proceeds of the 2010C bonds and will be amortized over the life of these bonds for GAAP accounting purposes.

During Fiscal Year 2011, Pennvest loan number 75235 (series 2010B) completed the final settlement with the Authority. The maximum loan amount is $30,000,000. Estimated project costs are currently $30,000,000. No Project draws have been requested or received through June 30, 2011.

Additional debt service for these loans has been included in the Department's Fiscal Year 2011 budget, the Department's five year plan projections and the Engineering Report. The Pennvest 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.

Termination of Rate Lock (Swap) Agreement

In February, 2007 the City entered into a "rate lock" agreement with two counterparties for a $180,000,000 portion of certain bonds.

Each of the Swap agreements was terminated prior to its stated termination date. The Merrill Lynch agreement was terminated in Fiscal Year 2010 and a termination fee of $15.2 million was paid from the Water operating account. The Wachovia (now Wells Fargo) agreement was terminated on July 27, 2010 in connection with the issuance of the 2010C bonds.

Authorized and Unissued Bonds:

The department was authorized for the issuance of $135,000,000 in additional new money bonds under the 12th supplemental ordinance (no. 090321). These bonds were issued as part of the 2011B series Water and Wastewater Revenue bonds in November 2011.

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

Pennvest Loans

During fiscal years 2009 and 2010, the Water Department settled on several new Pennvest (the Pennsylvania State Infrastructure Financing Authority) Loans.

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

Subsequent Financing Events

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.

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, 2010, a typical residential customer's bill increased by an additional $3.20 a month, for a total monthly bill of $59.44. This change was for the period of July 1, 2010 to June 30, 2011. A typical senior citizen's monthly bill increased by an additional $1.88, or a total monthly bill of $36.91, 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. In addition, the Department has adopted rate changes to be phased in for Fiscal Year 2012. These changes include:

• $3.49 increase in the typical monthly bill (total monthly bill $62.93) from July 1, 2011 to June 30, 2012.

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.

2011 Regional Residential Water and Sewer Charges*

	Monthly Water Bill	Monthly Sewer Bill
Aqua Pennsylvania+	$53.61	N/A
Pennsylvania American Water+	$54.60	N/A
New Jersey American Water+	$35.59	N/A
North Penn Water Authority +	$22.59	N/A
North Wales Water Authority +	$20.16	N/A
Doylestown Township	$27.98	$38.75
Lower Gwynedd Municipal Authority **	N/A	$29.23
CCMUA (Camden County) **	N/A	$26.25
Trenton	$28.11	$25.57
Philadelphia Water Department	**$26.08**	**$17.69**

Rates in effect on November 14, 2011. Storm water charges ($13.66) 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

Historical Rates

The table below shows monthly water and sewer rates, based, in each case, on a typical customer with a 5/8 inch meter using 700 cubic feet or 5,236 gallons monthly.

Philadelphia Water Department
Monthly Water and Sewer Rate Charges

Effective Date	Water	Sewer	Total	Percentage Increase
07/01/1993	$10.61	$23.52	$34.13	N/A
07/01/1994	10.86	24.06	34.92	2.3%
07/01/1995	11.20	24.80	36.00	3.1
09/04/2001	12.16	24.77	36.93	2.6
07/01/2002	13.75	24.48	38.23	3.5
07/01/2003	15.06	23.60	38.66	1.1
02/01/2005	17.63	25.94	43.57	12.7
08/01/2005	18.06	26.32	44.38	1.9
07/01/2006	19.41	27.94	47.35	6.7
07/01/2007	20.36	28.99	49.35	4.2
11/01/2008	22.29	30.55	52.84	7.1
07/01/2009	24.56	31.68	56.24	6.4
07/01/2010	26.84	32.60	59.44	5.7
07/01/2011	29.37	33.57	62.94	5.9

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 2011 the department deposited $10.9 million from its Rate Stabilization Fund, bringing the cumulative fund balance to approximately $157.1 million, all of which is available to provide necessary working capital to the department and to offset future rate increases. In addition, approximately $17.5 million was transferred to the Residual Fund. These funds will be used to provide capital funding to reduce the amount of additional bond issues to fund the capital program. To date, the department has transferred in excess of $289.4 million to its capital fund via its annual 1% transfer and $87.4 million via additional discretionary transfers to capital from its Residual fund.

Maintaining excellence in water purity standards

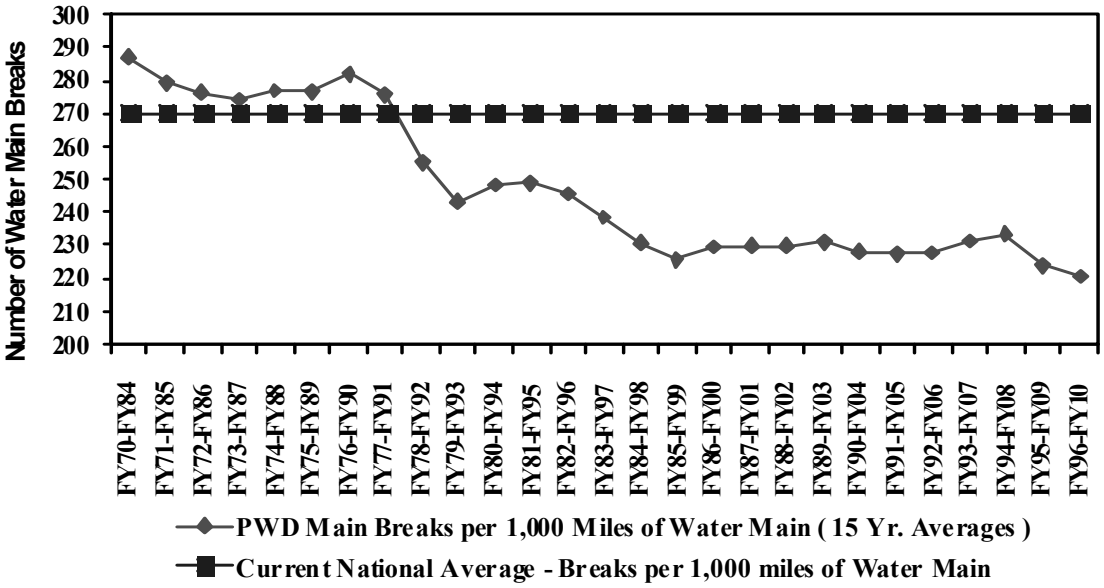
Philadelphia's drinking water meets or surpasses the requirements of state and federal standards 100 percent of the time. Since voluntarily joining the U.S. Environmental Protection Agency's (EPA) Partnership for Safe Water (PfSW) in 1996 (a joint program of the EPA and the water industry), the PWD has committed itself to reduced "turbidity," an industry standard measure of water purity. In FY10, the turbidity of Philadelphia's water (.05 ntu) was 83 percent lower than the amount required by state and federal regulations and 50 percent lower than the Partnership's turbidity goal of 0.1 ntu. Nationally, the Philadelphia Water Department's three water treatment plants are among an elite group of 31 facilities that have received the Director's Award from the Partnership for Safe Water for meeting the Partnership goals for 10 consecutive years. To put this in perspective, there are over 400 water treatment plants enrolled in the PfSW and there are over 4,700 water utilities nationwide

Optimize water and sewer main replacement

PWD closely monitors water main conditions to ensure that adequate capital investment is made, the integrity of the water supply system is sustained, and the occurrence of disruptive and costly water main breaks is reduced.

As shown in the chart below, the PWD's FY96-FY10 fifteen year moving average level of 221 breaks per 1,000 miles is less than the national average of 270 breaks per 1,000 miles, and is the lowest level in more than 20 years.

Main Breaks per 1,000 Miles of Water Main



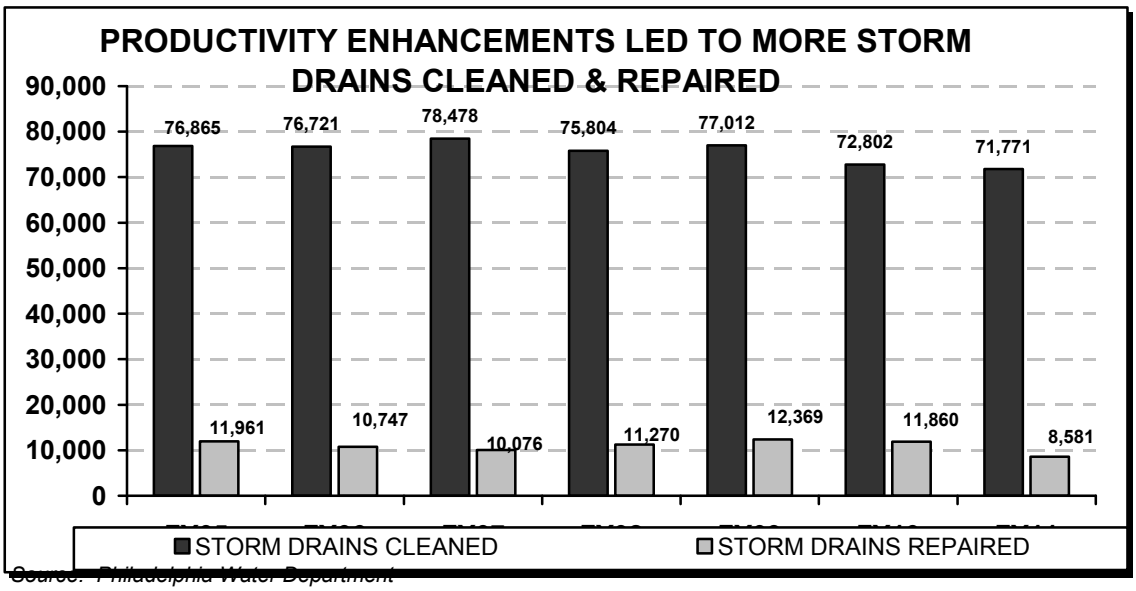
Reducing unbilled or non-revenue water

PWD maintains programs to reduce uncaptured revenue and loss of treated water from the distribution system. Over the past 16 years, PWD has cut non-revenue water by over 40 percent, from 133 million gallons per day (mgd) to 79 mgd at the close of FY2010. PWD continued a number of successful loss control initiatives in FY2010, including a leak detection and repair program that surveyed 1,133 miles of pipeline for leaks, and abated over 28 mgd of leakage, representing a cost savings of over $1,665,000. In FY2009 PWD completed the 3-year pilot phase of its first permanent District Metered Area (DMA) which includes pressure control features to reduce the occurrence of leakage and water main breaks. The results of this project have been impressive, saving over one million gallons of water per day for an annual savings of $55,000 with full payback projected by 2013. PWD is now considering applying this approach to the former Philadelphia Naval Shipyard site as it assumes operation and maintenance of the water and waste water infrastructure in this area. PWD is also one of the few water utilities in the United States employing inline leak detection services on its large-diameter transmission pipelines as a strategy to detect leaks before they become catastrophic ruptures. Through October 2010 a total of 63 leaks on almost 30 miles of large pipelines

have been identified and most have been repaired. In addition, the PWD's Revenue Protection Program continued to recover uncaptured revenue from billing errors, lost customer accounts, and unauthorized consumption. This program has recovered $23.4 million since its inception in 2000. Going forward, water loss control activities are keying on investigation of customer meter application and accuracy for large commercial and industrial customers, which, while small in number, account for a relatively large portion of the water consumed in the City of Philadelphia.

Improved stormwater flood control

PWD's management of the storm water system is an important multi-faceted service for both flood control and environmental protection. With approximately 79,500 storm drains to maintain, the Department focuses on keeping them in good condition to prevent blockage of storm water flow and creation of hazardous conditions for pedestrians. In FY11, PWD cleaned 71,771 storm drains. In addition, the Department reconstructed 8,581 storm drains. As shown on the following chart, the PWD has maintained a high level of performance in these two important areas, and aims to clean each storm drain at least once per year.



Source: Philadelphia Water Department

In January 2006, PWD initiated new Storm-water Regulations. The new regulations are an important tool in the City's efforts to reduce flooding and to protect our rivers and streams. Accordingly, all development projects that disturb more than 15,000 square feet of earth must comply with water quality and non-structural site design requirements that are consistent with state and federal storm water best management practices. During FY 11, PWD reviewed and approved plans for developments accounting for 285 acres. As a result of the storm water controls for these projects flows will be reduced by 252 million gallons per year. Stormwater regulations include four major components: Water quality protection, channel protection, flood control, and non-structural site design (minimizing impervious land cover). The results of this program since inception have been significant. The program has approved over 1,700 acres of proposed development. Based on this

area, approximately 1.7 billion gallons of storm water run off is managed annually, reducing excess burden and stress on the City's stormwater infrastructure and treatment plants.

Sinking Fund Reserve Substitution

In late November, 2007, a partial substitution in the amount of $67 million was completed. AGM was contracted to provide the surety policy. At that time the transaction costs were paid and the balance of the funds ($64,325,000) were deposited into the Residual Fund-Special Water Infrastructure Account as required by the Ordinance. No provision was included in either the Fiscal Year 2009 or Fiscal Year 2010 Water Fund budget for additional substitutions.

As part of the New River City program, the Water Department executed a program agreement with PAID to provide program management and oversight. To date, eight asset acquisition agreements totaling $83,697,833 have been executed (actual disbursements will be limited to the $64,325,000 in currently available funding and may be supplemented with the "Pennworks" grant/loan discussed herein). Four of the eight projects are substantially completed; final disbursement has been made on two of these, and the other two are in process. The other four projects are underway and are expected to be completed within the next 12 months. As described in a preceding section, the transfer of the water and sewer utilities at PNBC from PAID to the Water Department, including the projects outlined above, occurred in November, 2009.

Approximately $23.9 million was paid to PIDC during FY 2011 for this project.

Bond Insurance Ratings

On November 21, 2008, Moody's Investors Service Inc. ("Moody's") reduced the Aaa insurance financial strength of FSA and its affiliated insurance operating companies to Aa3 with developing outlook. An explanation of the significance of any rating action should be obtained from the rating agency furnishing same.

FSA currently meets the credit rating requirements prescribed by the General Ordinance with respect to eligible providers of supply policies for deposit in the Debt Reserve Account. The City and the Water Department are monitoring the financial condition and ratings of FSA in relation to such credit quality requirement, and are considering all options currently available to ensure continued compliance in this respect.

Protecting Drinking Water Supplies

PWD is the owner and operator of the highly renowned Delaware Valley Early Warning System (EWS). The EWS is an integrated monitoring, notification, and communication system designed to provide advanced warning of surface water contamination events in the Schuylkill and lower Delaware River watersheds.

The EWS is comprised of 4 principal components; the EWS Partnership, the notification system, the monitoring network, and the web-based database and portal. The EWS

Partnership consists of stakeholders, which include representatives from both public and private drinking water treatment plants in the coverage area, industries who withdraw water from the Schuylkill and Delaware rivers for daily operations, the federal government, and representatives of state government agencies from both PA and NJ. The notification system contains both automated telephone notification and web-based notification capabilities.

In order to further strengthen the monitoring and notification capabilities of the EWS, PWD recently implemented several system enhancements, including the integration of industrial users into the EWS Partnership, development of a Spill Model Analysis Tool for EWS users, and the addition of a stream designation component to the EWS telephony application. PWD is also currently implementing a 5-year Strategic Plan for the EWS. The recently developed EWS Strategic Plan identifies improvements and expansions that will enable the EWS to better fulfill its current roles and critical functions, while simultaneously supporting new functions that improve the system's monitoring and notification capabilities. In May 2011, PWD received grant funding approval under the Delaware Bay Area Maritime Port Security Grant Program. The funding will be used to implement an EWS Tidal Spill Trajectory Tool to accurately predict the movement of chemical, biological and radiological agents that might be discharged in the lower Delaware River and travel under tidal influence. The grant project will also enhance and upgrade GIS mapping technologies used by the EWS.

As of December 2011, the EWS consists of 50 partner organizations with 279 individual members. During 2011, there were a total of 31 water quality events reported to the EWS. Operation, maintenance and development costs during this period totaled approximately $350,000 and income from user fees totaled approximately $77,000.

Long-Term Control Plan for Combined Sewer Overflows

During heavy rainstorms, the release of some stormwater and sewage overflows from combined sewers (sewers that carry stormwater and sanitary waste in one pipe) to the City's rivers and streams, causes pollution to these waterways. In 1997, PWD submitted its Combined Sewer Overflow Long Term Control Plan (CSOLTCP) to the PA Department of Environmental Protection. These plans included the incorporation of Nine Minimum Controls (NMCs) - using industry accepted best practices to efficiently operate and maintain our sewer system, in addition to the identification of $48 million of capital improvement projects that would ensure localized capture and storage of wet weather flows within the existing sewer collection system These efforts successfully reduced overflow volume by three percent or six billion gallons a year. Initial efforts were focused on detecting and eliminating overflows during dry weather, getting the most storage possible in our sewer system, and stepping up inspections and monitoring at sites where overflows occur.

The final component of the CSOLTCP embraces the development of regional watershed partnerships committed to the development of Integrated Watershed Management Plans (IWMPs). These plans are guided by a 20 year vision to restore our region's waterways to fishable, swimmable and beautiful rivers and streams that are life sustaining and are an

amenity to our communities. In FY11 the PWD's *Green City, Clean Waters* proposal received approval from the Pennsylvania Department of Environmental Protection (PADEP) for a combined sewer overflow (CSO), long-term control plan (LTCP) that will reduce CSO's by 85%. The 25 year $2.5 billion LTCP highlights the innovative use of green and sustainable infrastructure to accomplish this goal. In September 2009, the Philadelphia Water Department released its *Green City, Clean Waters* plan for meeting its CSOLTCP to meet its regulatory obligations while also looking to ensure that investments in the stormwater system also help to revitalize Philadelphia environmentally. The department determined that a green stormwater management infrastructure approach would provide maximum return in environmental, economic and social benefits within the most efficient timeframe. Green stormwater infrastructure includes: planters, rain barrels, green roofs, permeable pavements, an enhanced network of street trees and restored creek corridors. Over the next five years, the PWD will lay the foundation for achieving the Green City, Clean Waters vision over the full 20 year implementation period of this plan and beyondbe moving from a planning to an implementation stage for this program. .

Waterways Restoration Program

During fiscal year 2004, the PWD created the Waterways Restoration Team (WRT), which consists of four crews devoted to removing trash and large debris from the streams and tributaries that define our neighborhoods. The teams also perform restoration work around PWD's storm and combined sewer outfalls and streambanks that contain exposed infrastructure. In addition, these teams maintain a number of green infrastructure Best Management Practices (BMPs) that have been installed by PWD and are recognized as a component of the department's sewer collection system. In FY08, the teams removed 346 tons of debris including 41 cars, 1,969 tires and 83 shopping carts from Philadelphia's streams. In FY09, 658 tons of debris was removed, in FY10 1,437 tons were removed, and in FY11 748 tons were removed. A large component of the team's mission is to work in partnership with the Fairmount Park Commission to restore tributaries and streams that have been significantly damaged over decades by the volume and velocity of flows from sewer outfalls and from the forces of storm water runoff.

Awards and Recognition

In calendar year 2011, the Philadelphia Water Department's three Water Pollution Control Plants were selected to receive two Platinum and one Gold Peak Performance Award from the National Association of Clean Water Agencies (NACWA). The Southwest Water Pollution Control Plant received a Gold Peak Performance Award for a year of perfect permit compliance, the Southeast Water Pollution Control Plant received a Platinum Peak Performance Award for 11 years of perfect permit compliance, and the Northeast Water Pollution Control Plant received a Platinum Peak Performance Award for 6 years of perfect compliance. NACWA's Peak Performance Awards program recognizes member agency facilities for excellence in wastewater treatment as measured by their compliance with their National Pollutant Discharge Elimination System (NPDES) permits. Gold Awards honor treatment plants that have achieved 100 percent

compliance for an entire calendar year. Platinum Awards pay special tribute to member agency facilities that have received Gold Awards for five consecutive years.

PWD received the EPA's Watershed Protection Award for its comprehensive source water protection program and continues to set a national model for regional watershed partnerships, waterways monitoring and the Early Warning System for spill and accident alerts and response

PWD received top honors as the national leader in green infrastructure. *Rooftops To Rivers II*, a report released in November 2011 by the Natural Resources Defense Council, assessed the green infrastructure solutions undertaken by 14 cities in the U.S. and Canada Only Philadelphia received a perfect score, meeting all six criteria for the environmental action group's "Emerald City" rating.

PWD's three drinking water treatment plants have consistently received the EPA's Partnership for Safe Drinking Water awards for providing drinking water at purity standards higher than required by federal law

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, 2011 AND 2010

(amounts in thousands)

	2011	2010
ASSETS		
Current Assets:		
Cash on Deposit and on Hand	$ 30	$ 30
Equity in Treasurer's Account	60,964	69,795
Due from Other Governments	230	373
Accounts Receivable	236,642	225,170
Allowance for Doubtful Accounts	(105,138)	(90,980)
Inventories	13,192	12,913
Prepaid Insurance - Surety Bond	-	-
Total Current Assets	205,920	217,301
Noncurrent Assets:		
Restricted Assets:		
Equity in Treasurer's Account	406,402	290,282
Sinking Funds and Reserves	130,299	117,852
Grants for Capital Purposes	-	-
Deferred Outflow - Financial Instruments	12,519	29,227
Receivables	952	898
Total Restricted Assets	550,172	438,259
Net Pension Asset	-	17,371
Capital Assets:		
Land	5,919	5,919
Infrastructure	2,055,254	1,983,922
Construction in Progress	270,769	204,591
Buildings and Equipment	1,514,322	1,497,507
Accumulated Depreciation	(1,959,538)	(1,880,592)
Total Capital Assets	1,886,726	1,811,347
Total Noncurrent Assets	2,436,898	2,266,977
Total Assets	**2,642,818**	**2,484,278**
LIABILITIES		
Current Liabilities:		
Vouchers Payable	7,529	25,043
Accounts Payable	8,080	8,388
Salaries & Wages Payable	4,044	3,641
Construction Contracts Payable	23,096	33,113
Accrued Expenses	22,465	19,292
Deferred Revenue	9,764	8,016
Funds Held in Escrow	1,906	-
Current Portion of Long Term Obligations	109,942	102,862
Total Current Liabilities	186,826	200,355
Noncurrent Liabilities:		
Long Term Obligations	1,704,443	1,555,568
Unamortized Discount and Loss	(75,206)	(81,322)
Derivative Instrument Liability	12,519	29,227
Other Noncurrent Liabilities	35,710	25,256
Net Pension Liability	542	-
Total Noncurrent Liabilities	1,678,008	1,528,729
Total Liabilities	**1,864,834**	**1,729,084**
NET ASSETS		
Invested in Capital Assets, Net of Related Debt	254,798	225,589
Restricted For:		
Capital Projects	88,011	97,580
Debt Service	130,298	117,852
Rate Stabilization	157,050	145,693
Unrestricted	147,827	168,480
Total Net Assets	**$ 777,984**	**$ 755,194**

STATEMENT OF REVENUES, EXPENSES AND CHANGES IN NET ASSETS
FOR THE FISCAL YEAR ENDED JUNE 30, 2011 AND 2010

(amounts in thousands)

	2011	2010
Operating Revenues:		
Charges for Goods and Services	$ 553,169	$ 546,361
Miscellaneous Operating Revenues	5,314	5,989
Total Operating Revenues	558,483	552,350
Operating Expenses:		
Personal Services	104,323	106,120
Purchase of Services	70,964	68,613
Materials and Supplies	35,147	35,429
Employee Benefits	91,046	71,634
Indemnities and Taxes	10,831	5,126
Depreciation and Amortization	86,924	86,490
Total Operating Expenses	399,235	373,412
Operating Income (Loss)	159,248	178,938
Nonoperating Revenues (Expenses):		
Operating Grants	2,726	3,048
Interest Income	4,659	6,015
Net Pension Obligation	(17,913)	(20,506)
Debt Service - Interest	(95,728)	(103,619)
Other Expenses	(7,310)	(4,967)
Total Nonoperating Revenues (Expenses)	(113,566)	(120,029)
Income (loss) before Transfers	45,682	58,909
Transfers Out	(24,930)	(28,315)
Capital Contributions	2,038	-
Change in Net Assets	22,790	30,594
Net Assets - Beginning of Period	755,194	715,896
Adjustment	-	8,704
Net Assets - End of Period	**$ 777,984**	**$ 755,194**

STATEMENT OF CASH FLOWS
June 30, 2011 (amounts in thousands)

	2011	2010
Cash Flows from Operating Activities		
Receipts from Customers	$ 564,965	$ 535,572
Payments to Suppliers	(125,583)	(89,110)
Payments to Employees	(190,006)	(175,309)
Claims Paid	(5,384)	(4,915)
Other Receipts (Payments)	-	-
Net Cash Provided by Operating Activities	**243,992**	**266,238**
Cash Flows from Non-Capital Financing Activities		
Operating Grants Received	2,726	3,048
Operating Subsidies and Transfers to Other Funds	(24,930)	(28,315)
Net Cash Provided by Non-Capital Financing Activities	**(22,204)**	**(25,267)**
Cash Flows from Capital & Related Financing Activities		
Proceeds from Capital Debt	244,292	13,431
Capital Contributions Received	2,038	-
Acquisition and Construction of Capital Assets	(174,208)	(136,316)
Interest Paid on Capital Debt	(82,753)	(96,799)
Principal Paid on Capital Debt	(102,790)	(99,919)
Other Receipts (Payments)		
Net Cash Provided (Used)by Non-Capital Financing Activities	**(113,421)**	**(319,603)**
Cash Flows from Investing Activities		
Interest and Dividends	(1,078)	4,560
Net Cash Provided by Investing Activities	(1,078)	4,560
Net Increase (Decrease) in Cash & Cash Equivalents	107,289	(74,072)
Balances - Beginning of the Year	360,107	434,179
Balances - End of the Year	**$ 467,396**	**$ 360,107**
Reconciliation of Operating Income (Loss) to		
Net Cash Provided (Used) by Operating Activities:		
Operating Income (Loss)	159,248	178,938
Adjustments to Reconcile Operating Income to Net Cash Provided (Used) by Operating Activities:		
Depreciation Expense	86,924	86,490
Change in Assets and Liabilities:		
Receivables, Net	4,734	(16,434)
Inventories	(279)	(113)
Accounts and Other Payables	(18,836)	16,819
Accrued Expenses	10,453	-
Deferred Revenue	1,748	538
Net Cash Provided by operating activities	**$ 243,992**	**$ 266,238**

BUDGETARY COMPARISON SCHEDULE
Water Operating Fund
For the Fiscal Year Ended June 30, 2011

(amounts in thousands)

Revenues	Budgeted Amounts Original	Budgeted Amounts Final	Actual	Final Budget to Actual Positive (Negative)
Locally Generated Non-Tax Revenue	$ 542,885	$ 540,127	$ 537,463	$ (2,664)
Revenue from Other Governments	3,300	3,300	2,869	(431)
Revenue from Other Funds	64,726	49,044	27,138	(21,906)
Total Revenues	**$ 610,911**	**$ 592,471**	**$ 567,469**	**$ (25,002)**
Expenditures and Encumbrances				
Personal Services	112,175	111,725	100,839	10,886
Pension Contributions	40,300	38,487	42,169	(3,682)
Other Employee Benefits	40,480	42,293	42,279	14
Sub-Total Employee Compensation	192,955	192,505	185,287	7,218
Purchase of Services	128,864	128,864	116,624	12,240
Materials and Supplies	47,414	47,898	39,731	8,167
Equipment	5,693	5,660	2,862	2,797
Contributions, Indemnities and Taxes	6,603	6,603	5,384	1,219
Debt Service	195,044	195,044	185,543	9,501
Debt Service - Interest	-	-	-	-
Short-Term Interest	-	-	-	-
Payments to Other Funds	51,337	51,337	54,263	(2,926)
Total Expenditures and Encumbrances	627,911	627,911	589,694	38,217
Operating Surplus (Deficit) for the Year	**$ (17,000)**	**$ (35,440)**	**$ (22,225)**	**$ 13,215**
Fund Balance Available, July 1, 2009	-	-	-	-
Operations in Respect to Prior Fiscal Years				
Commitments Cancelled - Net	17,000	17,000	22,225	5,225
Prior Period Adjustments	-	-	-	-
Adjusted Fund Balance, July 1, 2009	17,000	17,000	22,225	5,225
Fund Balance Available, June 30, 2010	**$ -**	**$ (18,440)**	**$ 0**	**$ 18,440**

CITY OF PHILADELPHIA WATER DEPARTMENT

BONDED DEBT FOR THE FISCAL YEAR ENDED JUNE 30, 2011

(amounts in thousands)

Series	ORIGINAL AUTHORIZATION Date	Issued	Outstanding June 30, 2011	Maturities	Interest Rates	FISCAL YEAR 2012 DEBT Service Interest	Principal Requirements	Outstanding June 30, 2012
Revenue Bonds:								
Series 1993	08/01/93	1,157,585	-	6/2008 to 6/2011	5.50 to 7.00	-	-	-
Series 1995	04/15/95	221,630	26,280	8/2007 to 8/2012	5.30 to 6.25	1,245	12,730	13,550
Series 1997 (B)	11/25/97	100,000	73,000	8/2007 to 8/2027	Variable	79	2,900	70,100
Series 1998	12/25/98	135,185	135,185	12/2011 to 12/2014	5.25	6,392	26,850	108,335
Series 2001	11/15/01	285,920	137,875	11/2011 to 11/2028	3.800 to 5.500	6,733	12,980	124,895
Series 2005 (A)	05/04/05	250,000	230,390	7/2007 to 7/2035	3.250 to 5.250	11,480	4,795	225,595
Series 2005 (B)	05/04/05	86,105	82,870	8/2007 to 8/2018	Variable	3,744	425	82,445
Series 2007 (A)	05/04/07	191,440	175,180	8/2007 to 8/2027	4.00 to 5.00	8,340	4,795	170,385
Series 2007 (B)	05/04/07	153,595	152,900	11/2007 to 11/2031	4.00 to 5.00	6,951	220	152,680
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	386,800	6/2010 to 6/2019	0.500 to 4.110	18,094	43,155	343,645
Series 2010 (C)	08/05/10	185,000	185,000	8/2016 to 8/2030	2.530 to 4.560	9,022	-	185,000
Pennvest - 1999	04/30/00	6,700	639	7/2007 to 4/2019	1.41 to 2.73	17	74	565
Pennvest - 2009 (B)	10/14/09	15,595	15,595	7/2013 to 6/2033	1.193 to 2.107	186	-	15,595
Pennvest - 2009 (C)	10/14/09	23,069	23,069	7/2013 to 6/2033	1.193 to 2.107	275	-	23,069
Pennvest - 2009 (D)	03/31/10	48,584	48,584	7/2013 to 6/2033	1.193 to 2.107	580	-	48,584
Total Revenue Bonds		**3,396,868**	**$ 1,813,367**			**80,433**	**108,924**	**$ 1,704,443**
General Obligation Bonds:								
Pennvest	06/15/93	20,000	1,018	07/2007 to 04/2012	1.00	5	1,018	-
Total Bonded Debt			**$ 1,814,385**			**80,437**	**109,942**	**$ 1,704,443**

ANNUAL BONDED DEBT SERVICE REQUIREMENT:

Fiscal Year	Interest	Principal	Total
2012	80,437	109,942	190,379
2013	75,185	117,271	192,456
2014	68,349	127,109	195,458
2015	63,203	133,503	196,706
2016	58,013	139,083	197,096

The First Series through the Thirteenth were refunded.

Capitalized Interest added to Construction in Progress in Fiscal 2011 was $3,870,413.
Interest Expense was reduced by the same amount.

SUPPLEMENTAL SCHEDULE OF RATE COVENANT COMPLIANCE FOR FISCAL YEAR ENDED JUNE 30, 2011 (Legally Enacted Basis)

(amounts in thousands)

LINE NO.		2011
1.	Total Revenue and Beginning Fund Balance	$ 589,694
2.	Net Operating Expense	(357,642)
3.	Transfer (To) From Rate Stabilization Fund	(10,872)
4.	**Net Revenues**	**221,180**
5.	Revenue Bonds Outstanding	(184,316)
6.	General Obligation Bonds Outstanding	-
7.	Pennvest Loan	(1,227)
8.	**Total Debt Service**	**(185,543)**
9.	**Net Revenue after Debt Service**	35,637
10.	Transfer to General Fund	-
11.	Transfer to Capital Fund	(18,114)
12.	Transfer to Residual Fund	(17,523)
13.	**Total Transfers**	**(35,637)**
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	**$221,180**
/ Line 5	**$184,316**
= COVERAGE A:	**1.20**

COVERAGE B:	
Line 4	**$221,180**
/ Line 8 + Line 11	**$203,657**
= COVERAGE B:	**1.09**

COVERAGE C:	
Line 4 - Line 3	**$232,052**
/ Line 5	**$184,316**
= COVERAGE C:	**1.26**

1. THE GOVERNMENT OF PHILADELPHIA

The City of Philadelphia was founded in 1682 and was merged with the county in 1854. The City currently occupies an area of 129 square miles along the Delaware River, serves a population in excess of 1.4 million and is the hub of a five county metropolitan area including Bucks, Chester, Delaware, and Montgomery counties in Southeastern Pennsylvania.

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 customers are residents of the city and approximately 9% are from Bucks County. Philadelphia has experienced a long trend of industry and population loss since 1950, with a particularly sharp economic retreat hitting in the late 1980's and early 1990's. The late 1990's saw a resumption of growth, with employment up 5.7% between 1998 and 2001, and then down about 1.6% between 2001 and 2003, reflecting the slowdown in the national economy. The decline flattened in fiscal 2004 and then grew by about 1.0% in 2005, 0.9% in 2006, and 0.7% in 2007. Although employment continued to grow for 2008 (overall annual growth was 0.2%), employment growth halted in October and turned negative in every month from November through March. Manufacturing has continued to decline in importance, and as of 2005, diversified services account for 54% of total employment (or more than 60% including the finance/insurance/real estate sector). Population loss during the 1990's was just over 4%, although this was only about half the loss that had been estimated prior to the 2000 census count. With an estimated 1.45 million residents, the city remains the nation's fifth most populous. 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 amendment 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:

Fund Balance-Legal Basis 6/30/11	$	-
Assets omitted from the legal basis:		
(1) Receivables from Other Governments or Funds	$	45,117
(2) Fixed Assets-Net of Depreciation		1,886,726
(3) Restricted Assets		537,442
(4) Proprietary Portion of Net Pension Obligation		(542)
	$	2,468,743
Liabilities omitted from the legal basis:		
(5) Construction Contracts Payable	$	(23,096)
(6) Other Current Liabilities		(142,559)
(7) Bonds Payable and Other Long-Term Debt		(1,664,946)
	$	(1,830,601)
Fund Balance accounts included in the legal basis:		
(8) Reserve for Collectible Receivables	$	86,631
(9) Reserve for Inventories		13,192
(10) Reserve for Purchase Commitments		40,019
	$	139,842
Equity accounts omitted from the legal basis:		
(11) Invested in Capital Assets, Net of Related Debt		(254,798)
(12) Restricted for Capital Projects		(88,011)
(13) Restricted for Debt Service		(130,298)
(14) Restricted for Rate Stabilization		(157,050)
	$	(630,157)
Unrestricted Net Assets – GAAP Basis – 6/30/2011	$	147,827

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 ordinance of 1989, amended 1993, which authorized the issuance of Water and Sewer Revenue Bonds, hereby 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 2011 was $3,870,413.

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, 2010 are included in accounts receivable. In addition an amount for services rendered through June 30, 2010, 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 2009 through Fiscal Year 2012 with City Council on April 4, 2008. The rate request was filed with the Department of Records on May 5, 2008. In accordance with the regulations, a hearing examiner and public advocate were appointed. Public hearings were held during the period from July 21 to July 31 and technical hearings were held during the week of August 11, 2008. The Department also proposed to change the way it charges customers for stormwater management services; this part of the case was concluded with the Water Commissioner's decision of July 21, 2009, and new stormwater rates and charges were effective on July 1, 2010.

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 Rate Determination has 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 contains 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. Preliminary objections were filed in response to the Complaint on January 22, 2010. These objections address all seven counts of the Complaint and request that the Common Pleas Court dismiss the Complaint on several grounds. Replies to such preliminary objections were filed February 12, 2010, and a sur-reply was filed on March 1, 2010. On May 12, 2010, the Court sustained the preliminary objections raised by the Water Department and dismissed the Complaint in its entirety. Plaintiffs appealed the Common Pleas Court dismissal to the Commonwealth Court of Pennsylvania. After the submission of briefs and oral argument, the Commonwealth Court reversed the Common Pleas Court dismissal on May 4, 2011 and remanded the case for further proceedings. A case management conference was held on October 3, 2011. The Case was assigned #091201695 and a scheduling order was issued on October 14, 2011. The City believes that the lawsuit is without merit; however, there can be no assurance of the outcome of the appeal pending before the Common Pleas Court and the effect of such litigation on future rates.

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-current). 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 2011 262 disconnection permits were issued resulting in a refund or final credit of approximately $331,640 and 1,034 new connection permits were issued resulting in additional advance service charges of approximately $380,680.

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 2011, excess interest earnings of $1,229,851 were transferred to the General Fund of the City.

3. ACCOUNTS RECEIVABLE

Balances consisted of the Following:

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

FISCAL YEAR ENDED JUNE 30, 2010

Accounts Receivable:		
Billed in the Last Twelve Months	$	130,889,170
Billed in 15-year Cycle Billing		43,896,918
Penalties on Receivables		28,576,468
Other Receivables		21,807,363
Total	$	225,169,919
Bad Debts Written Off	$	13,535,707
Allowance for Doubtful Accounts:		
Billed in the Last Twelve Months	$	-
Billed in 15-year Cycle Billing		41,994,835
Penalties on Receivables		27,484,229
Other Receivables		21,501,324
Total	$	90,980,388

4. THE TEN LARGEST RETAIL CUSTOMERS OF THE PHILADELPHIA WATER DEPARTMENT DURING FISCAL YEAR 2011

Customer	Billings (Millions)	% of total Billings	Consumption (MGD)	% of Total Consumption
City of Philadelphia	**$ 30.050**	**5.56%**	**4.44**	**5.42%**
Philadelphia Housing Authority	**11.541**	**2.14%**	**1.88**	**2.29%**
Philadelphia School District	**6.344**	**1.17%**	**0.59**	**0.72%**
Trigen Corporation	**4.361**	**0.81%**	**1.08**	**1.32%**
University of Penna.	**3.821**	**0.71%**	**0.76**	**0.92%**
Sunoco	**3.710**	**0.69%**	**2.27**	**2.77%**
Temple University	**3.015**	**0.56%**	**0.61**	**0.74%**
Federal Government	**2.454**	**0.45%**	**0.33**	**0.40%**
Paperworks Industries Inc.	**2.187**	**0.40%**	**1.46**	**1.78%**
SEPTA	**1.994**	**0.37%**	**0.18**	**0.22%**
Total Top Ten	**$ 69.476**	**12.86%**	**13.59**	**16.58%**
Total Retail Billings	**$ 540.469**		**82.03**	

5. WHOLESALE CUSTOMERS OF THE PHILADELPHIA WATER DEPARTMENT DURING FISCAL YEAR 2011

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	**$ 8,857,559**
Bucks County Water & Sewer Authority	**7,032,982**
Cheltenham Township	**3,206,008**
Upper Darby Township	**2,726,033**
Lower Southampton Township	**2,679,088**
Lower Merion Township	**2,376,781**
Springfield Township - Erdenheim	**1,466,265**
Bucks (for Bensalem) *	**1,447,024**
Abington Township	**1,220,131**
Lower Moreland Township	**700,356**
Springfield Township - Wyndmoor	**238,807**
Total	**$ 31,951,034**

Water Customer	Revenues
Bucks County Water & Sewer Authority	**6,481,920**
Aqua - PA	**3,445,684**
Total	**$ 9,927,604**
Total Wholesale Revenues	**$ 41,878,638**

6. PROPERTY, PLANT AND EQUIPMENT

Property, plant and equipment at June 30, 2011 and 2010 consisted of the following:

Fiscal Years Ended	**June 30, 2011**	**June 30, 2010**
Land	$ 5,919,160	$ 5,919,160
Buildings and related improvements	1,446,222,750	1,427,513,880
Meters and other improvements	96,866,875	96,773,569
Equipment	68,098,745	69,993,066
Transmission and distribution lines	1,958,386,850	1,887,148,203
Construction in progress	270,769,067	204,590,604
Total	$ 3,846,263,447	$ 3,691,938,482
Less: Accumulated Depreciation	(1,959,538,121)	(1,880,592,059)
Total	$ 1,886,725,326	$ 1,811,346,423

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. Total payments for Fiscal Year 2009 were $12,609,352. Total payments for Fiscal Year 2010 were $22,828,657. Total payments for Fiscal Year 2011 were $21,418,021. The Fiscal Year 2012 proposed budget includes $22,510,000 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 2011

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 2011 was $9,413,414 and in 2010 was $9,120,870. 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 $2,146,804 in photocopier and computer equipment in Fiscal 2011. 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 2011 the fund had the following activity:

Balance at July 1, 2010	$ 145,692,991
Deposit from Operating Fund	10,872,463
Interest Earnings	484,919
Interest Transferred to Water Operating Fund	-
Balance at June 30, 2011	**$ 157,050,373**

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, 2010	$ 63,380,087
Interest Income	178,077
Deposit from Operating Fund	17,522,642
Capital Payments for New River City Project	(23,888,520)
Transfer to General Fund	(1,229,851)
Transfer to Sinking Fund Reserve	(2,446,497)
Balance at June 30, 2011	**$ 53,515,938**

Note: Currently $18,602,941 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. A transfer of $1,520,444.68 from the water residual fund to the water debt service reserve fund was made on or about September 30, 2011 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.

As of June 30, 2011, $18,602,941 in unexpended proceeds from the substitution remains. PWD has approved projects that are currently in process that would expend the balance of the remaining funds.

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. There was an arbitrage liability as of June 30, 2009 in the amount of $493,111.00. There was an arbitrage liability as of June 30, 2010 in the amount of $72,158.00. As of June 30, 2011, there was an arbitrage liability of $76,295.00.

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. At year end, $171.0 million of bonds outstanding was considered defeased.

Financings

On August 4, 2010, PWD settled on $185,000,000 in new money revenue bonds. The bonds were issued as the City of Philadelphia, Pennsylvania-Water and Wastewater Revenue Bonds, Series 2010C. The net proceeds of $170.5 million from these bonds will be used to fund a portion of the Water Department's 2011 to 2016 Capital budget and to pay costs related to the transaction. The City also terminated the two forward starting 2007 Swap agreements as further described in the forepart of the Official Statement for this transaction.

The bonds were issued at true interest cost of 4.373226%. The final bond maturity was in 2040 had yield of 4.884%. The 2010C issue was insured by AGM. The financing included the termination of the Wachovia (now Wells Fargo) forward starting swap agreement on July 27,

2010 which resulted in a termination payment of $15,015,000 which was funded with proceeds of the 2010C bonds and will be amortized over the life of these bonds for GAAP accounting purposes. The department received confirmation of its existing bond ratings from each of the three major bond rating agencies. (Moody's: A1, S&P: A, Fitch: A+)

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.

Pennvest loan number 83104 (series 2009B), for water treatment plan improvements, was settled on October 14, 2009. The maximum loan amount is $42,886,030. Estimated project costs are currently $32,658,978. Project draws (including retainage), in the amount of $17,397,424, have been requested through June 30, 2010 of which $15,595,211 was received through June 30, 2011. Interest only payments on this loan began on September 1, 2011. Total project draws through December 31, 2011 have totaled $18,990,956.

Pennvest loan number 83105 (series 2009C), for water main replacements, was settled on October 14, 2009. The maximum loan amount is $57,268,193. Estimated project costs are currently $48,067,575. Project draws (including retainage), in the amount of $37,206,823, have been requested and $23,068,887 have been received through June 30, 2011. Interest only payments on this loan began on July1, 2010. Total project draws through December 31, 2011 have totaled $35,666,542.

Pennvest loan number 27771 (series 2009D), for sewer projects, was settled on March 31, 2010. The maximum loan amount is $84,759,263. Estimated project costs are currently $82,084,703. Project draws (including retainage) in the amount of $51,447,572 have been requested through June 30, 2010. Reimbursements of $48,583,956 were received on this loan through June 30, 2011. Interest only payments began on this loan on August 1, 2010. Total project draws through December 31, 2011 have totaled $48,583,956.

Pennvest loan number 75235 (series 2010B), for Green projects was completed on February 16, 2011. The maximum loan amount is $30,000,000. Estimated project costs are currently $30,000,000. No Project draws were requested or received through June 30, 2011. Interest only payments will begin a month after the first draw is received. Total project draws through December 31, 2011 have totaled $6,338,449.

Additional debt service for these loans was included in the Department's Fiscal Year 2011 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 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%.

Future Financings

Approximately 60% of the costs of the Capital Improvement Program are expected to be funded with the proceeds of debt to be incurred during the FY2012-2017 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 2011 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.

Another $350 million issue is planned for Fiscal 2015, but has not yet been authorized.

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	$82,870,000
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	A3/A (Citigroup, Inc.)
Fair Value (2)	($12,519,273)

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, 2011, the swap had a notional amount of $82.9 million and the associated variable-rate bond had an $82.9 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, 2011, the swap had a negative fair value of ($ 12.5 million). This means that the Water Department would have to pay this amount if the swap terminated.

Risk: As of June 30, 2011 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, 2011, 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	(0.12710) %
Net interest rate swap payments		4.40290 %
Variable rate bond coupons payments	Weekly resets	0.06000 %
Synthetic interest rate on bonds		4.46290 %

Swap payments and associated debt: As of June 30, 2011, 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
2012	$ 425,000	49,722	3,648,682	3,698,404
2013	450,000	49,467	3,629,969	3,679,436
2014	14,820,000	49,197	3,610,156	3,659,353
2015	15,535,000	40,305	2,957,647	2,997,952
2016	16,315,000	30,984	2,273,657	2,304,641
2017-2019	35,325,000	32,202	2,363,035	2,395,237
Total	**82,870,000**	**251,877**	**18,483,146**	**18,735,023**

City of Philadelphia 2007 Water & Wastewater Swaps

In February, 2007, the City entered into two forward starting swaps to take advantage of the current low interest rate environment in advance of the issuance of water and wastewater revenue bonds expected to be issued by the City in 2008. The $180 million notional amount was evenly split between two counterparties, Merrill Lynch Capital Services, Inc. and Wachovia Bank, N.A. The Merrill Lynch Capital Services swap had an initial notional value of $90 million, with a fixed rate of $4.52275% and a floating rate equal to the SIFMA Index. On June 30, 2010, the swap between the City and Merrill Lynch Capital Services was terminated. The City paid a swap termination payment of $15.2 million to Merrill Lynch capital Services, Inc. In addition, $15.0 million of the proceeds from the Water and Wastewater Revenue Bonds Series 2010C were used to terminate the swap with Wachovia Bank on July 27, 2010.

18. BOND RATINGS, AS OF JUNE 2011:

As of June 30, 2011, 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 October 2011, pursuant to the sale of the City's Water and Wastewater Revenue Bonds, Series 2011A, and Water and Wastewater Revenue Refunding Bonds, Series 2011B (the "Bonds"), Moody's affirmed the underlying "A1" rating and stable outlook.

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
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	

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, 2010 was as follows:

Retirees and beneficiaries currently receiving benefits	35,920
Terminated members entitled to benefits but not yet receving them	1,599
Active Members	27,928
Total Members	65,447

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 of the unfunded actuarial accrued liability determined as of July 1, 1985. The portion of that liability attributable to a class action lawsuit by pension fund beneficiaries (the Dombrowski suit) is amortized in level installments, including interest, over 40 years through June 30, 2009. The remainder of the liability is amortized over 34 years with increasing payments expected to be level as a percentage of each year's aggregate payroll.
- 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 $701.3 million or 50.0% of covered payroll of $1,410.2 million. The City's actual contribution was $455.9 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 2010 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 8.75% to 8.25% assuming a partial deferral of the pension payments in fiscal years 2010 and 2011 of $150 million and $90 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
2009	559.0	81.47%	(456.0)
2010	597.0	28.74%	(171.6)

The actuarial valuation to compute the current year's required contribution was performed as of July 1, 2010. 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 8.15%
- 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)	715,544
Interest on Net Pension Obligation (NPO)	(14,155)
Adjustment to ARC	20,353
Annual Pension Cost	721,742
Contributions Made	(470,155)
Increase in NPO	251,587
NPO at Beginning of Year*	(171,576)
NPO at End of Year	80,011
Interest Rate	8.25%
15 Year Amortization Factor (EOY)	8.43%

(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 2011, the City paid $65.5 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	101,216
Interest on Net OPEB Obligation	2,165
Adjustment to ARC	(1,668)
Annual OPEB Cost	101,713
Payments Made	(65,533)
Increase/(Decrease) in net OPEB Obligation	36,180
Net OPEB Obligation - Beginning of Year	43,301
Net OPEB Obligation - End of Year	79,481

Funded Status and Funding Progress: As of July 1, 2010, 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 $ 1.419 billion and the ratio of the UAAL to the covered payroll was 82.4 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 $8.8 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 $5.4 million.

22. ENHANCED SECURITY

In light of the events of September 11, 2001, when terrorists struck the United States, 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. The EOC 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. This center can accommodate around the clock staffing by officials from the Police, Fire, Health, and Water Departments and additional City agencies. 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 and the Water Department delivered its report to the EPA on March 31, 2003. Details of the enhanced security measures already taken and those presently under consideration cannot be disclosed.

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 were assigned to the main entrance at each water plant in 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 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 is currently transmitted from more than twenty monitoring sites to the Water Department's central laboratory where engineers and scientists check for early warning signs of water quality deterioration and document any unforeseen changes. The water treatment plants have online instrument clusters at multiple raw and finished water locations. These monitors will also be connected to the distribution systems monitoring network. The Water Department plans to assess the performance of the monitoring system at the current locations while continuing to investigate alternative technology for further installations at wholesale customer interconnects, pumping stations and other critical points in the distribution system. Recently, 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. Philadelphia, New York, San Francisco, and Dallas were the cities selected for this research pilot program. The City's project included total costs of $12,599,846. On November 21, 2008, the Department was notified that appropriations for the initial phase of the project totaling $2,677,963 were approved. The initial phase included $2.0 million in Federal funds and $677,963 in local share. In calendar 2009, PWD received $5.75 million of federal funding. PWD received an additional $3.75 million in calendar year 2010, which completed the full $9.5 million federal share for the Demonstration Pilot. The City's share will comprise approximately $3 million when the project is finished. More than 80% of the City's share is comprised of services-in-kind comprised of salaries and benefits for existing City employees assigned to the project.

The City recently received a grant to design and install Emergency Back-up Power generation at key facilities. The Water Department's treatment and finished water pumping stations were included. Installation of Back-up Power Generators was completed at the Belmont High Service Pumping Station in 2007 and at the Samuel S. Baxter water treatment plant in 2009. Capital contract work began in late 2009 on an Emergency Back-up Power generation installations at for the Torresdale High Service Pump Station and the Roxborough High Service Pump Station. Design work is underway on emergency generation equipment for East Oak Lane Reservoir Pump Station and Fox Chase Booster Pumping Station. The remainder of the Water Department facilities is scheduled for design and construction over the next five fiscal years with the final facility being in-service in 2015.

APPENDIX II

ENGINEERING REPORT

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BLACK & VEATCH
Building a world of difference.

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10/11/2012

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 through and including the Fifteenth Supplemental Ordinances (collectively, the General Ordinance), we are submitting herewith our Engineering Report prepared in connection with the issuance of Water and Wastewater Revenue Refunding Bonds, Series 2012 (the 2012 Bonds). Unless otherwise indicated, capitalized terms used but not defined herein shall have the same meanings assigned to such terms in the General Ordinance.

This letter report provides an updated status of the operations and financial projections of the Water Department of the City of Philadelphia (the Department) relative to our Engineering Report dated October 26, 2011 (the 2011 Engineering Report), prepared in connection with the issuance of Water & Wastewater Bonds, Series 2011A (the 2011A Bonds), and the issuance of Water and Wastewater Revenue Refunding Bonds, Series 2011B (the 2011B Bonds). This letter report, in conjunction with the 2011 Engineering Report, constitutes the Engineering Report for the issuance of the 2012 Bonds.

In the preparation of this letter report, we conducted interviews with key Department operating, engineering, and financial staff during the months of September 2012 and October 2012. Such interviews included discussion of significant events, changes in operations, regulatory compliance, updates to the capital improvement program, and financial impacts which the Department has experienced since the completion of the 2011 Engineering Report. As a part of our review, we developed an updated summary table of projected revenues and revenue requirements for the Department for the period of fiscal years 2012 through 2018 as set forth in Table A, attached hereto and made a part of the Engineering Report for the issuance of the 2012 Bonds.

Subject to the limitations set forth herein, this letter report was prepared for the City of Philadelphia, Pennsylvania (the City) 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.

ORGANIZATION AND MANAGEMENT

The Department is organized in a manner to effectively and efficiently carry out its responsibilities of producing and delivering high quality drinking water; collecting and treating wastewater to permitted standards; and managing the collection and impact of stormwater runoff. The main divisions consist of Operations, Engineering and Construction, Finance and Administration, Human Resources, Public Affairs, Compliance, and Planning and Environmental Services. Legal affairs are handled through the City Solicitor's office with a full time General Counsel assigned to the Department. These divisions effectively work together to handle the various responsibilities associated with providing water, wastewater, and stormwater utility services.

The Department continues to be led by Howard Neukrug who was appointed Water Commissioner in February of 2011. The Water Commissioner is supported by four Deputy Water Commissioners, including the Deputy Water Commissioner of Compliance; Deputy Water Commissioner of Operations, Deputy Water Commissioner of Finance; and the Deputy Water Commissioner of Planning & Environmental Services. There has been no turnover in this senior leadership team since Mr. Neukrug assumed the Water Commissioner post and Chris Crockett was appointed Deputy Water Commissioner of Planning & Environmental Services, both in 2011.

Key changes to the organizational structure since October 2011 consist of the following:

- Chief of Staff – Ms. Mami Hara was appointed Chief of Staff to Water Commissioner Neukrug in 2011. Her responsibilities include assisting the Water Commissioner with the coordination of strategy, policy, information, and oversight.
- Director of Strategic Partnerships – Ms. Christine Knapp was appointed as the Director of Strategic Partnerships for the Department in September 2012. She reports to the Chief of Staff and her responsibilities include developing partnerships with both public and private entities throughout the Philadelphia region, particularly ones that support the Department's implementation of Green City, Clean Waters (GCCW) program.
- General Manager of Information Technology (IT) – Geoffrey Brock, formerly the Director of the Bureau of Laboratory Services (BLS), has assumed the position of General Manager of Information Technology (IT). Mr. Brock will serve as a liaison between the Department and the City Department of Technology (DOT) to help effectively meet the many hardware and software demands of the Department. Gary Burlingame, former Manager of Biological and Organics, is now the Director of BLS.

As of August 2012, the Department had a total of approximately 1,907 employees. Of these, approximately 1,397 are represented by District Council 33, and 246 are represented by District Council 47 of the American Federation of State, County, and Municipal Employees Union. The Department's 264 upper management, supervisory, senior engineering, and part time personnel are not eligible for union membership. Additionally, there are approximately 239 employees in the Water Revenue Bureau whose positions are funded by the 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. On September 26, 2012 the Mayor released a statement regarding compensation for non-represented and exempt employees. The statement committed to a 2.5% salary increase and re-instatement of step and longevity increases effective October 1, 2012. The release also announced proposed changes to the Pension Plans for new employees, changes to City contributions to health insurance effective January 2013, and changes in furlough and overtime policies. This announcement marks the first across the board pay increases since 2008 and the offering of step and longevity increases for the first time since 2009 and is viewed positively by Department management.

Since February 2011, the Department has been in the process of updating its strategic plan. The goal is to identify and implement strategic initiatives to make PWD the model 21st Century Urban Water Utility. The Department is currently in the process of refining and introducing initiatives to employees to solicit feedback and ideas. The overall strategic plan should be finalized sometime in the first half of calendar year 2013. The Department's management provided a brief overview of the plan's elements. The following bullets provide a summary of these elements:

- Core Service Innovation and Excellence – This element of the strategic plan consists of striving for excellence in providing the Department's core water, wastewater, and stormwater services. This includes developing a more efficient and effective delivery of core services, while simultaneously researching new methods for providing innovative utility services. Key initiatives include the Department's GCCW program which focuses on reducing runoff from the combined sewer system through the use of green infrastructure, and the 21st Century Utility initiative which focuses on improving the effectiveness and efficiency of core operations.
- Workforce Strength & Diversity – This element focuses on training existing employees while recruiting and retaining the next generation of employees. The goal is to develop a diverse and skilled workforce that has an equal opportunity to advance through the organization. The workforce initiative includes succession planning to retain knowledge, training, recruiting, and leadership development to better prepare the Department for the future.

- Customer Service & Outreach – This element focuses on improving service to the Department's customers by providing more information through better communication venues. The objective is to be more responsive to customers, as well as to include them in key initiatives to enhance local watersheds. Key initiatives include the Customer Relations initiative which focuses on using Advisory Groups to facilitate customer input into the Department's processes and new customer service technology for the Water Revenue Bureau. Increased assistance programs for low income customers and impacted businesses, as well as continued development of partnerships, public education, and community outreach.
- Sustainable Management of Utility Infrastructure – This element focuses on responsibly renewing and replacing existing traditional water, sewer, and stormwater infrastructure, while developing and incorporating new green infrastructure into the Department's asset base. Initiatives include GCCW, developing a water supply management plan, energy diversification, and other initiatives to improve the overall condition and effectiveness of the Department's assets.
- Financial Management & Operational Accountability – This element focuses on maintaining the financial health of the utility as budget constraints and regulatory demands will continue to pressure rates upward. Key initiatives include financial planning to manage the overall debt load and improve coverage ratios; improvements to billing and collection processes and technology to minimize delinquencies; and improvements to the capital planning process to balance capital improvements with available resources.

In FY 2010 the Department took responsibility for the operation and maintenance of the water, wastewater, and stormwater systems serving the Philadelphia Navy Yard. Previously the Navy Yard was a wholesale customer of the Department. The Department has already entered asset data related to the water lines and collection mains into its Geographical Information System (GIS). The Department has also integrated individual customers into their billing systems and is now billing the customers in the Navy Yard. Permits previously held by the Navy for its stormwater outfalls will be incorporated into the Department's stormwater permit. The Department does not anticipate any significant cost increases for operating and maintaining the utility systems.

In 2010, the Department 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. The Department has since convened an energy management team to oversee the plan implementation. The Department has a variety of energy-related

projects in various stages of investigation, development, and implementation. Construction of a 5.6 megawatt digester gas cogeneration facility is in progress at the Northeast Water Pollution Control Plant (WPCP). Efforts to enhance digester gas production at all WPCPs include 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 Department has installed and is evaluating a sewage geothermal project at the Southeast WPCP which extracts the thermal energy from sewage and uses it to heat the plant's Compressor Building and other facilities. At the Southeast WPCP, the Department's photovoltaic solar system currently generates approximately 300,000 kilowatt hours of AC power per year. Other areas where the Department is exploring the feasibility of energy alternatives include: biogas co-digestion; geothermal wells; hydroelectric, hydrokinetic, food waste co-digestion; and other enhanced gas production pathways.

The Operations Division is working with the City to implement an asset management program for use by the Water Conveyance and Collectors sections within the Operations Division. The program, Cityworks®, will incorporate all of the Department's street-side assets such as mains, laterals, hydrants, and inlets along with information from Customer Service into a single GIS based database. Other City departments including Streets have also adopted this software. The goal of this new program is to implement a more efficient and standardized approach to tracking and performing the maintenance of street-side assets. Implementation is substantially complete with two of the three phases of the initial implementation plan complete as of June 2012, and the majority of the operating units now using the software. Phase 3 of the implementation will continue in FY 2013, and the system will continue to be enhanced and expanded. The Department has already seen the benefit of Cityworks® through more seamless transfer of information between various operating units and integration of Cityworks® with the Contaminant Warning System.

WATER SYSTEM

In the summer of 2012, the Department experienced two watermain breaks in a relatively short time period. The first of these involved a 48-inch cast iron watermain in a very dense residential and commercial neighborhood in South Philadelphia. Due to the location and size of the main, the break resulted in significant local flooding and damage to private property. The extent of the damage is approaching the $500,000 municipal tort liability cap for reimbursement of damages. The Department isolated the main within 4 hours and the follow-up investigation into the causes of the break indicate that the main and surrounding network are in good condition, and that localized stress to the main caused the break. Two weeks later another 48-inch main break, this time on a steel main, occurred in North Philadelphia. This break occurred in a much less densely populated area and was more easily isolated (within 1 hour).

The break resulted in significantly less flooding and damage to private property. The follow-up investigation again indicated that the main itself and the surrounding network are in good condition.

Based on the condition assessments conducted on the large mains, the Department is not concerned that there might be a systemic problem to address. Rather, they believe these were failures that resulted from localized external stresses. The Department will continue to implement their existing distribution system inspections, preventative maintenance and replacement program to identify and address deteriorating mains. This includes the use of state of the art technology to inspect transmission mains on a regular basis.

During FY 2011 and FY 2012 the average daily treated water delivered from the Baxter, Queen Lane, and Belmont water treatment plants was as follows:

- Baxter
  - FY 2011 – 146 million gallons per day (MGD)
  - FY 2012 – 141 MGD
- Queen Lane
  - FY 2011 – 65.4 MGD
  - FY 2012 – 60.1 MGD
- Belmont
  - FY 2011 – 43.4 MGD
  - FY 2012 – 44.3 MGD

This is stable compared to FY 2010. There have been no changes to the Department's raw water withdrawal permits and management believes it has ample supply to meet projected customer demand. The Department continues to meet all existing drinking water regulations and also anticipates meeting all promulgated and future regulations currently being considered for microbials synthetic organic compounds, volatile organic compounds, inorganic compounds, radionuclides, and aesthetic parameters such as taste and odor. It is also continuing its participation in the Partnership for Safe Water program which focuses on achieving more stringent performance goals to better prevent the entry of cryptosporidium, giardia, and other parasitic organisms into treated water. Through September 2012, the Department continued to produce finished water at turbidity levels well below those required by state and federal requirements. The Department is also a charter member of the Partnership for Safe Water's Distribution System Optimization program. The program emphasizes improving distribution system integrity, particularly the in the areas of water quality, hydraulic reliability, and physical security.

On December 15, 2005 the United States Environmental Protection Agency (USEPA) promulgated two Rules under the Safe Drinking Water Act, the Long Term 2 Enhanced Surface Water Treatment Rule (LT2ESWTR) and the Stage 2 Disinfectants

and Disinfection Byproduct Rule (Stage 2 D/DBPR), both of which became effective in April 2012. These rules strengthen protection against microbial contaminants, especially cryptosporidium, and at the same time, reduce potential health risks of Disinfection Byproducts (DBPs), and were promulgated simultaneously to address concerns about risk tradeoffs between pathogens and DBPs.

The Department was fully prepared to meet the more stringent requirements, and is in compliance with both regulations. In terms of the Stage 2 D/DBPR, the Department's locational running annual averages for total trihalomethanes and haloacetic acids are below the maximum contaminant limits of 80 milligrams per liter (mg/l) and 60 mg/L, respectively. For LT2ESWTR, the Department's Queen Lane plant falls in the Bin 2 category, which means that it requires an additional 1.0 log removal/inactivation credit to be in compliance. The Department is achieving this additional 1.0 log credit by maintaining individual and combined filter effluent turbidities at levels well below current regulatory requirements. As an additional measure of assurance, the Department submitted a Watershed Control Program to the Pennsylvania Department of Environmental Protection (PaDEP) to obtain an additional 0.5 log credit beyond what is required. The Department received and addressed comments from PaDEP, but the plan has not yet been formally approved. The Baxter and Belmont treatment plants fall into the Bin 1 category, and therefore do not need to demonstrate additional treatment to be in compliance; however the Department is operating those plants to achieve the same level of treatment as Queen Lane.

In calendar year 2011, the Department conducted its tri-annual distribution system sampling for lead and copper, as required under the Lead and Copper Rule. The results again met USEPA standards, thus the Department is in compliance and will not have to sample again until 2014. The Department had two occasions of filter performance monitoring violations in FY 2011 which necessitated reporting to the PaDEP. These monitoring violations resulted from errors in the capture of on-line turbidity data from the filter effluents during start-up after back-wash. In both cases the monitors were on, but were not transmitting data properly for a short period of time. These violations were not related to treatment or water quality, and were properly reported to PaDEP with no additional action required beyond reporting of the incidents in the annual Consumer Confidence Report.

The Department continues to seek improvements to its processes through on-going pilot research and full scale plant trials. The Department continues to conduct full-scale trials at the Belmont treatment plant to evaluate the impact of post filter chlorine contact on DBP formation and the treatment process in general. Results of these tests 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 shortened filter runs. These changes resulted in overall more efficient operations than was achieved the previous two

years. The Belmont staff will continue to refine this process in order to realize the DBP reduction benefits without sacrificing operational efficiency. The Department is also planning to pilot a new air scour technology at Queen Lane. If successful, air scour can enhance the backwash process and increase filter performance.

The Department intends to implement changes to realize any additional benefits identified through the on-going pilot research and full scale plant trials, but at this point there is no specific timeline or budget for any improvements. In FY 2011 the Department compiled results of a decade of pilot, bench and full scale tests and in FY 2012 they initiated a planning effort to develop a vision for future long term upgrades to the water treatment plants. This project involves evaluating and developing conceptual designs for several unit processes to prepare the Department to meet increasingly more stringent water quality requirements as well as to evaluate plant and process capacity to meet current and projected demands.

One of the Department's core missions continues to be the provision of safe, high quality drinking water, and this mission extends to the stewardship of the region's water resources. To this end, the Department has embraced a watershed protection approach that tracks and evaluates events and practices that may cause immediate or long term impacts on water quality. The Department continues to monitor and address potential impacts to water quality related to the reported presence of Iodine-131 in the water supply and natural gas drilling activities in the upstream regions of the watersheds.

The USEPA released data related to Iodine-131 in the wake of the Fukushima nuclear incident in Japan. The data was collected as part of a voluntary surveillance system whose purpose is to detect unusual events in environmental samples, including drinking water supplies. The Department participates in this voluntary program to allow for a quick response in the event that a potential threat to drinking water arises. The USEPA's 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. When USEPA informed the Department of the results of their voluntary surveillance testing on April 1, 2011, the Department responded by modifying the treatment process to enhance removal of the contaminant when needed, initiating a focused sampling program throughout the system, and developing a track-down program and Joint Action Plan with the USEPA and PaDEP to identify the potential sources of Iodine-131. The Maximum Contaminant Level (MCL) for Iodine-131 is 3 picocuries per liter, and is based upon an annual running average of quarterly samples and not a single sample. At no time did the levels measured exceed this level, and the USEPA assured that the results reported for Philadelphia did not indicate any immediate health concern. Since the Department began its own sampling program in spring of 2011, measured levels have been well below the MCL.

The Department is closely following the discussions surrounding Marcellus Shale drilling for natural gas to prevent any long term repercussions to its water supply. At

this point in time, the Department believes that there is no immediate threat to the water supply from this activity and that the current regulatory framework, if enforced, is adequate to protect against immediate threats. The Department is monitoring upstream activities to be prepared if something appears to threaten the water supply. The Department has communicated and is in discussion with the USEPA, PaDEP, and the Delaware River Basin Commission regarding their water supply concerns related to the Marcellus Shale drilling.

In January 2011, the Department initiated a two-year initiative to switch out the Automatic Meter reading system meter batteries. This equates to 400,000 meters City-wide. The change out provided the opportunity to upgrade a select number of residential and large meters with Encoder, Receiver, Transmitter technology to allow for more frequent meter reads and better information for the Department and customers with respect to water use profiles. The battery change should keep the meters working properly through the year 2019.

The BLS, a unit within the Planning and Environmental Services Division, received and implemented a USEPA Water Security Initiative Grant in FY 2010 to develop a Contamination Warning System (CWS). The effort included enhancing and expansion of the their remote on-line distribution monitoring system from 22 to 30 sites with additional state of the art analytical devices; sampling and analysis program enhancements; customer complaint surveillance; public health surveillance; and enhanced security monitoring. These five distinct components of the CWS are integrated through a highly functional GIS-based dashboard that builds upon Cityworks® and provides management direct access to the information generated. As part of the grant, the Department developed a Consequence Management Plan in cooperation with other agencies. The Department conducted a functional exercise of the plan in July 2012, and a final full scale exercise is planned for October 2012. The CWS is on schedule for completion by December 2012. To date, BLS has received access to $9.48 million of grant funding, which is the full award. The Department will provide 25 percent of the aggregate amount (approximately $2.37 million) of in-kind labor and equipment costs. This will come through current and future operating budgets and is not expected to adversely impact operations since it is largely work already being performed.

The BLS is also acquiring a new Laboratory Information Management System (LIMS). The Request for Proposals was released in March 2010 and the Department awarded a contract in FY 2011. Implementation of the LIMS occurred in FY 2012 and FY 2013. The LIMS replaces older and obsolete computer technology with improved capability to monitor samples from collection through the analytical process. The system will provide better management of the various regulatory and research sampling and analysis that the BLS conducts on a daily basis.

There are several important security-related improvements that are currently in progress. Phase 1 of the Baxter water treatment plant security project was completed

in the fall of 2012 and includes installation of better fencing and lighting surrounding both the plant and clearwells; a new plant entrance with improved traffic flow and more controlled access; and securing of the finished water storage basin through the sealing of redundant access points. Security enhancements for Queen Lane and Belmont along with the Phase 2 enhancements at Baxter are being finalized with the intent to bid in FY 2013.

The Department completed construction of a new high service pumping station for the Queen Lane water treatment plant. Vibration was observed on the suction lines during the 90-day test period, and additional supports are being designed and constructed to address the issue with 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 a reduction in energy consumption. The project cost of $18.9 million was funded by the Pennvest Loans.

The primary sedimentation tanks at the Queen Lane Water Treatment Plant are being rehabilitated with project completion anticipated in 2014. The Department is using the Pennvest Loans to fund the $9 million project.

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. Service to the East Oak Lane and West Oak Lane pumping stations is currently being handled by the Lardner's Point pumping station. The installation of the reservoir cover is complete with disinfection of the basin planned for the end of October 2012, after which the reservoir will be put back in service.

In May 2010, the Department discovered a breach in the 50 million gallon (MG) clearwell basin that serves the Torresdale Pump Station, which pumps finished water from the Baxter plant. The breach was a 4-foot by 6-foot cave-in. The Department has covered and secured the breach and placed continuous water quality monitors on the influent and effluent to monitor for water quality impacts. No adverse impacts have been observed, the area is closed-off to prevent further damage, and the basin remains in operation. The Department issued an emergency contract to replace the floors to allow for the installation of stop log panels should the basin have to be isolated in the future. They also have alternative pumps ready should the clearwell be shutdown and need to be by-based. The permanent solution is in design and will entail replacement of the existing clearwell with two 10 MG basins at the existing pre-filter area. Phase 1 of this project is at 60% design and will include construction of one of the two 10 MG basins, redundant piping from the plant to the new clearwells

and a new gate house. The second basin and associated piping will be constructed during Phase 2. Phase 1 is estimated to cost $36 million.

WASTEWATER SYSTEM

The Department's National Pollutant Discharge Elimination System (NPDES) permit for the wastewater plants expired on August 31, 2012. The Department submitted their application for renewal with the PaDEP six months in advance as is required. The permit renewal process typically extends over a year. The Department's municipal separate storm sewer system (MS4) permit has also expired and the Department continues to operate under the old permit until PaDEP issues a new one. With both permits up for renewal, the 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.

The Department has completed negotiations with respect to its Title V Clean Air Act permits with the City of Philadelphia's Air Management Services and is waiting to receive the final permits for the Northeast WPCP and Southwest WPCP. The Title V permit for the Biosolids Recycling Center (BRC) will eventually be the responsibility of Philadelphia Biosolids Services, LLC (PBS) going forward as they assumed operational control of the BRC from the Department in 2008. The Department does not anticipate any significant changes to the parameters of its Title V permits and there have been no violations of emission standards since 2009.

The total average daily flow received by all three WPCPs for FY 2011 and FY 2012 was approximately 410 MGD and 445 MGD, respectively. The three WPCPs have maintained high levels of treatment such that they have been recognized by the National Association of Clean Water Agencies (NACWA), with either Silver, Gold or Platinum awards over the past decade. All three plants met permit requirements in calendar year 2011. Southeast and Northeast WPCPs will receive NACWA platinum awards for five or more years of continuous 100 percent NPDES permit compliance.

The Department completed a feasibility study that looked into expanding the Northeast WPCP. This study included hydraulic analyses and other data to define requirements for expanding primary and secondary treatment capacity and was submitted to the PaDEP for review. The PaDEP has approved the concept and the Department is now moving forward with design and implementation. The expansion will be completed in multiple phases over multiple years and will focus on removing hydraulic bottlenecks and upgrading processes. The upgrades are being implemented in a phased approach, with the two projects slated for FY 2012 having been completed on time.

On September 1, 2009 the Department filed its Long Term Control Plan Update – Green City Clean Waters with the PaDEP and the USEPA. GCCW is a comprehensive approach to reducing the impact of combined sewer overflows (CSOs). It combines traditional methods for capturing more stormwater runoff, such as the expansion of

wastewater treatment plants, with "green" stormwater infrastructure improvements to prevent stormwater runoff from entering the combined sewer system in the first place. Examples of green stormwater infrastructure include pervious surfaces for streets, alleys, parking facilities, and other surfaces which allow stormwater to infiltrate into the ground as well as the use of rain barrels, rain gardens, and stream restoration projects. In total, the Department anticipates spending approximately $1.2 billion ($2.4 billion including inflation) over the next 25 years to implement the program. The Department does not anticipate receiving significant grant funding and is currently planning to fund the majority of the related capital expenditures with future bond issues. The proposed CIP Budget for FY 2013 through FY 2018 includes $218.5 million ($266.1 million including inflation) of funding for these projects. The goal of the program after 25 years is to capture approximately 85 percent of equivalent mass capture of total suspended solids, BOD5, and coliform bacteria. This would result in the reduction of approximately 8.0 billion gallons of combined sewage entering Philadelphia's waterways each year. On June 1, 2011 the Department executed a consent order and agreement (COA) with PaDEP memorializing the agreements with respect to the Long Term Control Plan. On April 10, 2012 the Department and USEPA entered into a Partnership Agreement. This non-legal agreement represents a mutual commitment to supporting the common effort of advancing green infrastructure for urban wet weather control.

On September 27, 2012, the Department executed an Administrative Order for Compliance on Consent (AOCC) with the USEPA. This agreement is essentially a re-commitment by the Department to adhere to its COA with PaDEP, but also includes recognition by the USEPA that the Department's compliance with the COA and the AOCC constitutes compliance with the CSO Control Policy. To date the Department has met all of the milestones defined in the COA and is on target to meet its five-year green infrastructure implementation requirements.

The Department retained a private operator Philadelphia Biosolids Services, LLC (PBS) for the BRC in October 2008. The agreement included the requirement that PBS upgrade the facility to meet produce Class A quality biosolids within 3 to 5 years. The new facilities were fully operational and producing Class A pelletized bio-solids in February 2012. The venture is viewed as a success by Department management.

In a related project, the 6-year dry docks for the Department's two barges, The Resource and The Recovery, are complete. The barges, which are used to transport biosolids from the Northeast WPCP to the BRC, have been completely overhauled. It is expected that this maintenance will extend the life of the barges for another 20 years.

The Department continues to work on several key wastewater capital improvement projects:

- 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 $44.0 million. Construction is on-schedule and anticipated to meet the COA deadline of May 2013.

- The State Road PC 30 project consists of the construction of a relief sewer to increase collection system capacity and reduce the number of sanitary sewer overflows. A contract was awarded for this project in calendar year 2009. It was completed as scheduled in December 2011 and is operational.

CAPITAL IMPROVEMENT PROGRAM

The Department conducts an ongoing review and update of its six-year Capital Improvement Program. The current proposed CIP covers FY 2013 through FY 2018 and budgets for projects related to the finished water distribution system, wastewater collection system, water and wastewater treatment plants, utility vehicles, and capital project planning and implementation control.

For the six year planning period, the Department plans to fund approximately $1.5 billion of water and wastewater capital improvement projects. A major focus of the CIP is to complete projects that will mitigate flooding and CSOs that occur during major storm events, as well as upgrades and improvements to water and wastewater treatment plants.

The proposed spending level for the FY 2013 through FY 2018 period reflects an increased level when compared to previous six-year budget periods ($1.3 billion for FY 2011-FY 2016 and $1.4 billion for FY 2012-FY 2017). This reflects increased spending related to implementing the COA agreement particularly related to stormwater and flood relief improvements.

FINANCIAL REQUIREMENTS

An update of the evaluation of the adequacy of revenues to meet projected revenue requirements was made for the fiscal years ending June 30, 2012 through June 30, 2018 and is summarized in Table A, attached at the end of this letter report. Table A is an update of the financial projections summarized in Table VI-8 of the 2011 Engineering Report, which covered the period of fiscal years ending June 30, 2011 through June 30, 2018. The financial data used to develop Table A of this letter report was obtained from the Department's financial statements for FY 2011, the latest available estimates for FY 2012, and the operating and capital budgets for FY 2013.

While there have been some modest adverse revenue and revenue requirement impacts, there have been several positive activities and changes that have occurred relative to the financial projections set forth in the 2011 Engineering Report which have resulted in a positive net impact on the financial projections. Department staff continues to track the projected revenues, expenses, and fund balances to determine the potential need to initiate measures necessary to address the financial needs of the system.

The projection of water and wastewater service revenue has been revised to reflect the following revenue related activities and changes which have occurred since the 2011 Engineering Report:

- Revenue under existing rates has been updated to reflect the adopted rates effective July 1, 2011, which was the final year of the four annual rate increases from the rate hearings held in 2008, and updated projections of accounts and billed volumes. The updated projection of annual revenue under the adopted rates effective July 1, 2011 for FY 2012 is $9.1 million more than the projected revenue included in the revenue projections shown in the 2011 Engineering Report. This increase is primarily due to a change in the presentation of the estimated revenue impact of the Stormwater Assistance Phase-in Program (SWAPP). The 2011 Engineering report reduced the projection of revenue under existing rates by $9.0 million per year to reflect the anticipated impact of SWAPP. To avoid the understatement of projected revenues under existing rates and the overstatement of required revenue increases, the revenue adjustment for SWAPP is included in the projection of miscellaneous revenue. In addition, the revenue impact of SWAPP was reduced from the original estimate of $9.0 million per year to $4.5 million in FY 2012 and $1.5 million in FY 2013 to reflect the actual level of enrollment experienced to date in the SWAPP program and the implementation of rates in FY 2013 which are designed to account for the revenue impact of the proposed SWAPP program.
- The FY 2013 to FY 2015 additional service revenue has been updated based on a projection of revenue reflecting the anticipated rates to be adopted for FY 2013 to FY 2015 based on the proposed rate case settlement, and updated projections of accounts and billed volumes.
- 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. The anticipated reduction in sales and revenues from Bucks County was reflected in the rate case and has been accounted for in the proposed rates and future revenue projections.

Based on these revenue related activities and changes which have occurred since the 2011 Engineering Report, the updated FY 2012 to FY 2018 projection of annual water and wastewater service revenue, including the additional service revenues projected for the anticipated rate increases which take effect in FY 2013 to FY 2018, averages

$0.3 million less than the projected revenue included in the revenue projections of the 2011 Engineering Report. The updated projection of revenues for FY 2016 to FY 2018 recognize the levels required to meet projected revenue requirements and debt service coverage covenants and to maintain the end of year FY 2018 Rate Stabilization Fund balance of approximately $100.0 million to provide for adequate working capital and reserve needs.

For purposes of projecting annual operation and maintenance expenses in the 2011 Engineering Report, the Department's proposed budget for FY 2012 served as the "base year" for projection purposes. Projected operation and maintenance expenses for FY 2012, as shown in Table A, are based upon the Department's final budget and anticipated expenditures for FY 2012. This current estimate for FY 2012 is approximately $7.8 million less than previously projected in the 2011 Engineering Report for that year. This decrease from the projected FY 2012 expenditures is largely attributable to lower levels of anticipated expenses in fringe benefits.

Using the proposed budget for FY 2013 as a base for future projections, reflecting increases in future operating expenses for personal services and other cost categories due to inflation beyond FY 2013, and analyzing historical actual to budget expenditure trends, the total projected operation and maintenance expenses for FY 2013 to FY 2018 were updated. The FY 2013 and FY 2014 projected operation and maintenance expenses average approximately $9.1 million more per year as compared to the projections in the 2011 Engineering Report for those same years. This increase in the projected levels is primarily attributable to higher levels of fringe benefits reflected in the FY 2013 budget due to the repayment of a city-wide holiday in fringe benefit contributions made in FY 2010. The projected FY 2013 and FY 2014 fringe benefits reflect a $10.8 million increase in each year to fund the repayment of the holiday. The FY 2015 to FY 2018 projected operation and maintenance expenses average approximately $7.1 million less per year as compared to the projections in the 2011 Engineering Report for those same years. This decrease in the projected levels is primarily attributable to lower levels of fringe benefits reflected in the projection period.

As noted in the Organization and Management section, the City recently released a statement regarding the commitment to a 2.5% salary increase and re-instatement of step and longevity increases effective October 1, 2012 in addition to changes to pension plans and benefit contributions for non-represented and exempt employees. Department management does not anticipate a significant change in the total salary and benefit costs as it anticipates that the salary increases will be offset by the cost reductions associated with the changes to pensions and benefits.

For the 2011 Engineering Report, the projected annual debt service reflected the debt service associated with the outstanding bonds as of the beginning of FY 2011, including but not limited to the Water and Wastewater Revenue Bonds, Series 2001A (2001A Bonds), the Water and Wastewater Revenue Bonds, Series 2001B (2001B

Bonds), and the projected debt service associated with the then proposed bonds including $192.8 million of Pennvest Loans, the Water and Wastewater Revenue Bonds , Series 2010C (2010C Bonds) issued in FY 2011, the 2011A Bonds and the 2011B Bonds anticipated to be issued in FY 2012, a $200.0 million bond issue in FY 2014, a $150.0 million bond issue in FY 2015, a $100.0 million bond issue in the first quarter of FY 2016, a $205.0 million bond issue in the second half of FY 2016, a $250.0 million bond issue in the second half of FY 2017, and a $275.0 million bond issue in the second half of FY 2018.

The updated summary of projected revenues and revenue requirements for the Department shown in the attached Table A reflects the updated projection of annual debt service on outstanding and proposed bonds based on outstanding bonds as of the beginning of FY 2012 and the refunding of the Series 2001A and Series 2001B Bonds by the proposed 2012 Bonds. The proposed debt service savings for the 2012 Bonds reflects a preliminary pricing analysis provided by the Department, which reflects the issuance of $71.17 million of bonds with an overall average coupon interest rate of 5.0 percent. The projection of annual debt service on outstanding revenue bonds (Table A, Line 23) has been revised to reflect the addition of the 2010C Bonds, and the anticipated savings from the issuance of the proposed 2012 Bonds and refunding the 2001A and 2001B Bonds. The annual debt service on Pennvest Parity Bonds (Table A, Line 24) has been revised to reflect the amortization based on the total authorized loan amount of $214.9 million during the study period. Although the Water Department does not plan on utilizing the full loan authorization, the Department is required to repay the principal based on the total authorization until the loan has been finalized. Upon finalization of the loan, Pennvest will provide the Department with a final amortization schedule based on the actual loan utilization and the prior principal payments. The projected annual debt service of proposed revenue bonds (Table A, Line 25) has been revised to reflect the issuance of the 2011A and 2011B Bonds. Based upon the proposed capital improvement program for FY 2013 through FY 2018 and the expected level of capital expenditures, it is anticipated that the Department will issue a $200.0 million bond issue in FY 2014, a $160.0 million bond issue in FY 2015, a $195.0 million bond issue in the first quarter of FY 2016, a $265.0 million bond issue in the last quarter of FY 2016, a $275.0 million bond issue in the first quarter of FY 2018, and a $300.0 million bond issue in the last quarter of FY 2018. The proposed subsequent bond issues reflect a 30-year amortization schedule and a 5.0 percent interest rate. The bonds proposed to be issued during FY 2014 to FY 2016 assume interest only payments through FY 2016. The bonds proposed to be issued during FY 2017 and FY 2018 assume interest only payments through FY 2018. The updated projection of total annual debt service for FY 2012 to FY 2018 averages $0.3 million less than the projected total annual debt service included in the revenue requirement projections of the 2011 Engineering Report, primarily due to the reduced costs associated with the refunding of the 2001A and 2001B Bonds.

Also recognized in the updated projections of revenues and revenue requirements are the various fund balances as of June 30, 2011, reflecting the actual year-end transfers which occurred during the November 2011 time frame, once the books were officially closed for FY 2011. Two of the key fund balances shown in the cash flow table of revenues and revenue requirements are the Rate Stabilization Fund and the Residual Fund balances. The actual beginning FY 2012 balances recognized in Table A are $156,563,000 for the Rate Stabilization Fund and $34,909,000 for the Residual Fund. These compare to the projected balances of $158,798,000 in the Rate Stabilization Fund and $34,274,000 in the Residual Fund as shown in the 2011 Engineering Report.

The overall projected revenue increases for FY 2013 to FY 2018 in the updated revenue and revenue requirement projections, taking into consideration the changes outlined above, amount to a cumulative 32.4 percent increase. These compare to a cumulative 39.3 percent increase shown in the 2011 Engineering Report. The reduction in the overall projected revenue increases is due to the positive net effect of the decreases in the projected annual revenue requirements and projected revenues under existing rates, as outlined above.

STATEMENTS AND CONCLUSIONS

In conducting our analyses and in forming an opinion of the projection of future operations summarized in this letter report, Black & Veatch has made certain assumptions with respect to conditions, events, and circumstances which may occur in the future. The methodology utilized by Black & Veatch in performing the analyses 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 updated studies we offer the following statements and conclusions to indicate the City's conformance with specific requirements which must be met for the authorization of the 2012 Bonds, as stipulated in the Act and the General Ordinance:

1. Based on onsite physical inspections and investigations of major system facilities, conducted in May 2011, June 2011, and July 2011, combined with discussions with Department staff at that time, as supplemented with additional interviews, and discussions with staff in September 2012 and October 2012, 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 proposed six-year capital financing program will provide adequate funds necessary to sustain the system in good operating condition.

2. Proceeds from the 2012 Bonds will be applied to: (i) refund a portion of the 2001A and 2001B Bonds (ii) pay the necessary deposits and issuance costs of the 2012 Bonds.

3. Project Revenues pledged to secure the 2012 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 from which pledged Project Revenues are to be derived, 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 2012 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 the 2012 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 resulting from rate increases which may be imposed after an administrative process of the Department without further legislative action by City Council) to comply with the Rate Covenant for each of two fiscal years following the fiscal year in which the 2012 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 Department's agreements with Assured Guaranty Municipal Corporation (AGM), 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) of 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 2012 through 2018 are projected to be at least 90 percent of the Debt Service Requirements (excluding debt service due on Subordinated Bonds) in such 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 agreements.

Very truly yours,
BLACK & VEATCH CORPORATION

John R. Kersten
Vice President

TABLE A
PROJECTED REVENUE AND REVENUE REQUIREMENTS
(in thousands of dollars)

Line No.	Description			2012	2013	2014	2015	2016	2017	2018
	OPERATING REVENUE									
1	Water Service - Existing Rates			233,546	233,780	232,370	230,658	228,939	227,219	225,496
2	Wastewater Service - Existing Rates			331,850	332,913	331,597	330,215	328,823	327,435	326,042
3	Total Service Revenue - Existing Rates			565,396	566,693	563,967	560,873	557,762	554,654	551,538
	Additional Service Revenue Required									
	Year	Percent Increase	Months Effective							
4	FY 2013	4.48%	6		9,546	25,266	25,127	24,988	24,848	24,709
5	FY 2014	4.48%	12			26,398	26,253	26,107	25,962	25,816
6	FY 2015	4.48%	12				27,429	27,277	27,125	26,972
7	FY 2016	5.10%	12					32,443	32,262	32,081
8	FY 2017	5.10%	12						33,907	33,717
9	FY 2018	5.10%	12							35,436
10	Total Additional Service Revenue Required			0	9,546	51,664	78,809	110,815	144,104	178,731
11	Total Water & Wastewater Service Revenue			565,396	576,239	615,631	639,682	668,577	698,758	730,269
12	Transfer From/(To) Rate Stabilization Fund			14,435	43,140	12,095	2,245	10,635	(14,355)	(11,645)
	Other Income (a)									
13	Other Operating Revenue			16,663	19,622	19,676	19,631	19,485	19,440	19,395
14	Construction Fund Interest Income			1,156	1,215	2,018	1,454	2,083	3,137	4,443
15	Debt Reserve Fund Interest Income			0	0	0	0	0	0	0
16	Operating Fund Interest Income			356	550	735	943	1,173	1,363	1,606
17	Rate Stabilization Interest Income			749	908	934	1,079	1,199	1,433	1,903
18	Total Revenues			598,755	641,674	651,089	665,034	703,152	709,776	745,971
	OPERATING EXPENSES									
19	Water & Wastewater Operations			320,010	344,788	354,719	357,559	369,134	378,802	388,901
20	Direct Interdepartmental Charges			48,523	51,331	51,511	50,878	52,014	52,551	53,097
21	Total Operating Expenses			368,533	396,119	406,230	408,437	421,148	431,353	441,998
22	**NET REVENUES AFTER OPERATIONS**			230,222	245,555	244,859	256,597	282,004	278,423	303,973
	DEBT SERVICE									
	Senior Debt Service									
	Revenue Bonds									
23	Outstanding Bonds (b)			187,537	190,262	185,279	177,241	183,171	155,359	155,440
24	Pennvest Parity Bonds (c)			3,180	10,211	11,839	12,175	12,175	12,310	12,844
25	Projected Future Bonds			1,128	2,461	3,584	19,198	32,073	55,069	72,963
26	Total Senior Debt Service			191,845	202,934	200,702	208,614	227,419	222,738	241,247
27	**TOTAL SENIOR DEBT SERVICE COVERAGE (L22/L26)**			1.200 x	1.210 x	1.220 x	1.230 x	1.240 x	1.250 x	1.260 x
	Subordinate Debt Service									
28	Outstanding General Obligation Bonds			0	0	0	0	0	0	0
29	Pennvest Subordinate Bonds			1,022	0	0	0	0	0	0
30	Total Subordinate Debt Service			1,022	0	0	0	0	0	0
31	Total Debt Service on Bonds			192,867	202,934	200,702	208,614	227,419	222,738	241,247
32	**CAPITAL ACCOUNT DEPOSIT**			18,476	19,000	19,380	19,767	20,163	20,566	20,977
33	**TOTAL COVERAGE (L22/(L31+L32))**			1.08 x	1.10 x	1.11 x	1.12 x	1.13 x	1.14 x	1.15 x
	RESIDUAL FUND									
34	Beginning of Year Balance			34,909	50,169	2,412	7,689	15,404	15,826	15,944
35	Interest Income (d)			237	398	0	0	0	0	0
	Plus:									
36	End of Year Revenue Fund Balance			18,879	23,621	24,777	28,216	34,422	35,119	41,749
37	Deposit for Transfer to City General Fund (e)			1,351	2,073	2,153	2,762	3,433	4,011	4,589
	Less:									
38	Transfer to Construction Fund			0	0	19,500	20,500	34,000	35,000	42,300
39	Transfer to City General Fund			1,351	2,073	2,153	2,762	3,433	4,011	4,589
40	Transfer to Debt Service Reserve Fund			3,856	71,776	0	0	0	0	0
41	End of Year Balance			50,169	2,412	7,689	15,404	15,826	15,944	15,394
	RATE STABILIZATION FUND									
42	Beginning of Year Balance			156,563	142,128	98,988	86,893	84,648	74,013	88,368
43	Deposit From/(To) Revenue Fund			(14,435)	(43,140)	(12,095)	(2,245)	(10,635)	14,355	11,645
44	End of Year Balance			142,128	98,988	86,893	84,648	74,013	88,368	100,013

Notes: (a) Includes other operating and nonoperating income, including interest income on funds and accounts transferable to the Revenue Fund.
(b) Excludes debt service refunded by proposed 2012 Bonds.
(c) Includes 2009 Pennvest Loans.
(d) Includes interest earnings on Debt Service Reserve substitution funds deposited in the Special Water Infrastructure Account.
(e) Transfer of interest earnings from the Bond Reserve Account to the Residual Fund as shown in Line 35 to satisfy the requirements for the Transfer to the City General Fund.

ENGINEERING REPORT

Water and Wastewater Revenue Bonds Series 2011A

Water and Wastewater Revenue Refunding Bonds Series 2011B

B&V PROJECT NO. 174505

PREPARED FOR

Philadelphia Water Department

26 OCTOBER 2011

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26 October 2011

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 and Fifteenth 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 2011A (the "2011A Bonds"), and the issuance of Water and Wastewater Revenue Refunding Bonds, Series 2011B (the "2011B Bonds" and together the "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 eight-year period of fiscal years 2011 through 2018 are shown in this report. In the preparation of this report, we conducted on-site inspections of the major water and wastewater facilities and personal interviews with key Water Department operating, engineering, and financial staff during the months of May 2011, June 2011, and July 2011. 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 May 2011, June 2011, and July 2011, 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. It is our opinion that the capital improvement budget for fiscal years 2011 and 2012 and the proposed six-year capital program for fiscal years 2013 through 2018 should provide adequate funds to sustain the systems in good operating condition.

2. Proceeds from the 2011A Bonds are to be applied to: (i) to finance major portions of the Water Department's capital improvement program for fiscal years 2012 through fiscal year 2017 and (ii) pay the issuance costs of the 2011 Bonds. Proceeds from the 2011B Bonds were to be applied to: (i) refund a

portion of the City of Philadelphia, Pennsylvania, Water and Wastewater Revenue Bonds, Variable Rate Series 1997B Bonds, (ii) refund a portion of the City of Philadelphia, Pennsylvania, Water and Wastewater Revenue Bonds, Series 2001A Bonds, (iii) refund a portion of the City of Philadelphia, Water and Wastewater Revenue Refunding Bonds, Series 2007A Bonds, and (iv) pay the issuance costs of the 2011B 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 resulting from rate increases which may be imposed after an administrative process of the Water Department without further legislative action by City Council) 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 resulting from rate increases which may be imposed after an administrative process of the Water Department without further legislative action by City Council) 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 (which may be imposed after an administrative process of the Water Department without further legislative action by City Council) 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 2011 to 2018 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
Vice President

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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 City of Philadelphia (City). The Restated General Water and Wastewater Revenue Bonds 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 and Fifteenth 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 and conducted personal interviews with key Water Department operating, engineering, and financial staff during the months of May 2011, June 2011 and July 2011. Financial projections summarized in the report encompass the eight-year period of fiscal years 2011 through 2018.

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.

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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 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 2011A, and Water and Wastewater Revenue Refunding Bonds, Series 2011B, collectively, the "2011 Bonds." The purpose of the Series 2011A Bonds is to fund a portion of the FY 2012 to FY 2017 capital improvement program. The purpose of the Series 2011B Bonds is to refund portions of the Water and Wastewater Revenue Bonds Series 2001A Bonds (Series 2001A Bonds) and the Water and Wastewater Revenue Bonds Series 2007A Bonds (Series 2007A Bonds). It is anticipated that the Water Department will realize a savings in annual interest costs as a result of this refunding of a portions of the Series 2001A Bonds and Series 2007A 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, operation 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 June 2011, 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 each of the six various divisions of 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 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 on a continuous basis since 1972, including the preparation of the 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, and 2010D issued under the General Ordinance, personnel of the Division are quite familiar with the Water Department's financial affairs as they relate to revenues, expenses, rates, and other financing matters. Professionals from this Division were also involved in the water and wastewater rate hearings for which the first phase, related to the overall level of increases for fiscal years 2009 through 2012, was completed in October 2008, and the second phase, related to stormwater rate revisions, was completed in August 2009. As a result of these rate hearings, schedules of water and wastewater rates for retail service have been approved for fiscal years 2009 through 2012, and are in place. Rates applicable to wholesale water and wastewater rates are also adopted for this same four-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 two systems; rate setting; budgeting and detailed cost accounting; and preparation of financial statements for the water and wastewater systems. The Water Revenue Bureau 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 Water Revenue Bureau. 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. The following provides a brief description of these initiatives:

- *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 to spending approximately $2.4 billion ($1.2 billion in non-inflated 2009 dollars) over the next 25 years to reduce the impact of CSOs. More information on the scope, objectives, and financial impact of GCCW is found in Sections IV, V, and VI of this report.
- *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 380 Water Department staff have retired between fiscal years 2004 and 2010. 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.* 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 includes projections of energy rates, conservation management strategies, and preliminary evaluations of renewable energy sources. The objective is to implement the Utility Wide Energy Plan at all levels of the organization to reduce energy consumption while simultaneously realizing financial and environmental benefits.

- *Security*. The Water Department continues to implement security improvements to key facilities in accordance with its Vulnerability Assessment that was completed in 2002. These improvements focus on preventing, monitoring, or detecting access to key facilities, as well as continuing critical operations during potential emergency situations. The Water Department will also continue to further develop and implement a Contamination Warning System (CWS) with the goal of detecting and quickly responding to any contamination occurrences in its distribution system.
- *Asset Management*. The Water Department is currently implementing the Cityworks© work order management system for its street side assets such as hydrants, water and sewer mains, and storm inlets. Cityworks® will consolidate multiple platforms that were in use by different units throughout the Water Department to track and prioritize maintenance activities. Over the next several years, a key initiative for the Water Department will be to train employees on the new system and fully utilize the resulting data to enhance operational performance and planning.

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 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 four Deputy Water Commissioners, including the Deputy Commissioner of Finance; Deputy Commissioner of Operations; Deputy Commissioner of Planning and Environmental Services; and the Deputy Commissioner of Compliance. The Water Department is currently organized into six major divisions: (1) Operations; (2) Engineering and Construction, (3) Finance, (4) Human Resources, (5) Public Affairs, and (6) Planning and Environmental Services. 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.

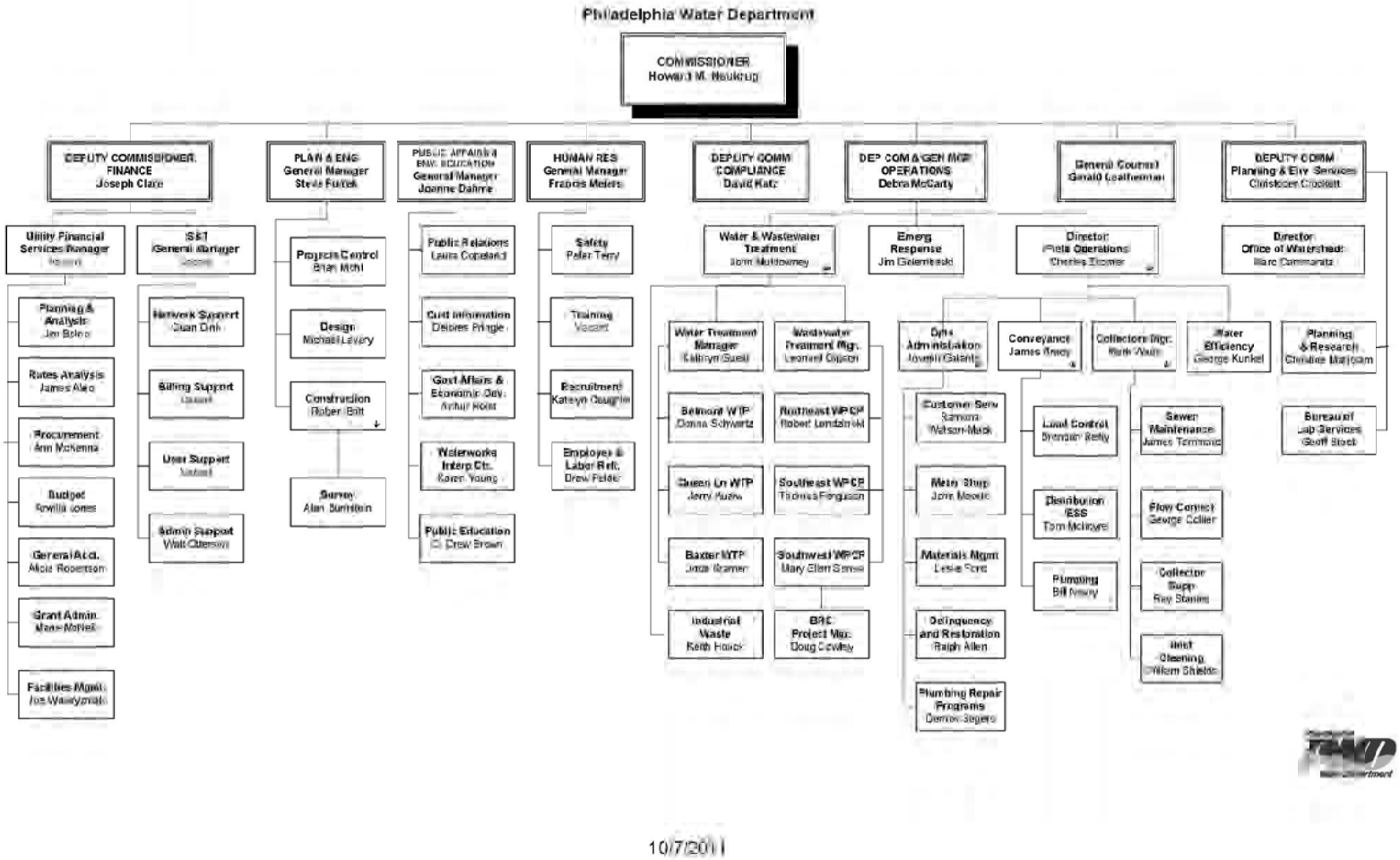


Figure II-1 Organization Chart

With the appointment of a new Water Commissioner in 2011, the Water Department is in the beginning stages of updating its strategic plan with the vision of becoming America's model urban water utility for the 21st Century. A key element of this process will be to evaluate 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 strategic planning process moves forward. Recently, there have been several changes to the organizational chart that are discussed below:

- Prior to fiscal year 2011, the 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 determined that IS&T employees could be utilized more efficiently if consolidated into the City's Department of Technology (DOT). Therefore, approximately 51 positions were shifted from the Water Department to DOT. The day to day responsibilities of these personnel remain centered on serving the technology needs of the Water Department and management does not believe it will adversely impact performance. 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.
- The Planning and Environmental Services Division was created in FY 2011 as a separate division within the Water Department. Previously, the Planning and Engineering division conducted all Water Department-wide planning, as well as the design and construction of capital improvement projects. The Water Department has determined that it can conduct more effective planning related to Water Department-wide initiatives with planning staff concentrated in a separate Planning and Environmental Services Division. The Engineering and Construction Division will continue to focus on the design and implementation of capital improvements, while coordinating with both the Operations and Planning and Environmental Services divisions to ensure that projects are in line with operational and planning specifications.

As of May 2011, the Water Department had a total of approximately 1,847 employees. Of these, 1,445 are represented by District Council 33, and 231 are represented by District Council 47 of the American Federation of State, County, and Municipal Employees Union. The Water Department's 171 upper management, supervisory, and senior engineering personnel are not eligible for union membership. In addition there are 243 employees in the Water Revenue Bureau 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.

The following sections provide an overview of the Water Department's key divisions and the Water Revenue Bureau (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 require 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 U.S. Environmental Protection Agency (EPA) and state requirements by the Pennsylvania Department of Environmental Protection (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 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.

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 Department privatized the operation of its Biosolids Recycling Center (BRC) by leasing the BRC to a joint venture led by Synagro Technologies 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 five 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 capital improvement program.

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.

To provide for more efficient decision making ability, 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. The projects are prioritized in order of importance and are current through regular review and communication. The project listing provides the Operations Division with a comprehensive budget program enabling it to maintain continuity of service while tracking corresponding budget requirements.

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. Similarly, the Planning and Environmental Sciences and Engineering and Construction Divisions are also staffed by highly skilled scientists, engineers, planners, and technicians. 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 57 budgeted positions with 11 vacancies as of May 2011. Descriptions of the units are provided below:

Planning and Research Unit - This Unit represents a consolidation of the strategic planning activities associated with the private sector side of GCCW, source water, and water and wastewater infrastructure improvements. 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 a number of programs including: Planning, Plan Review, and Innovative Technologies & Research.

Strategic Planning: The function of strategic planning is to conduct planning on a 25 to 50 year horizon to position PWD 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:

Asset Management supports the Water Department's infrastructure condition assessment, prioritization, and replacement programs. The Water and Sewer Planning and Wastewater and Stormwater Planning teams are supporting the implementation of the CapPlan™ Water, continue to implement the Water Department's Sewer Assessment Program (SAP), and are evaluating solutions for flooding in susceptible areas of the City.

Water Supply Strategic Planning leads the Water Department's efforts to insure a sustainable water supply for future generations. Activities include: 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 and administer the Delaware Valley Early Warning System, which provides early warning communications and notification for water suppliers on the Delaware and Schuylkill Rivers.

Plan Review: The GCCW program relies heavily on changes in the way stormwater is managed in the private sector. This section interacts with the development community and is responsible for implementing the City's stormwater regulations, through plan review and on-going inspections. They also respond to appeals and applications under the parcel-based billing program. These initiatives work hand in hand to maximize the stormwater benefits to the City from private lands.

Private Development Services conducts plan reviews for every development and redevelopment project in the city to ensure compliance with the stormwater regulations. It is responsible for reviewing and approving the stormwater plans for proposed development greater than 15,000 square feet

Private Development Inspections verifies on-going compliance with the stormwater regulations by conducting regular inspections of stormwater infrastructure on private lands to insure proper operations and maintenance after installation.

Parcel Based Billing, Stormwater Credits, and Appeals reviews all applications for credits or appeals under the new 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.

Innovative Technologies & 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. The innovative technologies 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 function this is similar to the traditional research and development program the Water Department has historically maintained. This section is currently providing technical and research support for water treatment planning, distribution system evaluations, and wastewater treatment plant process enhancements and expansions. This program is also responsible for the development of new energy initiatives, conceptual design, and implementation.

Office of Watersheds – The Office of Watersheds (OOW) is charged with integrating and implementing 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. To achieve these goals, OOW developed and implemented an integrated watershed approach to wet weather management, and focused on developing Watershed Management Plans for each of the City's five watersheds. The Plans identified and prioritized water quality concerns, sources of pollution and treatment, and restoration recommendations within each watershed. The Plans are intended to serve as a roadmap for watershed restoration efforts. These plans also served as the foundation for the GCCW initiative upon which OOW and the Water Department are embarking.

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 infrastructure and the restoration of the natural hydrologic cycle in the urban environment to intercept urban runoff before it reaches the sewer system. This approach allows for infiltration, evaporation and slow release (as necessary) to the sewer system. The objective of the approach is to achieve the required reduction in CSOs and associated pollutant loads, while enhancing the urban environment through the development of accessible green spaces throughout the City. GCCW also includes capacity upgrades to each of the Water Department's three WPCPs. The program as a whole builds upon the Water Department's commitment to addressing CSOs with an investment of $2.4 billion (future cost) over the next 25 years. Projects under the previous LTCP have either been completed or are anticipated to be complete in the coming year.

With the signing of the COA, OOW is transitioning from conducting planning and small scale demonstration studies, to city-wide implementation of green infrastructure. To facilitate this, OOW reorganized and is currently undergoing a Program Quality Management exercise to define each unit's core mission, establish success factors and metrics, and develop staffing and work plans for FY 2012. Through this process OOW will prioritize activities to ensure compliance with the deliverables of the COA. OOW also now has direct access to and control over design and capital funds and is poised to issue three requests for proposals for services to assist with the planning and design of green infrastructure projects.

OOW is comprised of three Units: Strategic Policy and Coordination, Planning and Regulatory Compliance, and Environmental Restoration and Monitoring. 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 Planning and Regulatory Compliance Unit is responsible for planning, implementing, and tracking green infrastructure activities. This includes design and maintenance support, and monitoring of the green infrastructure to be constructed under the COA. They develop and run 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. They also conduct 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 insures that the Water Department is in compliance with the CSO and Municipal Separate Storm Sewer System (MS4) permits.

The Environmental Restoration and Monitoring Unit is responsible for watershed monitoring, restoration and field operations. This Unit is primarily focused on field-based activities such as water quality monitoring in the streams, and stream or wetland restoration. 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.

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 Department research initiatives. 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 and (6) Scientific and Regulatory Affairs. 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 responsible for the development of standard operating procedures and the quality assurance program at the water and wastewater laboratories. They are directly responsible for wastewater laboratories and support the water treatment laboratories which are under the direct supervision of each plant's manager. BLS is responsible for administering compliance with the water quality monitoring requirements under both the federal Safe Drinking Water Acts (SDWA) and state regulations. Approximately 1000 sets of drinking water samples are collected each month from the water treatment plants, reservoirs and distribution system. These samples are tested for chemical and bacteriological parameters to assure product quality.

BLS is responsible for administering and carrying out 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, placed at strategic locations within the system. BLS

also collects and analyzes water samples related to customer complaints and targeted water quality investigations and research.

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 in the development of Watershed Management Plans and collecting of data required for the annual reports required under the Stormwater Management Program and Combined Stormwater Overflow Program permits.

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 Capital Improvement Program. 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 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 responsible for developing, maintaining, tracking, and coordinating the capital improvement program. 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 2012 though 2017 in October 2010, 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 2012 budget to the City's Planning Commission in December 2010. The Mayor approved the Water Department's Capital Budget and included it as part of his proposed budget to City Council in February, 2011 and it was approved in June, 2011.

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 request 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, and 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 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 nine units (Procurement, Grant Administration, Planning and Analysis, Rates Analysis, General Accounting, Budget, Facilities Management, Machine Shop, and Security). The authorized staffing level for the division is 166. There are also approximately 4 filled positions that are budgeted in the capital fund. As of May 2011, 139 of the 166 operating budget 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, and 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. 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; insuring 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 and insuring the effective communication of policies and procedures generated by management throughout the Water Department; and coordinating labor management initiatives and employee relations programs with the Water Department's long range operational plans. The three units in this division are Personnel, Training, and Safety and Health. Authorized staff for the Human Resources Division is 30, and there are currently 6 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 and Health 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 FY 2010. The Water Department anticipates that this injury will negatively impact its paid days lost record through FY 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

6. Public Affairs Division

The Public Affairs Division supports and enhances the services performed by the Water Department's five 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, which was opened in October 2004. 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 38,000 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.

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 five 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

   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.

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 Water Revenue Bureau, 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 FY 2010 the Unit received 198,400 calls, with an average wait time of only 28 seconds. A great deal of emphasis is placed on obtaining input from customers and using their input to continuously improve service.

Although there have been attempts to merge the call centers for the Water Department and Water Revenue Bureau in the past, to date the two centers still operate in separate environments. To enhance customer service operations, the Water Department is also evaluating the feasibility of transitioning the WRB and Water Department call centers to a third party hosted cloud computing solution. It is anticipated this approach would help minimize costs while providing greater efficiencies with respect to call routing and call handling.

The Public Affairs Division is currently leading a Community Advisory Committee (CAC) that is conducting a periodic review with respect to the Water Department's stormwater policies and procedures. The CAC is comprised of stakeholders that are impacted by the Water Department's stormwater charge that began in FY 2011. Issues being addressed by the CAC include the allocation and cost-recovery of stormwater revenue requirements, as well as policies and procedures for determining credits for customers that mitigate their stormwater impact on the Water Department's system.

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 of 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, 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), PCBs and sediment loads, Combined Sewer Overflow (CSO) implementation, Separated 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. Water Revenue Bureau

Established under the City Charter, the Water Revenue Bureau (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. 243 of the 260 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, 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 water meters with new meters equipped with radio transmitter meter reading devices. Installation commenced September 11, 1997, on schedule. As of July 2010, more than 491,000 new meters had been installed**.** 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 recently collaborated with the Water Revenue Bureau in the implementation of a new billing system. The new basis2© Customer Billing System was implemented in fiscal year 2008 and replaces the twenty-five (25) year old application previously supporting WRB. The new billing system is generating bills and operating as anticipated, while the Water Department and WRB continue to work together to develop and validate several applications and reports related to customer consumption. 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.

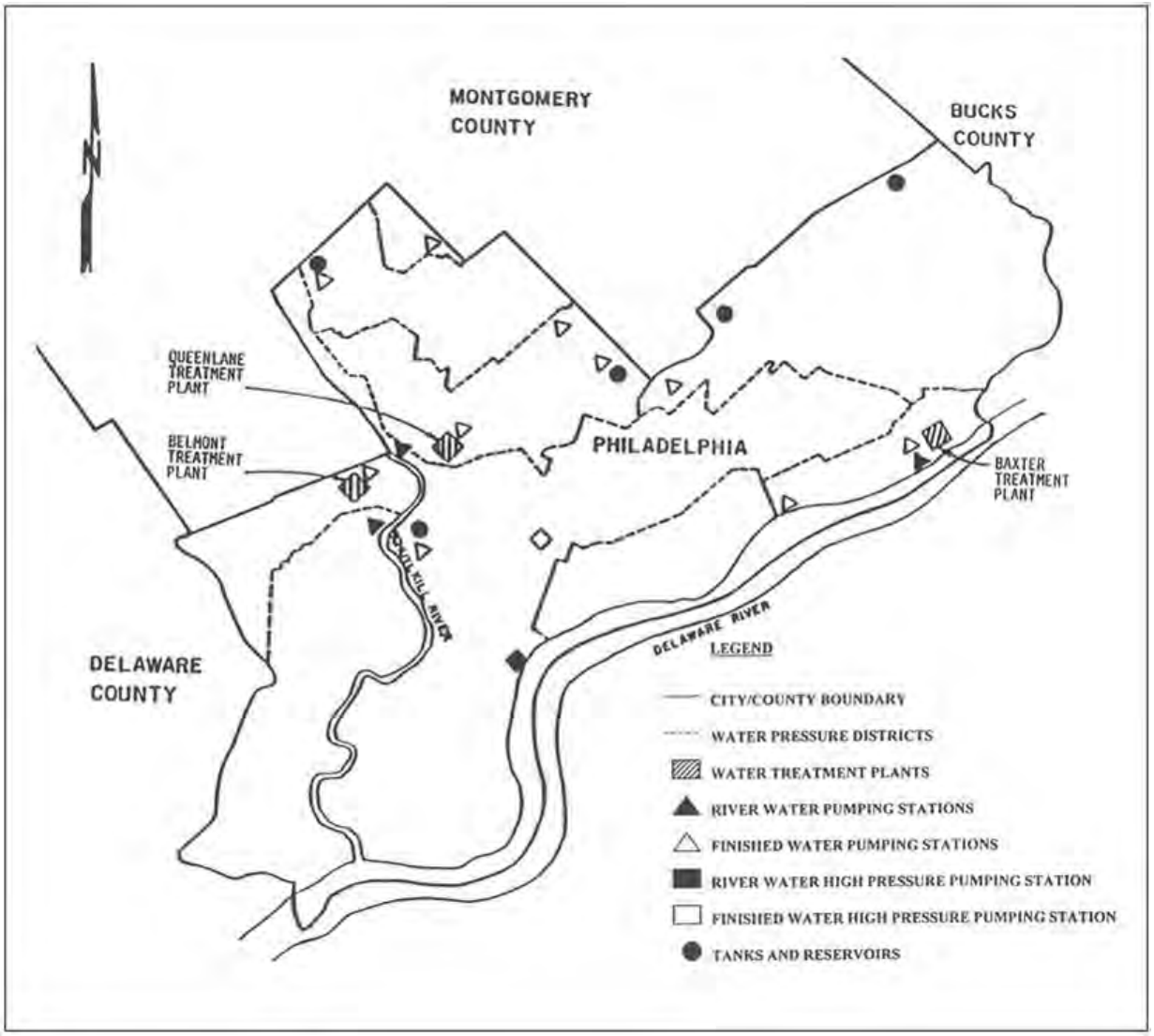
Today, the major elements of the water system include three river supply intakes, three treatment plants, storage facilities and a conveyance network. The water system service areas and major facilities are shown in Figure III-1 on the following page.

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. At this time, it is unclear whether current service levels provided to BCWSA will be impacted by the new contract. 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 FY 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 City obtains approximately 57 percent of the water supply from the Delaware River and 43 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 significant 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 they are not dependent on a single source of supply. As of October 6, 2011 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 536 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 delivery in fiscal years 2008, 2009, and 2010 was 250.7 mgd, 245.8 mgd, and 244.4 mgd, respectively.

2. Population

The population served by the Water System is approximately 1,738,006 as per the 2010 Census and Water Department estimates, of which 1,526,006 were located in the City, 155,000 were in Bucks County, and approximately 57,000 were in Delaware and Montgomery Counties. Population growth for the service area is 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 244.4 mgd for the fiscal year ending June 30, 2010. It is projected that water delivery will decline to 239 mgd by 2015 due to continued reductions in these components of water demand. These reductions will impart both a slight reduction in water revenue and reduction in 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. The Oak Lane Reservoir's capacity is 72.8 mgd. It is currently out of service and undergoing a capital improvement to replace its cover.

C. WATER QUALITY

The Philadelphia Water Department has continuously maintained 100 percent compliance with all drinking water regulations in effect at the time. The United States Environmental Protection Agency (EPA) promulgated two regulations in 2005 and the Water Department is well positioned to meet these additional requirements when they go into full effect in 2012. This section describes the Water

Department's water quality initiatives, compliance with present regulations, and actions being taken to meet the recently promulgated regulations.

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 fiscal year 1999, 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. In 2009, the Water Department was awarded the prestigious 10 Year Director's Award for meeting the stringent criteria of the Phase III for ten consecutive years. The Water Department continues to meet or exceed all of the Phase III requirements. 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 positioned it for compliance with the Long Term 2 Enhanced Surface Water Treatment Rule.

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 is committed to collecting the necessary data, conducting the self assessment, and developing and implementing an improvement plan in the coming years.

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 and the Stage 2 Disinfectants/Disinfection Byproducts Rule where promulgated in January 2006 and became effective in March 2006. 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 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, 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. It also anticipates meeting promulgated rules that will go into effect for 2012 related to disinfection byproducts (Stage 2 D/DBPR) and microbial disinfection (LT2ESWTR).

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 by exceedances of the lead action level of 0.015 mg/l or the copper action level of 1.3 mg/l measured at 90 percent of the consumers' 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 2008 monitoring results, and initiated sampling in June 2011 for the current compliance cycle. 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 as phosphorus 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 Philadelphia 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 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 Department resumed dosing zinc orthophosphate at 1.5 ppm as of January 2011.

b) Total Coliform Rule (TCR)

The TCR requires water systems to monitor for total and fecal coliform at specific locations throughout the distribution system. The current rule allows up to 5 percent total coliform positive samples.

The TCR is currently under revision. The draft rule has been published and comments from stakeholders have been received. Guidance manuals for the TCR are currently being developed. The Water Department participated in the rule development and associated regulatory negotiations and is well positioned to comply with the new regulation.

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.

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), maximum contaminant levels (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 disinfectant 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. The annual average level of TTHMs at the conclusion of 2011 first quarter sampling for the Water Department's three water treatment plants ranged from 41 - 53 µg/L, and from 25 – 33 ug/L for HAA5s. All three water treatment plants are being operated in an enhanced

coagulation mode and consistently exceed the required monthly removals of TOC. 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 to begin in 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). Under this regulation the Water Department was required to conduct an Initial Distribution System Evaluation (IDSE) to identify sample locations for future compliance monitoring. The Water Department has completed this evaluation and submitted the resulting report to EPA. Based on this monitoring effort, the Water Department expects to be in full compliance with the Stage 2 D/DBPR when compliance monitoring begins in 2012.

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 2009 and 2010.

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 requires 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 Bureau of Laboratory Services (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 intends to meet 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 (an extension of their existing Source Water Protection Plan). The Water Department submitted the Watershed Control Program plan to the State for approval in April 2011. The State has one year to respond to or approve the plan.

The Water Department is also preparing for the second round of microbial monitoring which is to begin in 2013. The Bureau of Laboratory Services will meet with the State to develop and receive approval on their monitoring plan in 2012.

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 submitted to the PaDEP in April of 2011. 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 will yield far-reaching environmental and source water protection benefits. The program has earned a number of national recognitions 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 detection limits.

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 the spring of 2011, in the aftermath of the nuclear crisis in Japan, the Water Department was made aware of low concentrations Iodine-131 that had been periodically detected in its source and finished waters. The Maximum Contaminant Level for Iodine-131 is 3 picocuries per liter (pCi/L), and is based upon an annual running average of quarterly samples and not a single sample. Philadelphia's drinking water has not exceeded this level at any time and the Water Department is in full compliance with the Radionuclides Rule. The Water Department is proactively working with the PaDEP and the EPA to track down the source of the contaminant, and has developed a monitoring program and an operational plan to implement in the event that elevated levels are observed in the future. There are currently no known dischargers of Iodine-131 in the City's watershed other than excretion of thyroid medications from patients receiving personal therapy.

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 recommendations 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 $6.6 million toward additional security initiatives.

In 2008 the Water Department 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 is developing a comprehensive and integrated system to detect, confirm, respond to, and remediate contamination of the distribution system. The Water Department's approved work plan was awarded nearly 9.5 million dollars over a three year period with a 20 percent match required of the Water Department. These grant funds have been committed in entirety and are drawn to reimburse the Water Department for CWS expenditures as they are made.

The Water Department is developing this program as an extension of existing security initiatives. Among other things, it will build upon and utilize the existing distribution system water quality monitoring network. This monitoring network is comprised of more than 20 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. Protocols have been established for response to these alarms and will likely be developed further as part of the CWS program.

The primary components of the CWS are on-line water quality monitoring, enhanced sampling and analysis, customer complaint surveillance, enhanced security monitoring, and public health surveillance. These five core components are being integrated via a GIS-based dashboard that will provide access to all of the information and tools in a user friendly application and enable the Water Department to more readily identify a contamination event. The final component of the program is the Consequence Management Plan, which defines in detail how to 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 is anticipated that the five monitoring systems will be operational by the end of 2011 and that the Water Department will focus on training exercises and project evaluation in 2012.

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. Utilization of this program will be incorporated within any plan developed under the CWS program.

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 now fully automated, with the ability to control processes and equipment from distributed control systems.

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.

A program at all three plants to convert the single media rapid sand filters to sand and anthracite dual media filters was completed in May 2010. Conversion to dual media filters increases capacity and reduces required backwash frequencies and associated energy use.

The Water Department recently completed ten years of pilot scale investigations to respond to upcoming regulations and to investigate effects of proposed process changes. The initial phases of the pilot plant studies investigated the impact of changing coagulant dosages, the pH of coagulation, and the point of chlorination. These studies demonstrated the potential reduction in disinfection by-products that can be achieved by reducing coagulation pH and delaying the addition of chlorine. This work was completed and integrated into the current water treatment process. It also precipitated the current initiative to investigate various alternatives for reducing or eliminating pre-chlorine application including: evaluations of post-filter chlorination at the Belmont and Baxter Water Treatment Plants and preliminary evaluations of alternative pre-oxidants (chlorine dioxide or hydrogen peroxide).

The pilot plant research continued with the investigation of the practicality of using ozone to inactivate *Cryptosporidium oocysts*. The conclusions from this extensive phase indicate that ozonation for inactivation is very expensive. The capital related cost is estimated at $100 million, plus $40 million in contingency for re-pumping. With the completion of *Cryptosporidium* monitoring under LT2ESWTR, the Water Department determined that it will be able to meet regulatory requirements without installing ozone or ultraviolet disinfection.

Other pilot plant studies have focused on the effectiveness of coagulants other than ferric chloride, the benefits of a new technology for organics removal, and the effectiveness and limitations of oxide coated media for manganese (Mn) control. The Water Department has predominantly used ferric chloride; however, with changes in the coagulant market place and escalating chemical costs, it became necessary to evaluate alternative coagulants in comparison to ferric chloride on the basis of performance and cost. The Water Department also investigated the use of a new technology for the removal of organic compounds prior to coagulation. The benefit of this technology is the removal of DBP precursors prior to application of chlorine, and a resulting reduction in DBP production.

To capture the knowledge gained from the pilot studies, the results will be incorporated into a Water Plant Matrix evaluation to be executed by the Water Department in FY 2012. The Water Plant Matrix will utilize conclusions from the piloting research, along with input from water process and hydraulics experts, to develop conceptual plans and cost estimates for future (5, 10, and 50 year planning horizons) modifications to the water treatment plants. Key components of the evaluation include identifying hydraulic limitations of the existing infrastructure and developing potential design, installation, and operating costs for the various treatment technologies under consideration.

Other research initiatives are on-going and include: computational fluid dynamics (CFD) modeling to investigate actual hydraulic capacity of each water treatment plant, researching powdered activated carbon specifications to optimize carbon dosage with respect to organics removal, researching polymers for potential use as a filter aid, and evaluating chlorine decay and nitrification within the distribution system by using the InfoWater® hydraulic model. These initiatives will help the Water Department optimize their treatment processes and distribution system water quality, prepare for future regulations, protect their customers, and implement new processes or procedures as needed.

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-2.

Table III-2 Baxter Annual Plant Production

	DAILY OUTPUT (MGD)	
FISCAL YEAR	AVERAGE	MAXIMUM
2007	151	196
2008	150	189
2009	147	193
2010	144	190

The Baxter plant is budgeted for a staff of 57, and currently has 3 vacancies, which they anticipate filling in the near term

90 of the original 94 rapid sand filters have rebuilt underdrains and have been converted to a dual media configuration. Conversion of the remaining 4 sand filters has been postponed indefinitely due to issues related to the filter under drains and defective wash water valves. In addition to the conversion and rebuilding of the underdrains, the work included the repair of the annular space (connection between the effluent pipe and the filter wall).

In May 2010, the Water Department was notified of a cave-in in a section of the vegetated roof of the 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 cave-in is a result of concrete failure of the 100 year old basin 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. The basin has since been surveyed internally using underwater cameras. The surveys revealed significant cracking of the internal arches of the basin. The Water Department is currently evaluating alternatives for emergency shutdown of the basin and is fabricating stop-logs to insert into the effluent channel. They are also investigating long-term solutions using hydraulic modeling to better understand the functioning of the basin in relation to the operation of Lardner's Point Pump Station. While the temporary solution is adequate for continuing service to the Water Department's customers as alternatives are evaluated, a permanent solution is critical to the system's overall integrity and reliability.

In an ongoing effort to reduce DBPs the Baxter Plant staff continues to evaluate various disinfection strategies and alternatives for the removal of DBP precursor materials. The current strategy has been in place since 2006, and has reduced DBPs to levels well below those required under Stage II of the D/DBP Rule. This strategy involves adding Powdered Activated Carbon (PAC) at the intake and splitting the initial chlorine dose between the rapid mix and flocculation stages. PAC added at the intake adsorbs dissolved organic material and settles in the raw water sedimentation basins. In addition to reducing DBP precursors, PAC removes taste and odor compounds. This has allowed Baxter to discontinue adding potassium permanganate, which it previously used for taste and odor control. The Baxter staff conducted research and developed seasonal dosing standards that are used to determine the optimal daily PAC dose. Reducing the chlorine dose at the rapid mix and delaying the addition of just a few milligrams per liter is enough to allow remaining organic material to react with the coagulant prior to chlorine addition and thus reduce DBP formation.

The Baxter WTP 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 is currently replacing the existing Distributed Control System (DCS). The new system is windows-based and displays data from the SCADA system but will not utilize the data to initiate process changes. It is anticipated that the conversion to the new DCS will be complete by the fall of 2011 followed by a 60-day trial period prior to going into full operational mode.

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, and the conversion of its primary disinfection from chlorine gas to sodium hypochlorite. The Baxter plant also installed on-line monitoring panels at the intake, outlet from the courts (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 significant security improvements to the facility such as:

- Installation of an emergency generator capable of supplying energy for all key processes in September 2009.
- Installation of chain link fencing around the sedimentation basin, and around the perimeter of the entire plant, as well as new outdoor lighting.
- Installation of a new security guard house as part of the ongoing construction of a new plant entrance with an expanded parking area and driveway.
- Continuing replacement of both seal court access hatches and cap/vents for filtered water storage basins #12 through #17, and #28 through #33. The long term plan is so seal all access to finished water basins to enhance security.

Other projects recently completed or on-going tasks at the Baxter WTP are listed below:

- In December of 2008, the filter waste header valves were replaced and automated. This allows for the initiation of filter-to-waste via the individual filters' control panels. These valves are connected to the new DCS which enables remote initiation of filter-to-waste. All valves have been replaced and performance tested.
- The backwash towers were painted and welded on the exterior in FY 2010.
- 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 is expected to take 3.5 years to compete all four basins.
- Replacement of filter effluent and flow valve packages on filters was started in 2009. To date, 33 filters have been completed with 20 additional filters scheduled for replacement in 2012, which will complete the northeast and southeast quadrants. This project is being completed in-house and will continue until all valve packages have been replaced.

Capital projects planned for the coming years are listed below.

- Plant staff plans to 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 in advance of an anticipated need to replace the existing surface water wash system. This project is currently in design.
- A project to reinforce the raw water basin berm and pier will be coordinated with the dredging of the intake and bypass intake.
- Filter backwash valves will be replaced through two contracts, one for the north and one for the south side. The design of the north side is substantially complete and anticipated to be bid in third quarter of 2011.
- The installation of raw water basin outlet gates and inspection and repair of existing concrete will be coordinated with a project at Torresdale Pump Station as both will require a temporary plant shutdown for underwater inspection.
- Emergency and long-term repairs and upgrades to the existing clearwell basin are in design, including rehabilitation of the stop-log chamber and installation of a stop-log system as emergency measures, with hydraulic profiling, filling of cracks and replacement of valves and drains as longer term improvements.

- Completion of the security-related improvements with the installation of security cameras and a card access system.

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-3.

Table III-3 Queen Lane Annual Plant Production

FISCAL YEAR	DAILY OUTPUT (MGD)	
	AVERAGE	MAXIMUM
2007	67.0	92.3
2008	65.5	88.9
2009	66.6	94.8
2010	65.7	99.4

The Queen Lane Plant has 55 budgeted positions with 7 vacancies as of June 2011. They anticipate quickly filling 3 to 4 of those positions.

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) and 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 such as new fencing and lighting around the clearwell basin and the new driveway and maintenance entrance are priority projects for the Water Department but have been delayed as a result of community meetings and feedback. The final proposed design is currently under review.

Projects recently completed or on-going at the Queen Lane plant are listed below.

- Replacement and upgrade of the Distributed Control System to a Windows-based system is complete. This work also included new servers and personal computers, and upgrades to the bridge control.

- Upgrades to the filter backwash system that are complete include the replacement of the backwash pump switchgear and repair of the washwater tank. The replacement of 19 backwash valves has been completed on the south side filters, and the north side valve replacements are currently under design.
- Doors and windows in the filter building have been replaced, and the additional replacement of remaining building windows is currently under design.
- Chemical storage and delivery systems for sodium hydroxide and sulfuric acid have been installed and are fully operational. These systems provide additional flexibility for adjusting pH to meet desired treatment goals at the rapid mix and filter effluent locations. As of June 2011, neither of the systems had been utilized.
- The motorized filter drain valves were replaced and the power supply in the filter building upgraded in 2010.
- 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 July 2011, one basin rehabilitation is complete, one basin is underway and the two remaining basins are to be completed in the next two years.
- Significant infrastructure improvements related to the filter influent and effluent conduits have been designed and are currently in process with completion anticipated in the Fall of 2011. These improvements include reconnecting the north by-pass to the clearwell, installing chemical dosing lines in the north conduit, repairing the center conduit to the clearwell, and repairing the settled water conduit.
- A new pumping station for Roxborough and the Queen Lane High Service District is under construction and is near completion. Testing of the facility is planned for the Fall of 2011.

Projects planned to be implemented in the near-term at the Queen Lane plant are listed below.

- The elimination of the raw water basin bypass to the filters has been designed and is in Projects Control. This project will enhance security by placing a physical barrier in the existing by-pass that currently would allow direct flow from the raw water basin to the filter building, by-passing pre-treatment and flocculation/sedimentation.
- 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 waiting for construction.
- Upgrade of the lighting and electrical system in the filter building is planned for FY 2012.
- An equipment storage building has been designed and is ready for construction.
- Phase I of design for the renovation of the pre-treatment building is complete. It will involve the removal of old chemical storage tanks. Phase II will consist of lay-out for future use and an office space/conference room.

Longer range projects which are also part of the facility plan include:

- Installation of a third power line to service the facility.

- Installation of an automatic shutdown of the flocculation/sedimentation process in the event of loss of chemical feed,
- Replacement of the main switchgear will be initiated when the new pump station is fully operational.
- Implementation of additional security improvements including the purchase of generators capable of powering the entire plant.

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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-4.

Table III-4 Belmont Annual Plant Production

FISCAL YEAR	DAILY OUTPUT (MGD)	
	AVERAGE	MAXIMUM
2007	42.5	54.2
2008	40.8	51.7
2009	42.0	49.1
2010	41.7	53.0

The Belmont Plant has 53 budgeted positions, with 1 vacancy as of June 2011.

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 in August 2008, May 2009 and November 2009. Each trial showed significant reductions in DBP formation but also encountered operational challenges. The process resumed in May 2010 and was planned to continue through September 2010. The DBP reduction was substantial, but after a few weeks without pre-chlorine, the filter performance started to degrade. Filter performance improved rapidly when pre-chlorine was

reinstituted, but when the pre-chlorine was again removed, the filters would again degrade over time. Algal growth in the sedimentation basin led plant staff to suspect that algae were the cause of the filter degradation. The staff implemented several process changes and physical changes over the course of the summer but were not able to identify the cause of or a solution to the poor filter performance. Belmont resumed the trials in May 2011 and observed similar filter response. They continue to investigate chemical additions and/or mechanical equipment to control growth within the basin to enable this process to be used to reduce DBP production during the summer months.

Other projects recently completed or on-going at the Belmont plant are listed below.

- Replacement of windows and doors in the chemical and administration building is complete.
- Installation of a dehumidifier in the chemical building is complete.
- Rebuilding of Filter #13 is complete.
- Upgrading the hypochlorite building DCS is complete. This includes an update to the bridge controller.
- Replacement of expansion couplings and coatings of piping and chambers is complete.
- Replacement of the drain valves for the filters on the north side of the plant is complete.
- Replacement of the filter effluent actuators is complete. Replacement of the effluent valves through internal plant forces will occur in fall and winter 2011.
- The replacement of low voltage (208V) panel board and addition of a generator is complete.
- Replacement of the existing, oversized polymer feed system is complete.
- Reconstruction of the sulfuric acid feed system is complete. It is not currently in use as operational and safety training is first required.
- Relining of the sewer within the plant site is complete.
- Installation of redundant backwash control system (second meter and flow control valve) is complete.
- Replacing the Raw Water Basin (RWB) side isolation valves to the rapid mix is complete.
- Replacement of filter surface wash piping is substantially complete.
- Replacement of filter influent valves on all filters is complete.
- Replacement of existing variable frequency drives (VFDs) on the flocculators is substantially complete.
- Replacement of power lines to the north flocculation/sedimentation basins is substantially complete.
- Upgrading of the chemical building DCS is complete.
- Replacement of existing oversized and problematic lime slakers is underway.

Future projects at the Belmont plant are listed below.

- Rehabilitation of the raw water basin is in the design and anticipated to be bid in the fall of 2011. This will include relining of the basin, replacement of the center flume, spillway construction and the addition of the carbon feed system. Project is completely designed and headed to Project Controls.
- Replacement of the medium voltage switchgear and purchase of a high voltage generator is planned for the fall of 2011.
- Rehabilitation of asphalt driveway.
- Removal of obsolete chlorine system.
- 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.
- Installation of security lighting and access control.
- Automation of the filter-to-waste process to allow for remote initiation of valves that send filter effluent to a drain after filter start-up.
- Rebuilding of control valve on ferric chloride feed.

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 substantially ready for bid.
- Backup water service
- Additional ferric storage.
- South filter building egress.
- Rehabilitation of the flocculation/sedimentation basins, including the flocculation area and concrete.
- Finished water basin crack repair and cover replacement.
- Carbon system rehabilitation.
- Painting of lime silo.
- Motor Control Center (MCC) replacement and influent valve wiring.
- Dredge Schuylkill at intakes.

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 four units, including: Distribution, Pumping, Load Control, and Headquarters. The Division has 352 authorized positions. Currently, there are 33 vacancies.

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 new system will be used primarily by the Water Department's field units that work on street side assets associated with the conveyance and collector systems. The Water Department's Geographic Information System (GIS) will serve as the foundation of the system and Cityworks® will be able to handle both service requests taken from the Public Affairs Call Center and work orders for system maintenance and repair. It will replace the individual systems currently used by each unit for the tracking of infrastructure repairs, replacements and related projects, thus streamlining work, consolidating data into one location and reducing duplication of efforts.

Water Conveyance has been involved with the implementation of the Water Security Initiative (WSI) grant and the development of the Contamination Warning System (CWS) discussed in Section III.C.3. Water Conveyance was specifically involved in elements of the project that incorporate the Water Department's hydraulic models into the CWS and consequence management plans.

1. Distribution Unit

The responsibility of this unit is to provide permanent repairs and maintenance to the water distribution infrastructure, construct service connections, provide twenty-four hour emergency response and local control of the water distribution system, rectify system failures and maintain product control, and provide reliable and cost effective water supply while being responsive to customers' and environmental needs. Major components of the distribution system include: 3,159 total miles of pipeline (394 miles of transmission and 2,765 miles of distribution mains), 25,234 hydrants, and 90,216 valves (83,353 valves 12" and smaller and 6,863 valves 16" and larger).

Table III-5 shows the major performance parameters for the unit for the last four fiscal years.

Table III-5 Repair Record

SERVICE PARAMETER	FY 08	FY 09	FY 10	FY 11
Breaks Repaired	688	802	646	954
Discontinuance Orders Completed	579	279	177	167
Valves Repaired	303	368	293	246
Connections	159	112	64	76
Leak Survey (miles of pipeline)	1,113	931	1,133	995
Hydrants Repaired	4,447	4,765	5,556	5,630

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. This program has been in place for over ten years and is highly effective. The Water Department's current level of 208.9 breaks per 1,000 miles is significantly better than the national average of 270 breaks per 1,000 miles. The program consists of leak surveys, utilization of information obtained from the sewer assessment program, examination of portions of repaired mains to determine the root cause of breaks, as well as corrosion control studies. A recent addition to the preventative maintenance program is the use of a new technology called *Sahara*® that is used to inspect and identify defects and small leaks in large diameter transmission mains. Whereas conventional leak detection technology is generally less

effective for larger transmission mains, this technology allows for in-pipe inspections of active transmission mains and has proven quite effective for the Water Department. The implementation of the *Sahara*® technology has coincided with the establishment of a reorganized crew structure for the Distribution Unit that focuses on the inspection and repair of transmission mains. More information on the use of *Sahara*® and leak detection in large diameter transmission mains can be found in the Piloting New Technology and Benchmarking section that follows.

To assure 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 replace). Table III-6 summarizes the valve program for fiscal year 2010.

Table III-6 Valve Maintenance (Fiscal Year 2010)

VALVES	TOTAL	SMALL (12" OR SMALLER)	LARGE (16" OR LARGER)
Operated	9,209	6,874	2,335
Found defective	266	206	60
Repair/Replace	107	82	25

In fiscal year 2010 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 preventative maintenance program includes routine inspections, repairs, and painting. During fiscal year 2010 the Water Department partnered with the Fire Department to inspect almost all of the city's 25,234 fire hydrants, leading to 5,556 repairs and 2,976 hydrants painted. Additionally, 724 tamper-proof hydrant locks were installed. Over 75.3 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 are currently tracked using a variety of computer programs. These programs include: distribution (DMIS), valves (VMIS), and hydrants. Throughout calendar year 2011, asset and work order tracking of this infrastructure is being migrated to the Cityworks® computerized maintenance management system. This will allow street-side maintenance activities to be tracked uniformly and will provide 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-7 details the unit's performance for these three parameters.

Table III-7 Pumping Unit Activity

	FY 07	FY 08	FY 09	FY 10	FY 11
% Pump availability	95.8	94.5	93.6	94.1	95.2
% Station Efficiency (wire to water)	77.8	77.2	77.9	79.2	79.8
% planned work (a productivity measurement)	94.7	94.8	94.0	95.0	96.2

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 been stable at about 77 percent over the past four years, which given the age of the equipment, is considered to be a high level of efficiency. 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, and 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 the new pump station building is largely constructed, and pumps and related equipment are being installed. Testing of the new equipment should begin in late 2011.

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) reached completion in 2009 and similar work at the Fox Chase Elevated Tank was completed in Fiscal Year 2010. Design work is progressing for the two Roxborough Standpipes, which 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.

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. 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 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-8 illustrates the unit's ability to control electrical demand (a major cost component of the operation).

Table III-8 Load Control Unit - Electrical Demand

	FY07	FY08	FY09	FY10
Average Daily Delivered Water, mgd	255.3	250.7	245.8	244.5
Total Power Consumption, million kilowatt-hours	127.5	127.0	124.8	120.6
Total Peak Billing Demand, Kilowatts	145,000	145,035	144,001	144,501
Total Expenditures for Power	$6,525,000	$6,614,500	$6,787,000	$6,610,500
Cost per million gallon pumped (raw & treated) water)	$70.02	$72.28	$74.92	$74.69

Average daily delivery to the water system is approximately 245 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. 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. All these projects were designed, purchased, and installed in-house by Load Control engineers and Pumping Unit technicians. Load Control and Pumping Unit staff continues to monitor each district for opportunities to improve pumping efficiency and lower overall costs.

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.

4. Water Conveyance Headquarters Unit

The Water Conveyance Headquarters Unit manages water distribution in the City and oversees the Water Accountability Committee, which coordinates the Water Department's on-going Water Loss Control Program with City managers. 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. 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, piloting of new technologies, and benchmarking. Through these programs, the Water Department has reduced non-revenue water by approximately 15 percent since FY 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 2002 to 2010 are presented in Table III-9. 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 Water Revenue Bureau 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-9 Water Audit Results 2002 – 2010

COMPONENT	FY2010	FY2009	FY2008*	FY2007	FY2006	FY2005	FY2004	FY2003	FY2002
Water Supplied, mgd	244.4	245.8	250.7	255.3	253.8	260.3	263.0	270.2	263.0
Billed Consumption, mgd (may include some unmetered consumption)	165.8	172.4	175.8	169.5	177.0	176.9	176.9	183.4	178.2
Non-revenue Water, mgd	78.6	73.4	74.9	85.8	76.8	83.4	86.1	86.8	84.8
Percent Non-revenue Water by volume	34.9	32.3	32.4	36.3	32.7	34.6	35.4	32.1	32.2
Percent Non-revenue Water by cost	16.3	12.5	15.1	17.5	13.0	12.4	9.0	8.3	8.1
Unbilled Authorized Consumption, mgd	2.0	2.1	2.1	2.3	2.4	2.3	2.4	3.0	2.5
Unbilled Authorized Consumption Costs	$779,400	$713,800	$717,200	$214,300	$191,000	$155,200	$159,700	$180,400	$145,900
Apparent Losses, mgd	17.0	15.0	19.0	21.9	15.2	14.2	11.1	13.3	13.1
Apparent Losses costs, million	$30.0	$22.3	$27.3	$30.8	$20.3	$19.1	$10.9	$10.0	$9.0
Real Losses, mgd	59.6	56.2	53.8	61.6	59.2	66.9	72.6	70.5	69.2
Real Losses costs, million	$5.9	$4.8	$4.9	$5.1	$4.3	$3.9	$4.1	$3.7	$3.4
Infrastructure Leakage Index, dimensionless	9.9	8.9	9.0	10.3	9.9	11.0	12.1	11.9	13.1

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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, 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 13.1 in 2002 to a low of 8.9 in 2009.

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 2010, 1,133 miles of small diameter mains were surveyed, with corrective measures abating 28.5 mgd of leakage. Summary results of this proactive program are presented in Table III-10.

Table III-10 Leak Survey

SERVICE PARAMETER	FY 07	FY 08	FY 09	FY 10
Leak Survey (miles of pipeline)	1,024	1,113	953	1,133
Leakage Abated (mgd)	27.66	36.07	31.38	28.51

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 4e (Piloting New Technology and Benchmarking).

c) 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 automatic meter reading 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 installation of Automatic Meter Reading, 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, particularly the appropriateness of sizing of these meters. 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.
- A concerted look at downsizing large meters that are oversized in the system has also been undertaken. Approximately 250 meters per year were downsized from FY 2006 to FY 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 FY 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 also has a greater 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. The Water Department and its water efficiency consultant analyzed several dozen large meter accounts in FY 2011 to obtain detailed flow profiles.
- The Water Department installed three new single jet meters to pilot the use of these meters and confirm if their advertized high accuracy is observed in the field. Additional single jet meter installations are planned in the near future.

(3) Automatic Meter Reading System

The first installation phase of the Automatic Meter Reading (AMR) System from 1997to1999 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 initial installation of the AMR system is essentially complete with over 99 percent of residential and commercial customers having AMR capability. The second phase of the program to replace large meter commercial and industrial customers with AMR is almost complete at 96 percent. 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
- 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 January 2011, the Water Department began a two year initiative to change out AMR batteries. The existing ERTs on residential accounts, which were initially installed from 1997 to 1999, will be replaced with similar ERT units that have a new battery. Additionally, the Water Department has specified that that all large metered accounts (1-inch and above) and all accounts within District Metered Area 5 (see below) be installed with fixed network-capable ERTs that have the ability to provide meter reads as often as every 15 minutes. This ability to provide more frequent meter reads can provide the Water Department with sufficient data to develop detailed customer consumption profiles, 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.

d) Revenue Protection

The Revenue Protection Program focuses on recovering uncaptured revenue from compromised customer accounts. It has been successful in recovering over $19 million during its life. 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 new technologies to improve shutoff effectiveness with limited success. These pilots involve the installation of an automatic shutoff valve upstream of the meter that can only be controlled remotely by the Water Department. The Water Department is also looking closer at enforcement actions and billing policies to discourage the high level of unauthorized consumption in the City.

The Water Department expects to receive a considerable amount of information related to unauthorized consumption during the AMR battery change out initiative. As each account is visited during this process, field notes will be taken to document locations where water is being used, but not billed.

Table III-11 Water Revenue Bureau Annual Water Audit Summary

FISCAL YEAR	WATER RECOVERED, MGD	REVENUE RECOVERED
2000	1.39	$2,100,000
2001	5.81	$2,900,000
2002	0.69	$1,037,000
2003	1.14	$1,782,000
2004	1.67	$2,003,000
2005	1.74	$2,835,000
2006	1.01	$1,413,000
2007	0.36	$531,000
2008*	N/A	$636,000
2009*	N/A	$1,604,000
2010	1.58	$2,385,000
Total	**16.78**	**$19,226,000**

* Data not available due to implementation of basis2© customer billing system

Reduction of unauthorized fire hydrant use is another Water Department loss control initiative. As mentioned above, recent efforts have focused on installing tamper-proof locks center compression locks (CCL) in those areas most susceptible to fire hydrant abuse. At the end of FY 2010, the Water Department reported that approximately 75.3 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.

e) Piloting New Technology and Benchmarking

Through participation in research studies and internal efforts, the Water Department is continuously investigating new and innovative technologies for water loss control. The Water Department participates in a number of research projects sponsored by the Water Research Foundation. 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 use continuous flow 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 in US water utilities 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. The Water Department will continue to focus on this DMA 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 will be installed on all customer accounts in DMA5 in 2012. This will give the Water Department the capability to do a daily water balance of supply flows into the DMA and compare it with the total daily customer water consumption.

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. The four year old program has scanned 30 miles of large piping and identified 63 leaks, the vast majority of which have been repaired. 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. Starting in Fiscal Year 2012, the Water Department will implement additional transmission pipeline services, including new technologies that feature refined leak detection capabilities, measurement of pipe wall thickness, and video.

Benchmarking activities provide beneficial information regarding realistic goals for water losses. To assure proper comparisons, the Water Department formats all loss control information to conform to the International Water Association (IWA)/AWWA water audit format. This provides the ability to compare the Water Department's progress with national and international water providers. 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 and assist other utilities in compiling water audits. 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.

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 once it is online 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.
- Pilot the use of a Fixed Network (continuous reading) AMR technology to monitor customer meters remotely at short time intervals. This would provide increased data collection opportunities and create opportunities to pilot an array of new capabilities known as

Advanced Metering Infrastructure (AMI) including leak noise loggers on customer piping, automatic shutoff valves, automated backflow detection and other enhancements.

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.

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.

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 are now supplied directly from Lardner's Point Pumping Station. The Water Department has designed, bid, and awarded a contract to replace the cover liner at this reservoir. The contractor was issued a notice to proceed in March 2011, and it is expected that the project will take 1.5 years to complete.

The Water Department's Reservoir Team manages the strategic planning, capital program projects, and operations and maintenance functions of the Water Department's reservoirs. Prior to the occurrence at the Oak Lane Reservoir, the Strategic Planning Group had focused on the long-term options for East Park and Oak Lane Reservoirs where the floating covers are into the second half of their useful lives. The long-term plan is to replace the existing East Park Reservoir with up to 5 (five) 30 million gallon concrete storage tanks. The tanks will provide water quality, security, and maintenance benefits over the existing reservoir and floating cover. The current plan is to install 2 (two) tanks in the near-term with potential for expansion in the future. A contract for the design was awarded in late 2008 and is approximately 90% complete.

Pumping stations are located at each treatment plant with seven other stations located off-site providing water service pressure in 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.

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 Technologies through the Philadelphia Biosolids Services (PBS) company. Under a 20-year contract with the City, PBS is leasing a portion of the property and converting the sludge from the wastewater plants to biosolids cake, which is stored on site. The contract also calls for PBS to complete the construction of a Class A Drying Facility at the BRC site by July 2012 which will produce pellets that can be used as fertilizer or fuel. PBS is on target for meeting this deadline

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 2010 census and Water Department estimates, the total service area population is approximately 2,283,082 including approximately 1,526,006 people within the City and 757,076 residents in outlying municipalities. The service area population is distributed over 365 square miles, with 230 square miles in suburban communities and 135 square miles in the City.

The wastewater collection system consists of approximately 3,663 miles of sewers, 21 pumping stations (18 City Owned and 3 owned by others but operated by the City), ,92,430 manholes, 26 storm relief structures, ,75,976 stormwater inlets, and 37 metering chambers to monitor flows from surrounding townships. There are 751 miles of sanitary sewer, 721 miles of storm sewer, 1,829 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 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 four pumping stations.

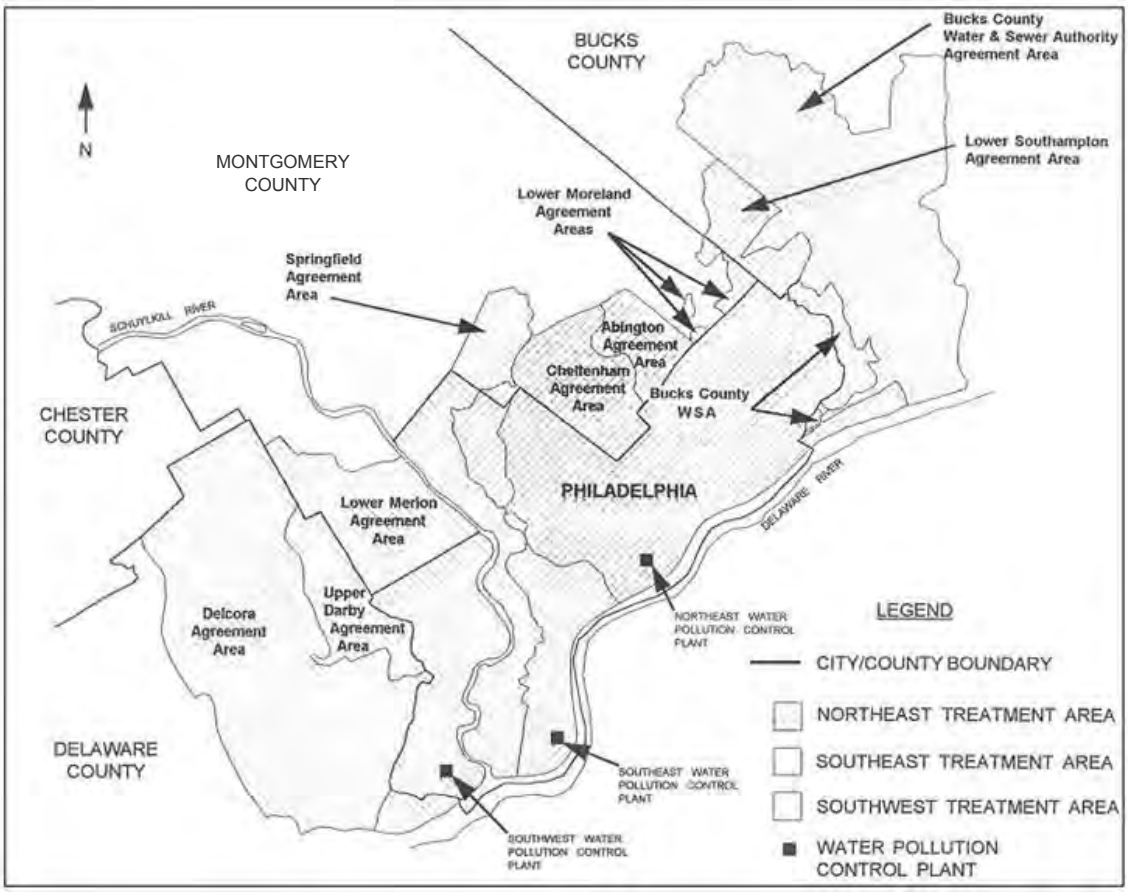

Figure IV-1 Wastewater Service Areas

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

	AVERAGE DAILY FLOW (MGD)	
	Annual Maximum	Fiscal Year 2010
Northeast Plant	56.6	47.5
Southeast Plant	1.0	0.5
Southwest Plant	84.7	53.4
Total	**142.3**	**101.4**

D. CONSENT ORDER AND AGREEMENT FOR COMBINED SEWER OVERFLOWS

A primary initiative for the Department over the coming years will be the implementation of a newly signed 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 signing of the consent order and the subsequent 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 tracking, measuring, and reporting progress toward compliance with the consent order's requirements

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 gray infrastructure improvements (storage and plant capacity increases). 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 EPAs strategy for addressing wet weather impacts, but the scale is well beyond anything that has been proposed or approved to date. The Water Department will be in the spotlight and under scrutiny as regulators and peers observe their progress during the implementation of this program.

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, the Water Department's next National Pollutant Discharge Elimination System (NPDES) permits (scheduled to be approved in 2012) will include a Water Quality Based Effluent Limit (WQBEL) Table with performance standards. The Table below is an excerpt from the signed COA and provides the proposed Water Quality Requirements to be included in the Water Department's next 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%

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; 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,S12	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 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 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 are 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. 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. 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.
- Reduction of CSO volume: Tracks the reduction of total CSO volume compared to the baseline year of 2006.

- 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.
- 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 COA outlines civil penalties to be assessed should the 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 the next 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 Environmental Protection Agency's (EPA) Guidance for Financial Capability Assessment and Schedule Development. The results show that the financial burden on residents will be approximately 2.51% of the Median Household Income (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 City's wastewater treatment plants and the collection system are regulated by three permits which include:

- National Pollutant Discharge Elimination System
- Stormwater
- (Title V) Title V Major Source Operating Permits-Clean Air Act

1. NPDES Permits

The National Pollutant Discharge Elimination System (NPDES) permits for the Northeast, Southeast, and Southwest WPCPs all became effective September 1, 2007 and will expire August 31, 2012 with renewal process being initiated in 2011. These permits provide flexibility to treat potential additional flows resulting from system-wide efforts to control combined sewer overflows. NPDES permit limitations are included in Table IV-2. The permits are designed to enable PaDEP to utilize them as a single source document in their review of the wastewater system compliance status. 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.

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

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 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.

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 DRBC has accepted, a Pollution Minimization Plan (PMP) related to PCBs. The Water Department updates this plan annually.
- Development of a Combined Sewer Overflow (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 2012.

2. Stormwater Permit

PaDEP has the authority to regulate municipal stormwater through the NPDES Municipal Separate Storm Sewer System (MS4) program. The Water Department is in full compliance with their current MS4 permit which was issued in September 2005 and expired in September 2010. The Water Department submitted a renewal application in March 2010 requesting that their new permit be aligned with the NPDES Permit and be issued in September 2012. This request would better enable the Water Department to coordinate initiatives between the MS4 and CSO programs. The Water Department is currently working with the State to negotiate the new permit.

Sections of the Water Department's current 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 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 Biosolids Recycling Center (BRC). Both permits have been administratively continued while new permits are being negotiated with the City Health Department's Air Management Services (AMS). PBS will apply for a new separate permit for the BRC when the drying facility is completed and commissioned. The impact of a new separate permit for the BRC is anticipated to reduce regulatory impacts related to Title V requirements for the Southwest WPCP. 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 NEWPCP, SEWPCP or SWWPCP/BRC.

F. ENERGY INITIATIVE

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 on-going 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 FY 2010 the Water Department adopted a Utility Wide Energy Plan. The 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 Plan, the Water Department established an organizational structure to ensure that the Plan 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 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 is actively implementing the Plan and continues to evaluate alternative energy sources.

One project recently completed is the installation of a 250 kilowatt (KW) Direct Current (DC) solar array at the Southeast WPCP. Projects currently being planned include a Public-Private Partnership for the construction of a 5.6 megawatt (MW) Co-generation facility at the Northeast WPCP to be operational by the end of FY 2015, a potential 3 MW solar array at the Baxter Water Treatment Plant, and a pilot study to test a technology that will utilize heat exchange from plant process streams to heat and cool the compressor building at Southwest WPCP. The Water Department is also evaluating other alternative energy sources such as conversion of fats, oils and greases to biodiesel; co-digestion with food-waste to enhance gas production; hydroelectric energy at the dams; and hydrokinetic energy within the distribution system.

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 year 2010 and have 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 7th and 12th platinum wards, respectively. In calendar year 2010, the Southwest WPCP exceeded its $CBOD_{20}$ loading limitation which removed it from consideration for an award. The minor issue was related to monitoring and testing procedures and not plant performance. Actions have been taken to correct the issue. Historically, the Southwest WPCP regularly received platinum awards. For calendar year 2009, the Southwest WPCP received its 7th platinum award equating to 11 years of perfect compliance.

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 420 mgd. 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.

During fiscal year 2011, the plant treated an average flow of approximately 162 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), but has not required this chemical addition in the past three years.

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:

- Replacement of Bar Screen

Projects either planned or ongoing:

- Under Construction:
- Replacement of Hydrogritters
- Modifications to Set 2 at Final Sedimentation Tanks (FST)
- New By-Pass Conduit from Set 1 to Effluent Conduit
- New Conduits from PTB to Set 1 Primary Tanks
- In Design Process:
- Preliminary Treatment Upgrades
- Bypass Facilities
- Planned for Future Implementation:
- NEWPCP Plant Expansion Conceptual Design
- Feasibility of Secondary System Expansion at NEWPCP
- 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 Biosolids Recycling Center (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 recently completed:

- Replacement of existing sludge pumps and valves for loading barges
- Dry dock barge maintenance for the barge named "The Recycler" (Six-Year Cyclical Maintenance)

Projects either planned or ongoing include:

- Under Construction:
- Installation of New Sludge Thickeners
- In Project Controls Pending Bid:
- FST Set 1 Return Sludge Pipe
- In Design Process:
- Construction of New Gravity Thickeners
- Planned for Future Implementation:
- Dry dock barge maintenance for the barge named "The Resource" (Six-Year Cyclical Maintenance)

5. Facility and Utility Maintenance Projects

In addition to the liquid stream and sludge stream projects listed above, key facility and utility maintenance projects include are listed below.

Projects recently completed:

- Solids Treatment Building (STB) Boiler Replacement
- Conversion of Old Heater Building
- Sodium Hypochlorite
- Replacement of Set 1 Return Sludge Pumps VFDs
- Rehabilitation of Pier 217 North
- Replacement of Natural Gas Pipe Connections
- NE Blower Bldg 4160 Switchgear Replacement
- Inspect, Test, and Calibrate Electrical Power System
- Replacement of Doors
- DAF Rehabilitation
- Rehabilitation of Digester Valves and Actuators
- Aeration Tank Rehabilitation
- PTB Wall and Roof Repair
- Digester Gas Piping Upgrades
- Digester Sludge Heat Exchanger (SHE) Replacement
- FST Set 1 Rehabilitation
- Upgrades to SCADA System - Phase 1
- Replacement of Mechanical Bar Screens
- Screening Conveyance and Disposal Replacement

- Replacement of Floated Sludge Pumps
- Replacement of Sludge Gas Storage Tank Bladder

Projects either planned or ongoing:

- Under Construction:
- Installation of High Efficiency Lighting
- Upgrades to SCADA System - Phase II
- In Project Controls Pending Bid:
- Demolition of Abandoned Digesters
- Installation of Cogeneration Facility
- Installation of 15 KV Primary Switchgear on Set 2 FST
- Rehabilitation of Grit Channel Aeration
- Rehabilitation of Biogas Condensate Vaults and Replacement of Biogas Meters
- Replacement of Process Air Blower Valves and Actuators
- Installation of Two Gravity Belts
- Painting of Aeration Tanks Process Air Headers at NEWPCP
- Upgrades to FST Set 1 Scum Collection Controls
- In Design Process:
- Rehabilitation of the Plant Water System
- Replacement of Aeration Tank High Voltage Switchgear
- Replacement of Existing 480V Switchgear on Set 2 FST at NEWPCP
- Replacement Emergency Lighting Throughout the Plant
- Rehabilitation of Phone System
- Automation of Final Tank Scum Removal
- Replacement of Valves/Gates Actuators in Primary Settling Tanks (PST) SET1
- Planned for Future Implementation:
- Acquisition of properties for Plant Expansion
- Installation of a New Gate Entrance

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 sewer 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 influent pumping and 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 computer program MAXIMO®. This Computer 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 being 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, three operating shifts daily. Approximately 110 (132 authorized) total staff, including administrative, operations, and maintenance personnel are employed at the Northeast plant. There are two certified operators. Currently, there are 22 vacant positions. Vacancies in the instrumentation series are considered the most critical. The plant also participates in a Water Department-wide apprenticeship program, and there are three interns currently serving in the program. Plant staff believes that participation in the apprenticeship program has helped attract talented and skilled trade professionals.

Other significant Operation and Maintenance programs include:

- The chlorine minimization program continues. This program has resulted in both cost savings and water quality benefits.
- Staff is being trained to obtain commercial driver's licenses (CDLs).
- Concrete inspections are performed in coordination with the BLS when tanks are taken out of service as part of preventative maintenance activities.
- NEWPCP participates in load shedding program with the local utility provider, PECO, providing an estimated cost savings between $40,000 and $50,000 per year.

7. Odor Issues

The Water Department continues its long standing commitment to managing odor emissions at the Northeast facility. Odor violations by calendar year are presented in Table IV-3. Since 2006, the number of odor violations has decreased significantly, resulting in no violations in the last two years.

Table IV-3 Odor Violations

CALENDAR YEAR	2006	2007	2008	2009	2010
Violations	7	2	2	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 helps eliminate a potential odor source and provides a more uniform feed to the digesters.

8. Cogeneration System

In FY 2008, the cogeneration facility for the Northeast WPCP was shut down with excess digester gas being flared. As mentioned above in the Energy Initiative 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 currently under negotiation for a contractor to build and maintain the facility while plant staff will operate the facility.

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 2011 was 86 mgd. 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 capacity of the Southeast WPCP to include a 50 MGD increase in secondary treatment capacity through process and hydraulic improvements. This expansion 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 year 2011, there were no odor complaints.

As indicated in the current NPDES permit, specific projects are detailed to further increase the capture and treatment of combined sewage. For the Southeast WPCP, the permit identifies one capital improvement project, Real Time Control (RTC) and Flow Optimization for the Southeast Drainage District, a city wide control system which has been completed. Projects that reduce the frequency and volume of CSO discharges in the Southeast Drainage District are detailed in the Annual Status Report and submitted to PaDEP.

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 and grit 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.

Sludge from the Queen Lane Water Treatment plant is discharged to the Southeast plant. The characteristics of this sludge reduce available phosphorous for the activated sludge process. Therefore, phosphoric acid is added to assure proper nutrient levels are maintained.

Projects recently completed at the facility that are related to the liquid stream process include:

- Upgrades to the Grit and Screenings Handling System
- Removal of Cryogenic Oxygen Generation System

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 Project Controls Pending Bid:
- Scum Concentration Building Modifications
- Replace Sludge Grinders / PST Sludge Pumps
- In Design Process:
- Rehabilitate or Replace Sludge Force Mains (portion under the river)
- Modify Scum Transport from Concentration Building
- Replacement of Waste Activated Sludge Pumps and Primary Sludge Pumps

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:

- HVAC Improvements to Multiple Buildings Phase I
- Overhaul of 6 (out of 32) Aeration Mixer Units
- Aeration Tank Expansion Joint Repair and Gallery Wall Rehabilitation
- Rehabilitation of Primary Tanks
- Rebuild of Influent Pump # 2
- Installation of Solar Photovoltaic Energy Generation System
- Rehabilitation of Grit Collecting Equipment

Projects either planned or ongoing:

- Under Construction:
- Renew Low Voltage Switchgear Access Buildings 5 & 6
- Repairs to Chlorine Mixing Chamber and New Mixers

- In Project Controls Pending Bid:
- Conversion of Chlorine Tank Car Shed to HVAC Shop
- Inspect and Repair High Mast Lighting
- Rehabilitation of the HVAC System Throughout the Plant-Phase II
- Overhaul of an additional 4 aeration mixer units (32 total units, 16 already rebuilt)
- Replacement of Flights and Chains in the Final Tanks
- In Design Process:
- Roof Replacement Administration and Maintenance Building
- Replacement of the Influent Bar Racks
- Planned for Future Implementation:
- Replacement of Doors Throughout the Plant
- Replacement of Railings Throughout the Plant
- Replacement of Existing Perimeter Fencing
- Repaving of Roads and Installation of "Green" Parking Lots
- Primary Tank Concrete Repairs
- Construction of a Parts Warehouse

6. Operation and Maintenance

The plant operates continuously and has an authorized staffing level of 68, including four certified operators. There are five 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 computer program MAXIMO®. This Computer Maintenance Management system (CMMS) is a Water Department-wide tool that is utilized to plan, schedule and track all maintenance activities for process equipment. Planned maintenance work is averaging 90 percent of the total maintenance work orders. Major equipment uptime is greater than 90 percent. The Southeast 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.

A number of programs have been instituted which have resulted in substantial cost reduction and safer operation. Highlights of these modifications include:

- The operation of the secondary treatment process on atmospheric air rather than cryogenic oxygen continues to save electrical power. The program also reduces the maintenance requirements and the need for specialized technical service contracts.
- Energy Management initiatives such as off-peak operation, load shedding, and energy efficient lighting continue to save energy.

- Installation of Solar Photovoltaic Energy System.
- Raised influent 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.
- Participation in a Water Department apprenticeship program has brought in some new talent in the trades area.

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 plant 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. 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 capacity of the Southwest WPCP to include a 60 MGD increase in secondary treatment capacity allowing for better capture and treatment of combined sewage during wet weather events.

During fiscal year 2011, the plant treated an average of 162 mgd. 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 FY 2010, the plant had no odor violations. The plant continues to be proactive in anticipating and addressing challenges. As an 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.

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 2008, the Water Department has implemented numerous upgrades and improvements to the Southwest WPCP. Key projects that have recently been completed, 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
- 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 Biosolids Recycling Center (BRC) for final processing.

Projects 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 Plant Water Electrical System
- Door Replacement Facility Wide
- Replace/Repair Roadway Lighting
- Inspect, Test and Calibrate Electrical Power System

Projects either planned or ongoing:

- In Project Controls Pending Bid:
- Replace switchgear in PTB and Compressor Buildings
- Replace Roofing North and South Digester Buildings
- In Design Process:
- Installation of High Efficiency Lighting
- Gallery Tunnel/Inspect/Repair/Paint
- Concrete Repairs and Coating of Aeration Tanks
- Coating of Final Sedimentation Tank Interiors
- Replacement and Automation of PST Scum Gate Actuators
- Rehabilitation of Dissolved Air Flotation Tanks
- Under Construction
- Rehabilitate Waste Gas Burner System
- Planned for Future Implementation:
- Replace Elevator in PTB
- 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 Scale Facility
- Pave Roadways and install "Green" parking lot
- 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 16 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 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 2010.

Maintenance management is facilitated by the computer program (MAXIMO®). This Computer Maintenance Management system (CMMS) is a Water Department-wide initiative. This program is utilized to plan, schedule and track all maintenance activities for process equipment. 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 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 1.25 megawatt load shed agreement with PECO. The agreement has been utilized and treatment standards were not compromised. Annual savings are approximately $51,000.
- 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 downsize the equipment.
- 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.

7. Digester gas utilization

In FY 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. Even with the use of digester gas for building heating, additional utilization of the gas is available as the process of flaring excess gas is still necessary. The Water Department estimates that PBS will be able to use up to 50 percent of the excess gas generated at the SWWPCP when the drying facility at the BRC is completed.

K. BIOSOLIDS RECYCLING CENTER

1. Introduction

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 Biosolids Recycling Center (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 Technologies through the Philadelphia Biosolids Services (PBS) company. Under a 20-year contract with the Water Department, PBS leases a portion of the property and assumes responsibility for the operations consisting of: dewatering the sludge from the wastewater plants; storing the cake on site; and utilizing the biosolids cake for agricultural land application, strip-mine application, and landfill disposal. PBS is currently completing the construction of a Class A Drying Facility at the BRC site that will be used to produce pellets that can be used as fertilizer or fuel. This will facilitate the Water Department's long-term strategy to produce only Class A material at the BRC. Currently, the Water Department retains the responsibility

for complying with PaDEP regulations regarding sources of sludge being processed. Once the drying facilities are completed, PBS will apply for their own operating permit from PaDEP.

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 Biosolids Recycling Center to a private entity has been smooth with no impact on the operation of the Water Department's WPCPs.

2. Biosolids Process Operations

Digested biosolids pumped from the Southwest plant and digested sludge barged from the Northeast plant is delivered to three, one-million gallon biosolids storage tanks adjacent to the centrifuge dewatering building. The liquefied biosolids are pumped to the dewatering facility and centrifuged. The generated cake is used in a variety of programs, including composting, landfills, strip-mine reclamation, and farm application. All centrate is returned to the Southwest WPCP.

The Class B biosolids have continued to meet all of the requirements of volatile solids destruction and vector attraction.

For FY 2010 the dewatering processes performed well. Table IV-4 details the dewatering process parameters.

Table IV-4 Dewatering Process Parameters

PARAMETER	NE	SW	TOTAL
Cake % Total Solids	30.1	32.1	
Feed % Total Solids	2.35	2.60	
Overall % Recovery			98.3
Centrate to SW (DT/Day)			3.8

3. Product Utilization

In 2010, the compost material and biosolids cake were utilized in a variety of ways. Table IV-5 summarizes product utilization. During FY 2010, the operation of the facility and management of the disposal reduced the use of landfills and disposed of 96.9 percent of the product in beneficial use applications.

Table IV-5 Total Wet Ton Distribution: FY 2010

PROGRAM	WET TONS	PERCENTAGE
Landfill	4,852	3.1%
Strip-mine	30,485	19.8%
PA-AGR	47,165	30.5%
MD-AGR	35,585	23.1%
VA-AGR	36,205	23.5%
	154,292	Total Wet Tons

a) Landfill Disposal

Disposal of biosolids to the landfill is confined primarily to the winter season and periods of inclement weather or diminished need for nutrients by landowners.

b) Strip-mine Reclamation

Reclamation of land stripped during coal mining activity with biosolids is one of the Water Department's recycling programs. In the past year, a portion of the biosolids was used in a tree farming application on the strip mined lands. This application can be accomplished year round.

c) Agricultural

For this utilization of product, biosolids are made available to farmers for fertilizing farmlands or growing feed for sale to dairy and poultry operations. The program extends to farmers in Pennsylvania, Maryland, and Virginia. The Virginia program operates during the winter and summer months when the demand for biosolids in Maryland and Pennsylvania are low. The addition of this program has significantly reduced the seasonal biosolids stockpiles, and has also reduced the amount of biosolids that will need to be taken to landfills.

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.
- 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.
- This organizational structure represents a change in which Inlet Cleaning, which had previously been a stand-alone unit, is being managed as part of Sewer Maintenance. This change occurred in July 2010 in the wake of recent retirements and changes in leadership. The Water Department hopes that the change 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.

2. Sewer Maintenance Unit

The Sewer Maintenance Unit maintains the City's network of sewers which includes all storm, sanitary and combined sewers. Additionally, the unit is responsible for repairs to stormwater inlets, manholes, inlet and sewer cleaning, and relieving choked sewers. In July 2003, the responsibility to maintain Drainage Rights of Way was transferred from the Water Department to the Fairmount Park Commission. At the same time, the Sewer Maintenance Unit accepted the responsibility of waterways restoration. The Waterways Restoration Team covers all city streams and creeks. Their responsibilities include general inspection, debris removal, culvert cleaning, plunge pool filling, bank stabilization, and outfall repair. In FY 2010 the Waterways Restoration Team removed over 1,400 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 32 vacancies, including critical vacancies for heavy equipment operators and brick masons. Table IV-6 contains a summary of the Sewer Maintenance Unit work order history.

Table IV-6 Sewer Maintenance Unit Work Order History

MAINTENANCE CATEGORY	FISCAL YEAR				
	2007	2008	2009	2010	2011
Sewers and Laterals Examined	11,444	13,261	21,881	23,201	20,298
Waterway Restoration- tons of debris removed	442	364	658	1,437	748
Inlets Reset and Reconstructed	9,988	11,270	12,369	11,860	8,581

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.

In July 2010, the Defective Connections Group was transferred to the Sewer Maintenance Unit. The Defective Lateral Detection and Abatement Program was initiated in fiscal year 1994 to insure 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 2010 was 1,036 and 47, respectively. It is estimated that the program has eliminated 145.6 million gallons per year of sewer flow. Through June 2010, the group had tested 40,986 properties and found 1,068 illicit connections of which 1,036 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 75,976 stormwater inlets, the maintenance of inlet covers (retrieving, replacing, and locking), and for relieving choked inlet traps and outlet piping. To further increase crew utilization and efficiency, in October 2010 the unit

began using computerized routing. The Inlet Cleaning Unit has an authorized staff of 108 and a current vacancy level of 23. Table IV-7 contains a four-year summary of inlet cleaning. The percent planned work represents the fact that the vast majority of the work was of a planned or scheduled nature as opposed to being reactive or emergency-type activities.

Table IV-7 Inlet Cleaning

FISCAL YEAR	INLETS CLEANED	% PLANNED WORK	RESPONSE TIME (DAYS)
2007	78,478	90	3.2
2008	76,263	91	3.8
2009	75,029	99	2.9
2010	72,902	96	2.7

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 15 current vacancies.

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 Green Cities, Clean Waters (GCCW) Program associated with the newly signed Consent Order and Agreement (COA). The Flow Control Unit is tasked with a significant amount of operation and maintenance activities to support the GCCW Program.

The Flow Control Unit controls 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 the GCCW program.

Table IV-8 provides a four year history of DWOs, which have generally decreased and stabilized after reaching a local maximum of 33 in 2005.

Table IV-8 DWO Activity

FISCAL YEAR	2007	2008	2009	2010
Dry weather overflows	13	16	17	19

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 2010, 80 percent of the CSO monitoring sites were operable.

To further enhance the capture of CSO volume, the Water Department, through the Flow Control Unit, established a Real Time Control (RTC) center at its Fox Street facility. This center was one of the capital improvements identified for completion in the Water Department's existing NPDES permit. The RTC consolidated a variety of existing monitoring/control systems (remote pump stations, CSO structures, rain gauges, and inter-district diversions). Many of the remote monitoring stations are now solar powered and data transmission is accomplished using a cellular network.

Capital projects related to the Flow Control Unit are listed below:

- Main and Shurs Lane/Venice Island eliminate CSO – Project has been bid and is soon to be awarded.
- Poquessing Interceptor Parallel Storage Sewer- Project scheduled for completion in December 2011.
- Tacony Creek Rock Run Relief Sewer Inflatable Gate and Controls – Project complete.
- Modifications to S-45 Regulator at 67th & Essington – Project complete.
- Modifications to Wingohocking Sewer Ramona Avenue T-14 Regulator – Project substantially complete and undergoing acceptance testing.
- Rehab Odor Control Station Upper Schuylkill East – Project complete.
-

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 for each sewer segment inspected. This video contains their 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.

A four-year inspection history is provided in Table IV-9. 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-9 Sewer Inspection Miles

FISCAL YEAR	2007	2008	2009	2010
CCTV Inspections	53.5	56.1	50.1	46.6

c) Wastewater/Stormwater Pumping Stations

The wastewater system includes 18 sanitary pumping stations (17 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 99.7 percent in FY 2010.

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.

d) Odor Control

The Flow Control Unit operates and maintains two remote odor control facilities. Both facilities utilize sodium hypochlorite 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 37 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 via cellular data transmission to the Real Time Control Center (RTC). Operational availability for these metering chambers averaged 94 percent in FY 2010.

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.

Within the collector system organization there are a variety of systems used to manage complaints and maintenance activities. Examples include Inlet Cleaning Operating Information System (ICOIS), Sewer Maintenance Operating Information System (SMOIS), and Remote Pump Stations (PUMA). The Water Department is in the process of replacing these legacy systems and integrating them and other street-side maintenance systems through the implementation of Cityworks®. In July 2010, the ICOIS system was replaced with Cityworks® and preliminary planning has begun to also replace the SMOIS system with Cityworks®.

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 (PCP 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 presently no vacancies.

The Water Department's pretreatment program dates from 1980 and 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.

The Water Department has issued approximately 140 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. In FY 2010, 91 percent of the categorical and significant users were in compliance. The Water Department expects that this compliance rate will decrease with the more stringent sampling limits. The Unit'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 FY 2010, over 775 samples were collected by the Industrial Waste Unit for the surcharge billing of 70 industrial customers. Surcharge revenues for the past five years are presented in Table IV-10. Surcharge revenues for fiscal year 2011 are projected to be approximately five million dollars.

Table IV-10 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

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 178 SRF accounts. Applications are received, reviewed, modified, and approved by the IWU. A program has been started to review all SRF accounts to determine whether the historical conditions that resulted in the permit are still aligned with current conditions. This review should be completed in calendar year 2012.

The IWU's responsibilities also include administration of a polychlorinated-biphenyl (PCB) pollutant minimization plan (PMP). The plan was created to address the concerns of the Delaware River Basin Commission (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 have been surveyed and 10 were identified as PCB sources that had the potential to discharge into the Water Department's sewer system. Most program activities are complete and the final report will be submitted to PaDEP and DRBC in the summer of 2011.

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 FY 2010 approximately 258 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. In FY 2010, the IWU responded to approximately 163 spill incidents where it assists 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.

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 2013 through 2018 involve total expenditures of $1,533,662,000 at projected fiscal year 2013 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 renewal or replacement of wastewater treatment and collection facilities, combined sewer lining and replacement, stormwater flood relief programs, water treatment plant and pumping station improvements, water main rehabilitation, and other projects.

Beginning in the mid-1970s, the capital improvement program 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 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 capital improvement program is managed under the Project Controls section of the Engineering and Construction Division.

B. FISCAL YEARS 2013-2018 CAPITAL IMPROVEMENT PROGRAM

The Water Department has initiated a comprehensive review and update of its six-year Capital Improvement Program (CIP) for fiscal years 2013 through 2018. With the submission of its LTCPU in September 2009 and the subsequent signing of the COA with PaDEP in June 2011, the Water Department will begin to implement improvements to reduce the occurrences of CSOs throughout its service area. These improvements conducted in accordance with the COA will be in addition to traditional improvements to maintain and upgrade the water and wastewater systems. For FY 2013 through FY 2018, the Water Department anticipates spending approximately $190 million of the total $1.2 billion program contemplated under the COA. Using the FY 2010 – 2015 CIP as a baseline for comparison, the FY 2013 – 2018 CIP is approximately 48 percent greater, excluding adjustments for inflation.

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 2013-2018)

Engineering and Administration[1]	$148,392,000
Improvements to Treatment Plants	$381,000,000
Improvements to Conveyance System	$259,410,000
Improvements to Collector System	$183,760,000
Storm Flood Relief/ CSO	$525,100,000
Vehicles	$36,000,000
Total	**$1,533,662,000**

Note:
1. Engineering and Administration costs adjusted to exclude 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 Capital Improvement Program. 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 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 and therefore reduces the likelihood of water main breaks. The preventive nature of this program puts the Water Department in a proactive situation as it is not left simply to react to the normal consequences of age and use. 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/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 the fiscal years ending June 30, 2011, through June 30, 2018. Revenue projections for retail service customers are based on the schedules of rates for water and wastewater service, which became effective July 1, 2010. The Water Department adopted a four year rate increase in its most recent rate hearing process which culminated in the adopted rates for fiscal year 2009 (effective November 1, 2008) through fiscal year 2012 (which became effective July 1, 2011). Based upon the rate hearings, an overall revenue increase of approximately 5.7 percent was placed into effect on July 1, 2010. Projected revenues from this adopted increase are reflected in Lines 1 through 3 of Table V1-8. The indicated increase in revenues of 3.9 percent, shown in Line 4 of Table VI-8, is the projected effective increase resulting from the final year of the adopted rates.

The rate hearings in support of the current rates included a stormwater cost reallocation to become phased in during fiscal years 2011 through 2012, and continuing for the two following fiscal years, which was 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 2012, 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 eight-year study period covering fiscal years 2011 through 2018 ("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 under the stipulations of the General Ordinance.

The financial data used in the analyses presented herein were obtained from the Water Department's historical audited financial statements through fiscal year 2010, the approved operating and capital budgets for fiscal year 2012, and preliminary unaudited year end revenue and expenses for fiscal year 2011.

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 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 September of 2007 to assist in the development of cost of service based rates for the period of fiscal years 2009 through 2012. Rates for wholesale water and wastewater service became effective July 1, 2008, and additional increases have been noticed to the wholesale customers, becoming effective at the beginning of each of the fiscal years 2010 through 2012. 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 November 1, 2008, 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 2010 through 2012.

The schedules of retail rates shown in Table VI-1 are those that were in effect as of July 1, 2010 and July 1, 2011. The rates in effect as of July 1, 2010 are the basis for the "base" level of revenue projections used in this report. Fiscal year 2011 is the base year for this analysis since the final audited year-end financial statements are not available as of the date of this report. The indicated revenues for fiscal year 2012, shown in Line 4 of Table VI-8, recognize the adopted rates in effect as of July 1, 2011, the final year of the previous 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, 2008, with additional increases approved for these customers effective July 1, 2009, July 1, 2010, and July 1, 2011. For purposes of revenue projections from wholesale customers beyond fiscal year 2012, the overall revenue increases shown on Lines 4 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

Monthly Service Charges

Meter Size	Water		Wastewater	
	Existing Effective July 1, 2010	Adopted Effective July 1, 2011	Existing Effective July 1, 2010	Adopted Effective July 1, 2011
Inches				
5/8	5.94	6.37	17.69	18.07
3/4	6.84	7.31	87.69	89.93
1	9.05	9.65	143.01	146.61
1-1/4	11.80	12.55	214.76	220.11
1-1/2	13.95	14.81	280.48	287.43
2	20.57	21.82	446.44	457.44
3	35.21	37.27	832.57	853.00
4	61.45	65.10	1,391.31	1,425.52
6	118.76	125.72	2,777.08	2,845.25
8	185.05	195.78	4,436.67	4,545.46
10	268.60	284.23	6,381.18	6,537.71
12	468.83	495.30	11,885.49	12,176.09

Quantity Charges

Water Rates

Monthly Water Usage	Existing Effective July 1, 2010 $/Mcf	Adopted Effective July 1, 2011 $/Mcf
First 2 Mcf	29.85	32.85
Next 98 Mcf	24.13	26.62
Next 1,900 Mcf	22.14	24.43
Over 2,000 Mcf	16.86	18.60

Wastewater Rates

	Units	Existing Effective July 1, 2010	Adopted Effective July 1, 2011
All Billable Water Usage	$/Mcf	21.30	22.14
BOD in excess of 250 mg/l.	$/lb	0.314	0.332
SS in excess of 350 mg/l.	$/lb	0.315	0.326

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 2011 through 2018 under rate schedules for water and wastewater service for General Service customers and Contract Service customers that became effective July 1, 2010. 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. 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 gross billings have been developed by applying the approved 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 41 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, 2010
(in thousands of dollars)

Line No.	Description	Fiscal Year Ending June 30, 2011	2012	2013	2014	2015	2016	2017	2018
	Operating Revenue								
	Water Operations								
1	Metered Sales to General Customers	189,626	190,433	189,355	187,798	186,234	184,673	183,111	181,549
2	Municipal Service	8,533	7,169	7,169	7,169	7,169	7,169	7,169	7,169
3	Private Fire Protection	2,187	2,037	2,037	2,037	2,037	2,037	2,037	2,037
4	Public Fire Protection	6,498	6,498	6,498	6,498	6,498	6,498	6,498	6,498
5	Contract Service	9,769	9,742	9,742	9,742	9,742	9,742	9,742	9,742
6	Subtotal Water Service Revenue	216,613	215,879	214,801	213,244	211,680	210,119	208,557	206,995
7	Other Operating Revenue	9,058	10,750	10,731	10,211	9,692	9,173	9,153	9,134
8	Total Water Operations	225,671	226,629	225,532	223,455	221,372	219,292	217,710	216,129
	Wastewater Operations								
9	Metered Sales to General Customers	283,849	270,437	268,821	267,408	266,248	265,085	263,920	262,757
10	Municipal Service	11,936	10,916	10,916	10,916	10,916	10,916	10,916	10,916
11	Contract Service	31,951	32,834	32,834	32,834	32,834	32,834	32,834	32,834
12	Excess Strength Service Charge	5,481	5,339	5,198	5,056	4,914	4,773	4,631	4,489
13	Subtotal Wastewater Service Revenue	333,217	319,526	317,769	316,214	314,912	313,608	312,301	310,996
14	Other Operating Revenue	9,302	11,217	11,195	11,172	11,149	11,126	11,104	11,081
15	Total Wastewater Operations	342,519	330,743	328,964	327,386	326,061	324,734	323,405	322,077
16	Total Operating Revenue	568,190	557,372	554,496	550,841	547,433	544,026	541,115	538,206
	Nonoperating Income								
17	Interest Income - Capital Funds (a)	2,346	4,360	4,694	4,483	5,085	8,602	7,711	8,801
18	Interest Income - Operating Funds (b)	1,556	2,180	2,215	2,359	2,571	2,935	3,551	4,114
19	Total Nonoperating Income	3,902	6,540	6,909	6,842	7,656	11,537	11,262	12,915
20	Total Water Department Revenue	572,092	563,912	561,405	557,683	555,089	555,563	552,377	551,121

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 2011 revenues from the

City are expected to amount to approximately $26,967,000. This includes $6,498,000 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 term 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. At this time, it is not apparent that Bucks County will utilize this new contract option to reduce its current service levels. Projected revenue under existing rates includes $6.3 million for wholesale water service to Bucks County, which represents 1.2 percent of total revenues under existing rates.

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 million gallons per day (mgd) of maximum day capacity and covers a term of 25 years, through 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. In the 1980s, six of the largest contract customers entered into new long-term contracts with the Water Department. These contracts have terms of six to 35 years and require that five of the six customers make front-end capital contributions to the Water Department for the allocated share of investment in treatment and collection system facilities used in providing wastewater service to the particular customer. Contract rates for wastewater service generally consist of charges for operation and maintenance expense and certain capital costs associated with the collection and treatment facilities used in providing the service, and are now applied on a monthly basis for all customers except for Delaware County Regional Sewer Authority (DELCORA). The Water Department recently executed a new two-year contract with DELCORA, as the current contract expired in fiscal year 2011. The new contract 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. Assumptions included in the study are that service will be continued to DELCORA with annual revenues being projected at the current levels. Projected revenue from wholesale wastewater customers is shown on Line 11 of Table VI-2.

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 Service Reserve Account to the Revenue Fund, in addition to the interest income earned on the Revenue Fund itself. The projected fiscal year 2011 interest income is based on preliminary unaudited year end revenues. Projections of interest income for the remainder of 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. Interest rates of 1.0 percent for fiscal year 2012 increasing 0.25% annually to up to 2.5 percent for fiscal years 2017 and 2018 have been assumed in estimating interest income on the various operating funds and accounts, the Debt Service Reserve Account, and the Construction Fund. 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 for fiscal years 2011 through 2018 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, 2011	2012	2013	2014	2015	2016	2017	2018
	WATERWORKS IMPROVEMENTS								
1	Engineering and Administration (a)	10,721	10,936	11,377	11,377	11,377	11,377	11,377	11,377
2	Water Treatment Plant Improvements	19,228	22,590	26,400	26,400	26,400	29,480	29,480	29,480
3	Distribution System Rehabilitation	23,710	22,610	35,085	35,085	35,060	35,060	35,060	84,060
4	Vehicles	250	3,000	3,000	3,000	3,000	3,000	3,000	3,000
5	Subtotal	53,909	59,136	75,862	75,862	75,837	78,917	78,917	127,917
	WASTEWATER COLLECTION AND TREATMENT								
6	Engineering and Administration	12,586	12,838	13,355	13,355	13,355	13,355	13,355	13,355
7	Water Pollution Control Plant Improvements	24,472	28,751	33,600	33,600	33,600	37,520	37,520	37,520
8	Storm Flood Relief	56,000	60,000	72,600	76,300	79,300	79,300	106,300	111,300
9	Reconstruction of Old Sewers	23,860	23,860	30,560	30,560	30,660	30,660	30,660	30,660
10	Vehicles	250	3,000	3,000	3,000	3,000	3,000	3,000	3,000
11	Subtotal	117,168	128,449	153,115	156,815	159,915	163,835	190,835	195,835
12	Total Improvements (Line 5 + Line 11)	171,077	187,585	228,977	232,677	235,752	242,752	269,752	323,752
13	Inflation Adjustment (b)	0	0	0	9,307	19,237	30,311	45,820	70,142
14	Inflated Total	171,077	187,585	228,977	241,984	254,989	273,063	315,572	393,894

(a) Excludes allowance for inflaction, which is included on Line 14.
(b) Cost estimates for fiscal years 2014 to 2018 are in terms of fiscal year 2013 cost levels. Allowance for inflation of 4.0 percent per year after 2013.

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 year 2013 through 2018 costs for the capital improvement program are stated at estimated fiscal year 2013 cost levels based on the Department's

preliminary FY 2013 capital budget. An annual inflation allowance of 4 percent has been recognized on Line 13 of Table VI-3 beginning with fiscal year 2014.

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 Capital Improvement Program. 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
2011	171,077	(21,077)	150,000
2012	187,585	(25,585)	162,000
2013	228,977	(33,977)	195,000
2014	241,984	(32,984)	209,000
2015	254,989	(8,989)	246,000
2016	273,063	(9,063)	264,000
2017	315,572	(27,572)	288,000
2018	393,894	(57,894)	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 2018 is expected to be met by the proceeds from the Water & Sewer Revenue Bonds Series 2010C and the issuance of additional revenue bonds and Pennvest loans, including $135,000,000 from the proposed Water and Wastewater Revenue Bonds, Series 2011A Bonds; $192,843,000 from the Pennvest Loans anticipated to be received over the four year period covering fiscal years 2011 to 2014; $200,000,000 of revenue bonds anticipated to be issued in the second half of fiscal year 2014: $150,000,000 of revenue bonds anticipated to be issued in the second half of fiscal year 2015: $100,000,000 of revenue bonds anticipated to be issued in the first quarter of fiscal year 2016: $205,000,000 of revenue bonds anticipated to be issued in the second half of fiscal year 2016: $250,000,000 of revenue bonds anticipated to be issued in the second half of fiscal year 2017: and $275,000,000 of revenue bonds anticipated to be issued in the second half of fiscal year 2018.

Table VI-5 presents an estimate of the flow of funds in the Construction Fund of the Water Department for fiscal years 2011 through 2018. 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 capital improvement program. 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 Service Reserve Account. Line 10 of Table VI-5 shows the projected proceeds from the anticipated $192.843 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 capital improvement program. 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 capital improvement program and the debt service reserve requirements associated with the proposed Pennvest Loans and the potential replacement of a $67.0 million surety policy provided by AGM if their credit rating falls below the second highest rating category, as required by the General Ordinance.

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 1.0 percent for fiscal years 2012 increasing 0.25% annually to 2.5 percent for fiscal years 2017 and 2018 have been assumed for the Debt Service Reserve Account and the Construction Fund. The estimated fiscal year 2011 interest earnings are based on the preliminary unaudited year end revenues. 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. A maximum of up to $4,994,000 of the Debt Service Reserve Account interest earnings are transferred to the Residual Fund to fund 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, 2011	2012	2013	2014	2015	2016	2017	2018
	Disposition of Bond Proceeds								
1	Proceeds From Sale of Bonds	185,000	194,029		200,000	150,000	305,000	250,000	275,000
	Transfers:								
2	Debt Reserve Account (a)	9,022			10,063	4,500	3,000	341	2,453
3	Cost of Bond Issuance (b)	5,503	1,892		3,000	2,250	4,575	3,750	4,125
4	Refund Outstanding Bonds		56,419						
5	Construction Fund (c)	170,475	122,499		180,937	138,750	297,425	245,909	268,422
6	Capitalized Interest Requirement		13,219		6,000	4,500			
7	Total Issue	185,000	194,029		200,000	150,000	305,000	250,000	275,000
	Construction Fund								
8	Beginning Balance	70,356	196,193	227,822	109,683	124,267	63,123	147,547	168,355
9	Transfer From Bond Proceeds	170,475	122,499	0	180,937	138,750	297,425	245,909	268,422
10	PENNVEST Loan Proceeds	87,248	52,655	49,516	3,424	0	0	0	0
11	Capital Account Deposit	18,113	18,476	18,845	19,222	19,607	19,999	20,399	20,807
12	Transfer from Residual Account	0	0	8,500	20,000	26,500	31,000	42,500	49,000
13	Total Available	346,193	389,822	304,683	333,267	309,123	411,547	456,355	506,584
14	Net Cash Financing Required	150,000	162,000	195,000	209,000	246,000	264,000	288,000	336,000
15	Ending Balance	196,193	227,822	109,683	124,267	63,123	147,547	168,355	170,584
	Debt Service Reserve								
16	Beginning Balance	117,852	130,551	201,574	204,358	214,613	219,113	222,113	222,454
17	Transfer From Residual Fund	3,676	71,023	2,784	193	0	0	0	0
18	Transfer From Bond Proceeds	9,022			10,063	4,500	3,000	341	2,453
19	Ending Balance	130,551	201,574	204,358	214,613	219,113	222,113	222,454	224,907
	Interest Income								
20	Construction Fund (d)	1,434	2,335	2,124	1,342	1,269	4,125	2,654	3,149
21	Debt Reserve Account (e)	912	2,026	2,571	3,142	3,815	4,477	5,057	5,652
22	Total Interest Income	2,346	4,361	4,695	4,484	5,084	8,602	7,711	8,801

(a) Amount of Debt Service Reserve Account deposit estimated based on maximum annual future debt service payment.
(b) Issuance cost of 2011 Bonds based on actual Series 2010C bonds.
Issuance cost of 2012 Bonds based on prelminary pricing for the Series 2011A and Series 2011B Bonds.
Cost of FY 2013 to FY 2018 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 2011 through 2018 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, 2011	2012	2013	2014	2015	2016	2017	2018
	Water Operations								
1	Personal Services and Fringe Benefits	69,132	75,303	76,963	78,459	80,379	82,346	85,185	88,123
2	Purchase of Services	30,783	35,484	36,769	38,097	39,483	40,907	42,400	43,953
3	Materials and Supplies	23,923	23,451	25,062	26,797	28,677	30,712	32,910	35,289
4	Equipment	1,011	995	1,023	1,055	1,086	1,118	1,155	1,186
5	Contributions, Indemnities, Refunds and Taxes	2,320	2,285	2,353	2,424	2,497	2,572	2,649	2,728
6	Interdepartmental Charges	18,507	21,533	21,908	22,374	22,999	23,642	24,390	25,163
7	Subtotal Operating Expenses	145,676	159,051	164,078	169,206	175,121	181,297	188,689	196,442
8	Less: Liquidated Encumbrances	(8,800)	(7,600)	(8,000)	(8,400)	(8,800)	(8,800)	(8,800)	(8,800)
9	Operating Expenses - Water	136,876	151,451	156,078	160,806	166,321	172,497	179,889	187,642
	Wastewater Operations								
10	Personal Services and Fringe Benefits	92,444	100,524	102,735	104,732	107,293	109,923	113,712	117,632
11	Purchase of Services	68,230	77,151	79,792	82,536	85,373	88,328	91,376	94,536
12	Materials and Supplies	14,518	14,784	15,481	16,226	17,015	17,852	18,749	19,704
13	Equipment	1,193	1,035	1,068	1,099	1,132	1,167	1,199	1,238
14	Contributions, Indemnities, Refunds and Taxes	3,950	3,890	4,007	4,127	4,251	4,379	4,510	4,645
15	Interdepartmental Charges	33,472	38,931	39,612	40,455	41,584	42,745	44,100	45,497
16	Subtotal Operating Expenses	213,807	236,315	242,695	249,175	256,648	264,394	273,645	283,253
17	Less: Liquidated Encumbrances	(13,200)	(11,400)	(12,000)	(12,600)	(13,200)	(13,200)	(13,200)	(13,200)
18	Operating Expenses - Wastewater	200,607	224,915	230,695	236,575	243,448	251,194	260,445	270,053
19	Total Operating Expenses	337,483	376,366	386,773	397,381	409,769	423,691	440,334	457,695

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 eight-year Study Period. Fiscal years 2011 expenses are based upon unaudited year end expenditures for fiscal year 2011 and 2012 expense projections are based on the Water Department's adopted 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 budgeted expenditures for fiscal year 2012 downward slightly to reflect recent actual obligation experience.

Labor costs are expected to increase 1.0 percent in fiscal year 2013, 2.0 percent in fiscal year 2014, and 3.0 percent annually in fiscal years 2015 to 2018. Electric power costs are expected to increase 5.0 percent annually for fiscal years 2013 to 2018. Chemical costs are expected to increase 9.0 percent annually for fiscal years 2013 to 2018. All other purchased services, materials and supplies,

and equipment expenditures are projected to increase at 3.0 percent annually in fiscal years 2013 to 2018.

Interdepartmental charges for service provided to the Water Department by other City departments and agencies anticipated through the eight 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, 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 unaudited expenses for fiscal year 2011 and the adopted budgets for fiscal year 2012. 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 for fiscal year 2011 is estimated based on the preliminary unaudited year end expenses. The projected interest cost for the remainder of the Study Period 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 and 2018 (decreasing from approximately $174.1 million per year to $115.4 million per year), and it is assumed that the proposed bonds in fiscal years 2014 and 2015 will be structured to defer principal payments until fiscal year 2017 and to capitalize six months of interest expense.

The Series 2010C Bonds were issued in August 2010. Debt Service on the Series 2010C bonds reflects the final bond pricing. The 2011 Bonds are anticipated to be issued in November 2011. Debt Service on the proposed 2011 Bonds reflects the preliminary pricing as of October 25, 2011. Debt service on the subsequent proposed $150,000,000 in fiscal year 2014, $100,000,000 and $205,000,000 in fiscal year 2015, $250,000,000 in fiscal year 2017, $275,000,000 in fiscal year 2018, assumes a 30-year amortization schedule, and a 6.0 percent interest rate. The proposed bonds in fiscal years 2014 and 2015 reflect interest only payments prior to fiscal year 2017 and six months of capitalized interest. The proposed bonds in fiscal year 2016 reflect interest only payments prior to fiscal year 2018. 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, 2011	2012	2013	2014	2015	2016	2017	2018
	Revenue Bonds								
1	Existing (a)	179,528	180,022	181,629	182,001	173,843	174,149	115,363	115,444
	Proposed								
2	Fiscal Year 2011 (b)	4,411	9,022	9,022	9,022	9,022	9,022	39,996	39,996
3	Fiscal Year 2012 (c)		983	2,145	3,270	8,895	8,895	15,167	16,793
4	Fiscal Year 2013								
5	Fiscal Year 2014 (d)					6,000	12,000	14,919	14,919
6	Fiscal Year 2015 (d)						4,500	11,037	11,037
7	Fiscal Year 2016 (e)						3,000	18,300	22,442
8	Fiscal Year 2017								18,162
9	Fiscal Year 2018								
10	Total Proposed	4,411	10,005	11,167	12,292	23,917	37,417	99,419	123,348
11	Total Revenue Bonds	183,939	190,027	192,796	194,293	197,760	211,566	214,782	238,792
	Pennvest Loans								
12	Pennvest Parity Loans	644	1,477	2,080	10,598	10,934	10,934	10,934	10,934
13	Pennvest Subordinate Loans	1,227	1,022	0	0	0	0	0	0
14	Total Debt Service	185,810	192,527	194,876	204,891	208,694	222,500	225,715	249,726

(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. FY 2011 baased on prelminary unaudited year end expenses.
(b) Reflects final pricing of the Series 2010C Bonds.
(c) Reflects preliminary pricing provided by the Department on October 25, 2011.
(d) Assumes interest only payments through FY 2016 based on 6.00% interest.
(e) Assumes interest only payments through FY 2017 based on 6.00% interest.

Lines 12 and 13 of Table VI-7 show the debt service payments on the outstanding and proposed Pennvest loans. Line 12 shows the annual debt service which is related to parity revenue bonds issued through Pennvest, including the proposed $192.8 million of Pennvest Loans. Projected debt service on the proposed 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 13 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 2011 requirement amounts to $18,113,000 and increases during the Study Period to $20,806,000 in fiscal year 2018.

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 Service 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 2011 through fiscal year 2018 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, 2010, 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 3.90 percent in fiscal year 2012, reflected in Line 4, were reviewed and adopted as a part of the most recent rate hearing process.

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 2012 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 Department covenants that during any given fiscal year the 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).

Table VI-8 Projected Revenue and Revenue Requirements
(in thousands of dollars)

Line No.	Description			Fiscal Year Ending June 30, 2011	2012	2013	2014	2015	2016	2017	2018
	OPERATING REVENUE										
1	Water Service - Existing Rates			216,613	215,879	214,801	213,244	211,680	210,119	208,557	206,995
2	Wastewater Service - Existing Rates			333,217	319,526	317,769	316,214	314,912	313,608	312,301	310,996
3	Total Service Revenue - Existing Rates			549,830	535,405	532,570	529,458	526,592	523,727	520,858	517,991
	Additional Service Revenue Required										
	Year	Percent Increase	Months Effective								
4	FY 2012	3.90%	12		20,881	20,770	20,649	20,537	20,425	20,313	20,202
5	FY 2013	6.20%	6			17,154	34,107	33,922	33,737	33,553	33,368
6	FY 2014	6.20%	6				18,111	36,025	35,829	35,633	35,437
7	FY 2015	6.20%	6					19,129	38,051	37,842	37,634
8	FY 2016	6.20%	6						20,205	40,188	39,967
9	FY 2017	6.20%	6							21,340	42,445
10	FY 2018	6.20%	6								22,538
11	Total Additional Service Revenue Required			0	20,881	37,924	72,867	109,613	148,247	188,869	231,591
12	Total Water & Wastewater Service Revenue			549,830	556,286	570,494	602,325	636,205	671,974	709,727	749,582
13	Transfer From/(To) Rate Stabilization Fund			(13,105)	41,240	25,195	18,850	3,850	(1,990)	(7,475)	(370)
	Other Income (a)										
14	Other Operating Revenue			18,360	21,967	21,926	21,383	20,841	20,299	20,257	20,215
15	Construction Fund Interest Income			1,434	2,335	2,124	1,342	1,269	4,125	2,654	3,149
16	Debt Reserve Fund Interest Income			912	2,025	2,570	3,141	3,816	4,477	5,057	5,652
17	Operating Fund Interest Income			487	791	895	1,106	1,307	1,508	1,835	2,106
18	Rate Stabilization Interest Income			1,069	1,389	1,320	1,253	1,264	1,427	1,716	2,008
19	Total Revenues			558,987	626,033	624,524	649,400	668,552	701,820	733,771	782,342
	OPERATING EXPENSES										
20	Water & Wastewater Operations			285,502	315,902	325,253	334,550	345,184	357,304	371,844	387,034
21	Direct Interdepartmental Charges			51,979	60,464	61,520	62,829	64,583	66,387	68,490	70,660
22	Total Operating Expenses			337,481	376,366	386,773	397,379	409,767	423,691	440,334	457,694
23	**NET REVENUES AFTER OPERATIONS**			221,506	249,667	237,751	252,021	258,785	278,129	293,437	324,648
	DEBT SERVICE										
	Senior Debt Service										
	Revenue Bonds										
24	Outstanding Bonds			179,528	180,022	181,629	182,001	173,843	174,149	115,363	115,444
25	Pennvest Parity Bonds			644	1,477	2,080	10,598	10,934	10,934	10,934	10,934
26	Projected Future Bonds			4,411	10,005	11,167	12,292	23,917	37,417	99,419	123,348
27	Total Senior Debt Service			184,583	191,504	194,876	204,891	208,694	222,500	225,716	249,726
28	**TOTAL SENIOR DEBT SERVICE COVERAGE (L23/L27)**			1.20 x	1.30 x	1.22 x	1.23 x	1.24 x	1.25 x	1.30 x	1.30 x
	Subordinate Debt Service										
29	Outstanding General Obligation Bonds			0	0	0	0	0	0	0	0
30	Pennvest Subordinate Bonds			1,227	1,022	0	0	0	0	0	0
31	Total Subordinate Debt Service			1,227	1,022	0	0	0	0	0	0
32	Total Debt Service on Bonds			185,810	192,527	194,876	204,891	208,694	222,500	225,716	249,726
33	**CAPITAL ACCOUNT DEPOSIT**			18,113	18,475	18,845	19,223	19,606	19,999	20,398	20,806
34	**TOTAL COVERAGE (L23/(L32+L33))**			1.08 x	1.18 x	1.11 x	1.12 x	1.13 x	1.14 x	1.19 x	1.20 x

Line No.	Description	Fiscal Year Ending June 30, 2011	2012	2013	2014	2015	2016	2017	2018
	RESIDUAL FUND								
35	Beginning of Year Balance	20,889	34,274	352	10,528	15,110	15,312	15,465	15,294
36	Interest Income (b)	391	461	0	8	33	0	0	0
	Plus:								
37	End of Year Revenue Fund Balance	16,671	36,640	21,460	24,766	26,669	31,153	42,329	49,122
38	Deposit for Transfer to City General Fund (c)	912	2,025	2,570	3,141	3,816	4,477	4,994	4,994
	Less:								
39	Transfer to Construction Fund	0	0	8,500	20,000	26,500	31,000	42,500	49,000
40	Transfer to City General Fund	912	2,025	2,570	3,141	3,816	4,477	4,994	4,994
41	Transfer to Debt Service Reserve Fund	3,676	71,023	2,784	193	0	0	0	0
42	End of Year Balance	34,274	352	10,528	15,110	15,312	15,465	15,294	15,416
	RATE STABILIZATION FUND								
43	Beginning of Year Balance	145,693	158,798	117,558	92,363	73,513	69,663	71,653	79,128
44	Deposit From/(To) Revenue Fund	13,105	(41,240)	(25,195)	(18,850)	(3,850)	1,990	7,475	370
45	End of Year Balance	158,798	117,558	92,363	73,513	69,663	71,653	79,128	79,498

(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.

In addition to the rate covenant of the General Ordinance described above, the City has agreed with Assured Guaranty Municipal Corporation (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 took effect on July 1, 2010, is 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 increase shown for fiscal year 2012, as indicated previously, has 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 is 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 1.20 coverage to a 1.30 coverage during the Study Period. This reflects the 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 2018. 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 2011 to 2013 due to the potential need to transfer $67.0 million to the Debt Service 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 that they be used 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 Service Reserve Account in the amounts shown on Lines 39 and 41 of Table VI-8.

The current projections of fiscal year 2011 revenues and revenue requirements indicate that a $13,105,000 transfer to the Rate Stabilization Fund is anticipated. The balance of funds projected in the Rate Stabilization Fund at the end of fiscal year 2011 amounts to $158,798,000. The Department has indicated the need to maintain a combined balance of approximately $85,000,000 in the Rate Stabilization and Residual Funds to provide for working capital needs. The combined Rate Stabilization Fund and Residual Fund balance is projected to maintain the targeted $85.0 million balance throughout the Study Period.

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 resulting from rate increases which may be imposed after an administrative process without further legislation) 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 resulting from rate increases which may be imposed after an administrative process without further legislation) 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 City of Philadelphia Water and Wastewater Revenue Refunding Bonds, Series 2012 (the "Series 2012 Bonds") are being issued under the terms 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 "Restated General Ordinance"), and pursuant to the Fifteenth Supplemental Ordinance (the "Fifteenth Supplemental Ordinance").

The following are summaries of certain provisions of the Act, the Restated General Ordinance and the Fifteenth 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 Restated General Ordinance, and the Fifteenth 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 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 Restated 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 Restated 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 "Restated General Ordinance") used in this Official Statement. Reference should be made to the Restated General Ordinance for a full and complete statement of its terms and any capitalized terms used herein but not otherwise defined. The following summarizes the terms of the Restated General Ordinance, prior to being supplemented pursuant to the Fifteenth Supplemental Ordinance. All capitalized terms used in the following summary of the Restated General Ordinance are defined as in the Restated General Ordinance, prior to being supplemented pursuant to the Fifteenth 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 Restated 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 Restated General Ordinance.

Bond Counsel means a firm of nationally recognized Bond Counsel selected by the City.

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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated General Ordinance or the Supplemental Ordinance providing for the issuance of such Se ties 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 Restated 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 Restated 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.

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 Restated 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 Restated General Ordinance to the extent such interest earnings are credited to the Revenue Fund pursuant to the Restated 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 apartment 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 Restated General Ordinance, as amended from time to time in accordance with the provisions of the Restated 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 Restated 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 Restated 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 Restated 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 Restated General Ordinance; and (iv) Bonds deemed to have been paid as provided in the Restated 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 Restated General Ordinance.

Rate Stabilization Fund means the Rate Stabilization Fund established pursuant to the Restated 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 Restated 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 Restated 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 Restated General Ordinance.

Restated General Ordinance means the Restated General Water and Wastewater Revenue Bond Ordinance of 1989.

Revenue Fund means the Revenue Fund established pursuant to the Restated 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 Restated 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 Restated General Ordinance.

Sinking Fund Installment means an amount so designated which is established pursuant to the Restated General Ordinance.

Special Water Infrastructure Account means the Special Water Infrastructure Account of the Residual Fund established in the Restated 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 Restated General Ordinance with respect to Subordinated Bonds.

Subordinated Bond Fund means the Subordinated Bond Fund established in the Restated 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 Restated General Ordinance enacted pursuant to the Act and the Restated 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.

SUMMARY OF OPERATIVE PROVISIONS OF THE RESTATED GENERAL ORDINANCE

The following is a summary of certain operative provisions of the Restated General Ordinance. Reference should be made to the Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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.

For the purpose of compliance with the filing requirements of the Uniform Commercial Code in order to perfect the security interest granted by the Restated General Ordinance, the Fiscal Agent shall be deemed to be, and the City recognizes the Fiscal Agent as, the representative of Bondholders to execute financing statements as the secured party.

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 Restated 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 Restated 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 Restated 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 Restated General Ordinance or under any Supplemental Ordinance.

Establishment of Funds and Accounts

The following funds and accounts are established by the Restated 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 Restated General Ordinance shall be deposited, and

  (iii) the Capital Account;

(g) Rebate Fund.

Nothing in the Restated 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 Restated 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 Restated 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 Restated 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 Restated General Ordinance shall prevent the City from directing the transfer of amounts on deposit in any fund or account established under the Restated 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 Restated 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 Restated 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 Restated General Ordinance or any Supplemental Ordinance.

The Fiscal Agent shall pity 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 Restated 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 Restated 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 is 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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.

The Fiscal Agent shall on the Effective Date deposit in the Existing Projects Account proceeds of Prior Bonds as directed by a Supplemental Ordinance or Determination; deposit in the Bond Proceeds Account the proceeds of Bonds as directed by a Supplemental Ordinance or Determination; and deposit in the Capital Account any amounts transferred pursuant to paragraph (h) under "Transfers from Revenue Fund" above. Amounts in the Existing Projects Account and Bond Proceeds Account shall be applied as directed in writing by the City for purposes permitted by the Act and the Bonds and such other purposes as are permitted under the Restated General Ordinance.

Amounts deposited in the Capital Account may be applied at the written direction of the City to (i) payments for the cost of renewals, replacements and improvements to the System; (ii) payments into the Sinking Fund or into the Subordinated Bond Fund to cure a deficiency in one of the foregoing; or (iii) the purchase of Bonds if a Consulting Engineer shall first have certified to the City that amounts remaining on deposit in the Capital Account following the proposed purchase of Bonds will be sufficient to pay the cost of renewals, replacement and improvements to the System projected to be payable during such Fiscal Year; provided, however, that no Bond shall be purchased at a price in excess of the principal amount and redemption price which would be applicable if the Bond were redeemed at the time such Bond was first subject to redemption.

As described in paragraph (c) under "Segregation of Water and Wastewater Funds; Deposit of Project Revenues into Revenue Fund" above, the Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated General Ordinance, as of the effective date of the Restated 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 Restated 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 Restated General Ordinance.

Management of Funds and Accounts

The Restated General Ordinance provides that the moneys on deposit in the funds and accounts established under the Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated General Ordinance, the City covenants with the Holders of all Bonds Outstanding under the Restated 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 Restated General Ordinance, the City covenants with the Holders of all Bonds Outstanding under the Restated 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 Restated General Ordinance that so long as any such Bonds shall remain Outstanding it will not issue any Series of Bonds under the Restated General Ordinance without first complying with certain conditions stated in the Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated General Ordinance provides that the City covenants for the benefit of the Bondholders that, notwithstanding any other provision of the Restated 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 Restated General Ordinance or other proceeds of the Bonds which would cause any Series of Bonds issued under the Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated General Ordinance. The City may appoint a successor Fiscal Agent by Supplemental Ordinance to act as Fiscal Agent under the Restated General Ordinance, and in connection with the Bonds issued under the Restated 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 Restated 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 Restated 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 Restated General Ordinance as a successor to the Fiscal Agent shall assume all rights and obligations of the Fiscal Agent under the Restated General Ordinance.

Subject to the foregoing, the Restated 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 Restated General Ordinance.

The Fiscal Agent shall keep on file a copy of each report and its accompanying certificates delivered to it pursuant to the Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated General Ordinance, and no decree or judgment against the City upon an action brought under the Restated 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 Restated General Ordinance provides that nothing in the Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated General Ordinance. Upon a conveyance of all or substantially all of the assets of the System to the Authority, the Restated General Ordinance provides that the provisions of the Restated 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 Restated General Ordinance in connection with the issuance of successive Series of Bonds, the Restated General Ordinance provides that the Restated 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 Restated 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 Restated General Ordinance, and all amounts owed under any Credit Facility, Qualified Swap and Exchange Agreement entered into under the Restated 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 Restated 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 Restated General Ordinance, the pledge and grant of a security interest in the Project Revenues made under the Restated General Ordinance shall cease and terminate, and the Fiscal Agent and any other depository of funds and accounts established under the Restated 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 Restated 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 Restated 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 Restated 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 Restated 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 Restated General Ordinance are satisfied.

Interested Parties

The Restated General Ordinance provides that nothing in the Restated 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 Restated General Ordinance or any covenants, condition or stipulation thereof; and all the covenants, stipulations, promises and agreements in the Restated 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 Restated General Ordinance and Supplemental Ordinances adopted pursuant to the Restated 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 Restated General Ordinance and the laws of Pennsylvania.

Effectiveness

The Restated 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 FIFTEENTH SUPPLEMENTAL ORDINANCE

The Series 2012 Bonds will be issued under and are subject to the Fifteenth Supplemental Ordinance, which supplements the provisions of the Restated General Ordinance. Reference should be made to both the Fifteenth Supplemental Ordinance and the Restated General Ordinance, which together provide more complete details of the terms of the Series 2012 Bonds. All capitalized and defined terms used in the following summary of the Fifteenth Supplemental Ordinance which are not otherwise defined in this Official Statement are defined as in the Restated General Ordinance.

The Fifteenth 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 Restated General Ordinance.

The Fifteenth 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 $240,000,000, 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 Restated General Ordinance, the Bond Committee, or a majority of them, shall approve final terms of the Series 2012 Bonds in its Determination prior to, and as a condition of issuance of the Series 2012 Bonds. Such Determination shall be deemed a supplement to the Fifteenth 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 2012 Bonds, including, without limitation, letters of credit, standby bond purchase agreements or other liquidity facilities and bond insurance. Such Enhancement Agreements may provide for payment of the principal or purchase price of, or interest on, the Series 2012 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 Fifteenth 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 Fifteenth Supplemental Ordinance.

The Fifteenth Supplemental Ordinance provides that the Series 2012 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 Restated General Ordinance and as specified by the Determination, each of which shall be deemed a Series for purposes of the Restated General Ordinance and shall be designated as Series 2012 Bonds, as appropriate and may include serial bonds, terms bonds, Capital Appreciation Bonds, as specified in the Determination.

The Fifteenth Supplemental Ordinance provides that the Series 2012 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 Restated General Ordinance.

The Fifteenth Supplemental Ordinance provides that proceeds of the Series 2012 Bonds shall be used to finance: (a) the refunding and redemption of all or any portion of the outstanding City of Philadelphia, Pennsylvania, Water and Wastewater Revenue Bonds (the "Refunded Bonds"); (b) if applicable, pay the costs of Enhancement Agreements and/or costs related to any Qualified Swap, including payments required in connection with the termination of all or a portion of a Qualified Swap relating to the Refunded Bonds; (c) pay any other Project Costs as such term is defined in the Act; and (d) pay the issuance costs of the Series 2012 Bonds.

Series 2012 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 Restated General Ordinance; all other Series 2012 Bond proceeds and other moneys currently on deposit under the Restated 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 Fifteenth Supplemental Ordinance that, so long as any Series 2012 Bonds shall remain outstanding, it will make payments or cause payments to be made out of the Sinking Fund established pursuant to the Restated 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 (including the Qualified Swap payments), if any on the Series 2012 Bonds and the principal thereof when due. Prior to enactment of the Fifteenth Supplemental Ordinance by City Council, an opinion of the City Solicitor was filed with the City Council pursuant to the Act.

The Fifteenth 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 2012 Bonds as may be necessary or advisable in order that the Series 2012 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 2012 Bonds and in order to maintain the exclusion of interest on the Series 2012 Bonds from gross income for federal income tax purposes, and further to establish such sub-accounts within the Sinking Fund and terms or restrictions to permit issuance of the Series 2012 Bonds.

The Fifteenth 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

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, Municipal and Traffic 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 September 20, 2012, the Office of the City Controller had 114 employees, including 61 auditors, 21 of whom were 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 to assist with such process, including 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 party. The review is expected to be concluded in December 2012. The City will be proceeding with a process to select a broker so that the City can proceed expeditiously with a sale process including receiving bids should the refined financial analysis suggest a favorable result. 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, as well as broker selection and any subsequent invitation for bids, will not impose any obligation on the City to sell if the process does not produce the desired 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 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"), signed into law on July 5, 2012 by the Governor, 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. However, if City Council does not act upon the mayoral nominees, the Mayor of the City may appoint five (5) members of the Housing Authority Board without City Council approval. Since March 4, 2011, the Housing Authority has been under the control of the U.S. Department of Housing and Urban Development ("HUD") under the terms of a Co-operative Endeavor Agreement ("CEA"). The CEA provides that the Housing Authority Board shall consist of HUD which shall select an Administrative Receiver to serve as the Executive Director of the Housing Authority. In early June 2012, the Administrative Receiver/Executive Director of the Housing Authority, Michael P. Kelly, resigned and was replaced by Kelvin A. Jeremiah as Interim Administrative Receiver/Interim Executive Director appointed by HUD. Notwithstanding any appointment of any Housing Authority Board under Act 130, the Housing Authority Board shall consist of HUD pursuant to the CEA until the CEA is terminated by agreement of the Mayor of the City and HUD as provided in the CEA.

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.

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

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 moves 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 (including for the City's fiscal year ended June 30, 2011), 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 Comprehensive Annual Financial Report (including for the City's fiscal year ended June 30, 2011), as separate financial statements of fiduciary net assets and changes in fiduciary net assets.

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 is described under "CITY FINANCES AND FINANCIAL PROCEDURES-Budget Procedures" herein. The 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 an ending fund balance of $81.3 million on the legally enacted basis. The Fiscal Year 2013 budget conforms to the Twenty-First Five-Year Plan (hereinafter defined), 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 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 the past several years, the financial position of the City's General Fund has 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 have not been received in the same year as the costs were incurred. As a result, the costs are reflected in the City's fund balances, but the reimbursements are not, leading to fund balances that are distorted and artificially low. In some years, the late receipt of reimbursements has led to changes of tens of millions of dollars in the City's fund balance.

The Fiscal Year 2012 budget moves 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 will better reflect the City's financial condition.

Fiscal Year 2012 Current Estimate

The Mayor's Operating Budget in Brief for Fiscal Year 2013 (the "Adopted Fiscal 2013 Budget") contains the most recently available estimates for Fiscal Year 2012. The Fiscal Year 2012 fund balance estimate has been revised upward by $38.4 million to $98.9 million. The revised estimate projects revenues for Fiscal Year 2012 of $3.546 billion, obligations of $3.470 billion, an operating surplus of $98.8 million (net of prior year adjustments) and an ending fund balance of $98.9 million. Revenue estimates have been revised upward $43.8 million versus the adopted budget. Tax Revenues for Fiscal Year 2012 are projected to be $2.3 million lower than the adopted budget primarily due to reduction in projections for Wage and Earnings Tax – $20.1 million, Sales Tax - $6.3 million, Net Profits Tax - $5.4 million, Real Property Transfer Tax - $2.5 million and Parking Tax - $1.0 million which are being partially offset by higher tax revenues from Real Property Taxes - $11.7 million and the Business Income & Receipts Tax (formerly called the Business Privilege Tax) – $22.1 million. The Twenty-First Five-Year Plan includes an estimate of Real Property Tax STEB (hereinafter defined) appeal losses for Fiscal Year 2012 discussed under the "REVENUE OF THE CITY – Assessment and Collection of Real and Personal Property Taxes." Locally Generated Non-Tax Revenues are revised downward by $8.4 million, largely the result of a lower projection of Emergency Medical Services fees - $9.7 million, Commercial Property Collection fees - $6.3 million, interest earnings - $4.0 million, Sheriff fees - $3.2 million and traffic fines - $2.4 million which are being partially offset by higher revenues from recycling - $3.5 million, fees and permits - $4.3 million, reimbursements - $3.5 million, Clerk of Court fees - $4.8 million and various other sources - $1.0 million. Revenues from Other Governments are projected to be $53.1 million higher than forecasted largely due to additional funds for Pension Aid (Act 205) of $34.9 million, one-time payment of funds owed to the City of $12.5 million, payment of $11.0 million from the Philadelphia Parking Authority, and additional funds from PICA for a settlement with J.P. Morgan of $7.5 million, which are being partially offset by lower than estimated gaming revenues in the amount of $5.5 million and the elimination of a $3.5 million reimbursement for property reassessment. The revised estimate of obligations includes $23.9 million in higher than budgeted obligations primarily due to increased costs for personal services including higher overtime costs for Police, Fire, Prisons and Sheriff and higher vehicle fuel costs which is being offset by lower than anticipated debt service costs and the elimination of the contingency for snow removal costs.

Fiscal Year 2011 Results

The Comprehensive Annual Financial Report 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 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.

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.

Overview of City Response to Economic Downturn

Since October of 2008, the City has 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 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 has 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 is estimated to have a cumulative adjusted year-end General Fund balance surplus of approximately $98.9 million. See also "CITY FINANCES AND FINANCIAL PROCEDURES -- Budget Stabilization Reserve."

Current City Practices

It is the City's practice to file its Comprehensive Annual Financial Report ("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 CAFR for the City's fiscal year ended June 30, 2011 was deposited with the MSRB on February 24, 2012, 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

CAFR for the Fiscal Year ended June 30, 2011. 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 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 currently 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 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 Comprehensive Annual Financial Report 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 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: personal 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 31 for a summary of the City's capital improvement program for the Fiscal Years 2013 through 2018.

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.

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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	Current Estimate[6] 2012	Adopted Budget[4] 2013
Revenues								
Real Property Taxes[1]	395.8	397.5	402.8	400.1	402.2	482.7	498.5	514.9
Wage and Earnings Tax	1,111.2	1,167.4	1,184.8	1,117.0	1,114.2	1,134.3	1,168.4	1,207.8
Net Profits Tax	14.6	15.3	12.5	12.2	14.5	8.8	12.1	12.3
Business Privilege Tax	415.5	436.4	398.8	386.0	364.7	376.9	391.4	394.9
Sales Tax[2]	127.8	132.6	137.3	128.2	207.1	244.6	250.2	259.3
Other Taxes[3]	304.1	286.7	260.3	209.3	213.9	211.8	216.7	225.2
Total Taxes	2,369.0	2,435.9	2,396.5	2,252.8	2,316.6	2,459.1	2,537.1	2,614.4
Locally Generated Non-Tax Revenue	235.9	247.9	265.8	256.3	229.4	280.0	251.5	246.3
Revenue from Other Governments[5]	924.5	1,032.9	1,033.4	993.4	1,076.4	1,066.5	704.9	653.8
Receipts from Other City Funds[5]	24.9	27.4	27.2	135.4	31.9	54.6	53.0	53.2
Total Revenue	3,554.3	3,744.1	3,722.8	3,637.9	3,654.3	3,860.3	3,546.6	3,567.7
Obligations/Appropriations								
Personnel Services	1,250.2	1,327.6	1,390.7	1,406.3	1,358.5	1,360.4	1,343.8	1,341.3
Purchase of Services	1,065.7	1,151.6	1,188.7	1,174.2	1,111.4	1,127.8	757.8	768.6
Materials, Supplies and Equipment	82.1	89.1	92.1	82.7	68.7	78.3	84.3	79.3
Employee Benefits	760.2	890.3	983.0	973.2	831.4	967.0	1,027.9	1,118.3
Indemnities, Contributions and Grants	110.9	119.0	120.9	130.0	128.0	111.1	118.2	137.9
City Debt Service	82.9	89.1	87.2	100.9	105.5	110.4	111.3	127.4
Other	38.6	31.2	32.3	22.7	26.0	0.0	0.0	0.0
Payments to Other City Funds	35.4	38.7	24.8	25.3	24.2	30.3	27.1	31.1
Total Obligations/Appropriations	3,426.0	3,736.6	3,919.8	3,915.3	3,653.7	3,785.3	3,470.4	3,603.9
Operating Surplus (Deficit) for the Year	128.2	7.5	(197.0)	(277.4)	0.6	75.0	76.2	(36.1)
Net Adjustments – Prior Year	30.1	35.9	18.6	20.7	22.6	39.1	22.6	18.5
Funding for Contingencies	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
Cumulative Adjusted Year End Fund Balance (Deficit)	254.5	297.9	119.5	(137.2)	(114.0)	0.1	98.9	81.3

(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 includes a Real Estate Tax increase of 3.6% (8.2% on the City portion) in Fiscal Year 2013.

(2) Reflects 1% increase effective October 8, 2009.

(3) Includes Real Estate Transfer Tax, Parking Tax, Amusement Tax, and Other Taxes.

(4) 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."

(5) 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 and 2013.

(6) From the estimates for the Adopted Fiscal 2013 Budget. 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.

Source: City of Philadelphia Department of Finance
Figures may not add up due to rounding.

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	Current Estimate[6] 2012	Adopted Budget [5] 2013
Revenues								
General Fund	3,554.3	3,744.1	3,722.8	3,637.9	3,654.3	3,860.3	3,546.6	3,567.7
Water Fund[1]	490.3	519.7	589.7	543.5	546.7	567.5	623.9	671.9
Aviation Fund[2]	271.5	268.6	287.9	294.1	290.2	304.8	300.0	377.1
Other Operating Funds[3]	41.9	44.9	113.2	49.5	50.1	48.1	52.7	57.6
Total Revenue	4,358.0	4,577.3	4,713.6	4,525.0	4,541.3	4,780.7	4,523.2	4,674.3
Obligations/Appropriations								
Personnel Services	1,412.9	1,498.2	1,568.9	1,579.0	1,523.6	1,525.0	1,510.7	1,529.0
Purchase of Services	1,233.5	1,328.5	1,441.4	1,369.2	1,312.8	1,344.2	1,010.4	1,056.2
Materials, Supplies and Equipment	136.2	145.9	151.1	140.7	128.9	135.2	148.4	155.4
Employee Benefits	845.3	990.1	1,095.8	1,091.4	932.8	1,092.2	1,168.6	1,264.5
Indemnities, Contributions and Taxes	116.5	122.6	127.1	135.9	134.4	118.7	126.6	149.7
Debt Service[4]	337.6	348.8	346.7	384.8	397.8	398.4	410.6	442.0
Other	38.6	31.2	32.3	22.7	24.2	0.0	0.0	0.0
Payments to Other City Funds	119.4	144.9	154.7	88.1	98.5	101.3	105.2	182.8
Total Obligations/ Appropriations	4,240.0	4,610.2	4,917.9	4,811.8	4,553.0	4,715.0	4,480.4	4,779.6
Operating Surplus (Deficit) for the Year	118.0	(32.8)	(204.3)	(286.8)	(11.6)	65.7	42.8	(105.3)
Net Adjustments Prior Year	60.6	69.6	51.0	41.8	58.1	70.5	52.8	48.7
Funding for Contingencies	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
Cumulative Adjusted Year End Fund Balance (Deficit)	311.5	348.3	195.0	(50.0)	(3.4)	132.7	228.3	171.7

(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 current estimate for Fiscal Year 2012 is $500,000 and the transferred amount in the Adopted Budget for Fiscal Year 2013 is $600,000.

(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) 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 2013 Budget. 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.

Figures may not add up due to rounding.

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 City's Comprehensive Annual Financial Report for the Fiscal Year ended June 30, 2011 (the "Fiscal Year 2011 Comprehensive Annual Financial Report"), 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 other than what is contained in the Fiscal Year 2011 Comprehensive Annual Financial Report.

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-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 conforms 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 includes a Real Estate Tax increase of 3.6% (8.2% on the City portion) in Fiscal Year 2013.

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. 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-first 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 Comprehensive Annual Financial Report ("CAFR") for the fiscal year ended June 30, 2010. 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 has applied for the GFOA Award for its 2011 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. 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 2011 Comprehensive Annual Financial Report.

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Table 3
Summary of Principal Operating Funds (Debt Related)
Revenues by Major Source
Fiscal Years 2003-2013 (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 (Current Estimate)[9]	498.5	1,180.4	391.4	250.2	216.7	2,537.1	563.7	293.5	251.58	3,645.8	741.5	135.8	4.523.2
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

(1) See Table 7 in the Fiscal Year 2011 Comprehensive Annual Financial Report for Tax Rates.
(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.
(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) From the estimates for the Adopted Fiscal 2013 Budget. 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).

Figures may not add up due to rounding.

Table 4
General Fund Tax Revenues[1]
Fiscal Years 2007-2013
(Amounts in Millions of USD)

	Actual 2007	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Current Estimate[5] 2012	Adopted Budget[6] 2013
Real Property Taxes							
Current	367.2	366.5	365.6	364.3	454.7[4]	463.5	479.9
Prior	30.3	36.3	34.4	37.9	28.0	35.0	35.0
Total	397.5	402.8	400.0	402.2	482.7	498.5	514.9
Wage and Earnings Tax[2]							
Current	1,162.4	1,176.5	1,105.9	1,102.3	1,127.4	1,158.4	1,197.8
Prior	5.1	8.3	11.1	11.9	6.9	10.0	10.0.
Total	1,167.5	1,184.8	1,117.0	1,114.2	1,134.3	1,168.4	1,207.8
Business Taxes							
Business Privilege							
Current & Prior	436.4	398.8	386.0	364.7	376.9	391.4	394.9
Net Profits Tax							
Current	10.9	9.1	9.5	12.1	5.7	9.6	9.8
Prior	4.3	3.4	2.7	2.4	3.1	2.5	2.5
Subtotal Net Profits Tax	15.3	12.5	12.2	14.5	8.8	12.1	12.3
Total Business Taxes	451.6	411.3	398.2	379.2	385.8	403.4	407.2
Other Taxes							
Sales and Use Tax	132.6	137.3	128.3	207.1[3]	244.6	250.2	259.3
Amusement Tax	16.4	18.0	21.4	21.8	20.8	21.6	22.1
Real Property Transfer Tax	217.3	184.0	115.1	119.2	116.6	118.3	124.5
Parking Taxes	50.3	55.5	70.4	70.5	71.6	73.3	75.1
Other Taxes	2.6	2.8	2.4	2.4	2.7	3.4	3.4
Subtotal Other Taxes	419.2	397.6	337.6	421.0	456.3	466.8	484.5
TOTAL TAXES	2,435.9	2,396.5	2,252.8	2,316.6	2,459.1	2,537.1	2,614.4

(1) See Table 7 in the Fiscal Year 2011 Comprehensive Annual Financial Report for Tax Rates.
(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.
(4) Reflects a Real Estate Tax increase of 9.9%.
(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 "Assessment and Collection of Real and Personal Property Taxes."
(6) From the estimates for the Adopted Fiscal 2013 Budget. Reflects a Real Estate Tax increase of 3.6% (8.2% on the City portion).

Figures may not add up due to rounding.

Wage, Earnings, and Net Profits Taxes

The largest tax revenue source (comprising 47% of all tax revenues) 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 2003-2013, and the annual wage and

earnings tax receipts in Fiscal Years 2003-2011, the current estimate for Fiscal Year 2012 and the Adopted Budget for Fiscal Year 2013.

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	1,537.2 Current Estimate[3]
2013	3.9280	3.4985	1,587.9 Adopted Budget[3]

(1) Includes PICA Tax.
(2) There were two rate decreases during Fiscal Year 2009.
(3) From the estimates for the Adopted Fiscal 2013 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, and $86.277 million in Fiscal Year 2011. The current estimate for Fiscal Year 2012 is $86.273 million, and $86.273 million is the estimate for Fiscal Year 2013. Accordingly, the wage tax rates in Fiscal Years 2009, 2010, 2011, 2012 and 2013 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 and Twenty-First 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. The Eighteenth Five-Year Plan suspended future City-funded rate reductions until Fiscal Year 2014. 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%

The Twenty-First 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 would be 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 is raised to provide additional funding to the School District of Philadelphia by way of an increased contribution. Before this, the last overall increase in the Real Estate Tax rate was in 1990. Real estate taxes are billed annually and due on March 31 of the year of the taxes. The City offers a 1% discount on current real estate taxes paid before March 1. The Department of Revenue also offers two (2) special payment plans covering current year tax for low income households and low income senior citizen households.

The tax rates for tax years 2003-2013 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%

The City is in the process of completing 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 will be 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. Cumulative assessed values will increase dramatically as a result of AVI because properties are currently 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 currently intends to enact an ordinance to adjust millage rates to account for the changes in assessed value due to AVI. The Office of Property Assessment currently anticipates mailing notices of revised property values in February 2013.

Senate Bill 1303, which has been passed by the Pennsylvania Senate and is currently pending in the Pennsylvania House of Representatives at the request of the City, would permit 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. The bill also would preclude the School District from using its independent authority to levy real estate tax, separately granted by the General Assembly of the Commonwealth, but only to the extent the City authorizes School District real estate tax 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. No prediction can be made as to whether Senate Bill 1303,

in its present form, or in any amended form, will be enacted into law, or whether any similar bill may be introduced into the General Assembly of the Commonwealth or enacted.

In June 2012, City Council passed and the Mayor signed Bill Number 120175 which is intended to maintain real estate tax revenue at roughly the same level as prior years for Fiscal Years 2013 and 2014. The bill set the 2013 real estate tax rate for the General Fund at $4.462 on each hundred dollars of assessed value of taxable real property using an EPR (as defined below) of 32%. For 2014, the bill provides for the calculation of real estate tax bills using a formula that will result in a "target revenue number" of $560,086,355 for the General Fund. There can be no assurance that City Council will not amend Bill Number 120175. The City currently anticipates that such "target revenue number" will produce sufficient revenue to comply with the Twenty-First Five Year Plan, even after accounting for assessment appeal losses and typical delinquencies.

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.

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 has begun the work to conduct a complete reassessment of the approximately 577,000 parcels in the City Completion of the reassessment is a major priority for the Mayor's administration and is expected to be finalized in 2012. In the interim, there is a moratorium on all routine property assessments - exceptions to the moratorium include newly constructed properties, improved properties and consolidated or subdivided properties.

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 2010

Comprehensive Annual Financial Report for assessed and market values of taxable realty in the City and for levies and rates of collections.

Currently, real estate tax bills for Philadelphia's 577,000 properties are calculated as follows: certified fair market value multiplied by established predetermined ratio (EPR) multiplied by tax rate. The applicable EPR is currently 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.

On July 5, 2012, the Governor approved Act 131 ("Act 131"). Act 131 provides that 2013 real estate taxes will be based on the 2011 assessed values, with adjustments for construction, demolition and other dramatic changes in condition. For 2013 only, real estate tax assessment appeals will be decided using the EPR, regardless of what CLR is issued by STEB. 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."

On September 21, 2012, the City received a demand from an attorney purporting to represent the owners of approximately 1,750 properties in the City, threatening to bring suit unless the City grants a 39.7% savings in the real estate taxes due on those properties for 2013 on the basis of the alleged invalidity of Act 131. The demand identified neither the owners nor their properties, and no complaint has yet been filed.

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Table 8
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.

Table 9
Principal Property Tax Payers
2012 and 2003
(Amounts in Millions of USD)

	2012		2003	
Taxpayer	Assessment*	Percentage of Total Assessments	Assessment*	Percentage of Total Assessments
Franklin Mills Associates**	57.6	0.47	48.4	0.46
Phila Liberty Place E LP	54.4	0.44	64.3	0.62
Nine Penn Center Associates	54.1	0.44	54.1	0.52
HUB Properties Trust	43.8	0.35	52.3	0.50
Brandywine Operating Partners**	40.6	0.33	-	-
PRU 1901 Market LLC**	35.2	0.28	32.9	0.32
Maguire/Thomas	33.9	0.27	32.0	0.31
Commerce Square Partners	33.3	0.27	32.3	0.31
Phila Shipyard Development Corp	30.3	0.24	-	-
Philadelphia Market Street	28.8	0.23	30.4	0.29
Total	412.0	3.33	346.7	3.33
Total Taxable Assessments***	12,368.6		10,426.7	

* 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.
*** Total Taxable Assessment as of September 13, 2012.
Source: City of Philadelphia, Board of Revision of Taxes.

Table 10
Ten Largest Certified Market and Assessment Values of Tax-Abated Properties Certified Values for 2012 (Amounts in Millions of USD)

Location	2012 Certified Market Value	Total Assessment	Total Taxable Assessment	Total Exempt Assessment	Exempt Thru Tax Year
1701 John F Kennedy Blvd.	181.5	58.1	2.9	55.2	2017
1001 N Delaware Ave	150.9	48.3	12.8	35.5	2020
2929L Arch St.	117.0	37.4	0.0	37.4	2015
1500 Spring Garden St.	54.8	17.5	2.9	14.6	2020
2201 Park Towne Pl.	48.0	15.4	13.5	1.9	2012
2930L Chestnut St.	40.0	12.8	0	12.8	2022
3401 Chestnut St.	35.3	11.3	0.7	10.6	2017
1327-39 Chestnut St.	35.0	11.2	10.9	0.3	2016
4000 Monument Rd.	31.8	10.2	6.2	4.0	2017
1601 N 15th St.	31.5	10.1	0.2	9.9	2017

Source: City of Philadelphia, Board of Revision of Taxes.

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. The Eighteenth Five-Year Plan, the Nineteenth Five-Year Plan, the Twentieth Five-Year Plan and the Twenty-First Five-Year Plan assume this temporary increase will sunset on June 30, 2014.

The table below sets forth the City Sales Tax collected in Fiscal Years 2003 through 2011, the current estimate for Fiscal Year 2012 and the Adopted Budget for Fiscal Year 2013.

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Table 11
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 (Current Estimate[1])	250.2
2013 (Adopted Budget[1])	259.3

[1] From the estimates for the Adopted Fiscal Year 2013 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 Adopted Budget estimates that approximately 18.3% of General Fund revenues will be received from other governmental jurisdictions, including (1) $248.2 million from the Commonwealth for health, welfare, court, and various other specified purposes; (2) $38.9 million from the Federal government; and (3) $62.9 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 $301.8 million are included in "Revenue from Other Governments." The decrease in Fiscal Year 2013 General Fund Adopted Budget Revenue from Other Governments of $51.1 million from the Fiscal Year 2012 current estimate 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 current estimate projects that approximately 19.9% of General Fund revenues will be received from other governmental jurisdictions, including: (1) $239.3 million from the Commonwealth for health, welfare, court, and various other specified purposes; (2) $90.4 million from the Federal government; and (3) $81.8 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 $290.5 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 current estimated transfer is $500,000 and the Fiscal Year 2013 Adopted Budget estimate is $600,000.

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 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 2013, 2014, 2015, 2016 and 2017. 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 Fiscal Year 2012 current estimate is $28,500,000 and the Fiscal Year 2013 budgeted amount is $29,000,000.

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 June 30, 2012, the City employed 26,372 full-time employees, 21,175 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 12
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.

Labor Agreements

Four major bargaining units represent City employees for collective bargaining purposes. District Councils 33 and 47 of the American Federation of State, County and Municipal Employees, AFL-CIO represents approximately 15,000 non-uniformed employees. The bargaining units for uniformed employees are the Fraternal Order of Police, Lodge 5 (the "FOP") and the Philadelphia Fire Fighters Association, Local 22, International Association of Fire Fighters AFL-CIO ("IAFF Local 22"), which together represent approximately 9,400 employees. The non-uniformed employees bargain under Act 195 of 1972, which allows for the limited right to strike over collective bargaining impasses. The uniformed employees bargain under Pennsylvania Act 111 of 1968, which provides for final and binding interest arbitration to resolve collective bargaining impasses. All contract expiration dates are June 30 unless otherwise noted.

On July 10, 2008, an arbitration panel awarded a one-year contract to the FOP effective July 1, 2008. The award called for a 2% wage increase effective July 1, 2008, a 2% wage increase effective January 1, 2009 and a 1% increase in longevity pay effective January 1, 2009. In addition, the panel reduced the per member per month health medical payment from the then current monthly rate of $1,303 per member to $1,165 per member. The contract expired June 30, 2009.

On December 18, 2009, an arbitration panel awarded a five-year contract to the FOP effective July 1, 2009 which calls for no raise the first year, a 3% wage increase and one percent stress differential increase effective July 1, 2010, a 3% wage increase effective July 1, 2011, and reopeners on wages in Fiscal Year 2013 and 2014. The award also includes higher employee co-pays in the police medical plan, reduced City contributions to the union's healthcare fund in Fiscal Year 2010, self-insurance for employee health benefits and a requirement that new employees choose between a 20% increase in pension contributions over the amount current employees pay or entering a hybrid plan that includes a defined benefit portion combined with a voluntary 401(k) type retirement plan for the first time.

On June 21, 2011, an arbitration award was issued for a smaller unit comprised of uniformed employees of the Sheriff's Office and civilian employees of the Register of Wills. The award deferred wages and improvements for the civilian employees pending the outcome of negotiations with District Council 33. Uniformed employees of the Sheriff's Office received wage increases of 2.5% on July 1, 2010, 2.5% on July 1, 2011, and reopeners in Fiscal Year 2013 and 2014. Since these employees were not in the uniformed division of the City's pension plan, the award created a new pension plan for the municipal division of the pension plan which must be approved by City Council in order to be implemented. Employees in the Sheriff's Office have the choice of having a 20% increase in pension contributions over the amount current employees pay or entering a hybrid plan that includes a defined benefit portion combined with a voluntary 401(k) type retirement plan. New employees of the Register of Wills Office are required to enter the hybrid plan.

On October 17, 2008, an arbitration panel awarded a one-year contract to the IAFF Local 22 effective July 1, 2008. The award called for a 2% wage increase effective July 1, 2008, a 2% wage increase effective January 1, 2009, and a 1% increase in longevity pay effective January 1, 2009. In addition, the panel reduced the per member per month health medical payment from the then current monthly rate of $1,444 per member to $1,270 per member. The contract expired on June 30, 2009.

On October 15, 2010, an arbitration panel awarded a four year contract to the IAFF Local 22 effective July 1, 2009 which calls for no raise the first year, a 3% wage increase effective July 1, 2010, a 3% wage increase effective July 1, 2011, and a 3% wage increase effective July 1, 2012. The award also includes a change from purchase of health insurance to self-insurance as of January 1, 2011, higher employee co-pays in the Fire medical plan, the union's healthcare fund will be responsible for the first $5 million in self-insurance costs, and a requirement that new employees choose between a 20% increase in pension contributions over the amount current employees pay or entering a hybrid plan that includes a defined benefit portion combined with a voluntary 401(k) type retirement plan for the first time. The City appealed the economic provisions of the award other than the revisions to the pension plan. The award has been vacated, and all provisions with the exception of the new pension plan, and changes in vacation scheduling removed. The award has been returned to the panel to issue a revised award consistent with the requirements of PICA. 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. Health insurance contributions were adjusted retroactively for the period July 1, 2009 through September 30, 2012. For the period October 1, 2012 through June 30, 2013, the City's monthly contributory requirement to the Fund will be reduced by 3.5%, to 1,619.64 per member per month. This award has been appealed by the City with hearings scheduled in October 2012.

The City reached a one-year agreement with District Council 33 and District Council 47, which was effective July 1, 2008. The agreement called for a lump sum bonus of $1,100 per member. The agreement also called for no increase in the current per member per month health benefit payment. The contract expired June 30, 2009. Negotiations are currently underway with District Councils 33 and 47.

On March 16, 2012, an arbitration panel issued an award covering approximately 2,100 prison guards and related employees of the City, who are part of District Council 33. This award covered the time period from July 1, 2008 through June 30, 2014. The award provided a one-time $1,100 lump sum bonus, equivalent to that received by the larger unit of District Council 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 District Council 33 negotiations described in the preceding paragraph for years prior to July 1, 2012, the prison guards and related City employees would also receive these increases. Overtime compensation was reformed so that employees who use sick leave and other leave time and then work additional hours in a week will not receive the overtime premium rate for these extra hours of work until they have worked at least 40 hours in a week. Covered employees will now have the choice of having a 20% increase in

pension contributions over the amount current employees pay or entering a hybrid plan that includes a defined benefit portion combined with a voluntary 401(k) type retirement plan. New employees are required to enter the hybrid plan. Additionally, current employees will be required to make increased contributions for their pension plans effective July 1, 2013. It is estimated that employees covered under Plan 87 (further described under "Municipal Pension Fund") will see an increase from 30% of normal cost to 50% of normal cost which will increase the employee contribution by 1% of salary. Employees in Plan 67 (further described under "Municipal Pension Fund") 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% of salary.

On July 11, 2012, an interest arbitration was issued governing economic terms of employment for a bargaining unit comprised of 532 professional employees of the First Judicial District, primarily in the job series of Probation Officer. 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 received a one-range increase within the First Judicial District pay schedule. New hires are required to enter the City's new municipal pension plan, Plan 10.

The following table presents employee wage increases for the Fiscal Years 2006 through 2013.

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Table 13
Employee Wage Increases
Fiscal Years 2006-2013

Fiscal Year	District Council No. 33	District Council No. 47	Fraternal Order of Police	International Association of Fire Fighters
2006	2.0%	2.0%	3.0%	3.0%
2007	3.0%[1]	3.0%[1]	3.0%	3.0%
2008	4.0%[2]	4.0%[2]	4.0%	4.0%
2009	No increase[3]	No increase[3]	4.0%[4]	4.0%[4]
2010	[5]	[5]	0.0%[6]	0.0%[7]
2011	[5]	[5]	3.0%[6]	3.0%[7]
2012	[5]	[5]	3.0%[6]	3.0%[7]
2013	[5]	[5]	[6]	[7]

(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, negotiations are currently underway. An increase of 2.5% for 2012 was awarded to certain prison guards and related employees which are part of District Council 33.
(6) Five year contract: 0% effective July 1, 2009, 3% effective July 1, 2010, 3% effective July 1, 2011, and re-openers on wages in Fiscal Years 2013 and 2014.
(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.

The Mayor has announced that, effective October 1, 2012, supervisors in District Council 47 Local 2186 (for whom the City may impose terms of employment), and civil service non-represented and exempt employees will receive new compensation and benefits including the following: (1) 2.5% pay increase for most affected employees; (2) restored step and longevity increments which may increase compensation (but no back pay); (3) certain changes restricting overtime including the elimination of double time; and (4) certain changes in health care coverage and an increase in employee contributions for the City's HMO (the City will continue to contribute between 89 percent and 92 percent of the total cost, depending on plan, of affected employees' health care). In addition, the Mayor will request City Council to consider legislation placing new employees in the City's new municipal pension plan, Plan 10, and requiring other employees to contribute approximately 1.5 percent more to pensions. Also, in connection with these changes, subject to the approval of the Civil Service commission, the City will now be able to furlough non-represented employees. These changes will affect approximately 5,500 City employees in the executive branch of City government and in independently elected offices, who have not had a pay increase since 2007.

Employee Benefits

The City provides various pension, life insurance, health, and medical benefits for its employees. General Fund employee benefit expenditures for Fiscal Years 2007 through 2013 are shown in the following table.

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Table 14
General Fund Employee Benefit Expenditures
Fiscal Years 2007-2013
(Amounts in Millions of USD)

	Actual 2007	Actual 2008	Actual 2009	Actual 2010	Actual 2011	Current Estimate [2] 2012	Adopted Budget [2] 2013
Pension Contribution[1]	436.8	430.8	459.0	346.7	485.2	554.3	629.1
Health/Medical/Dental	331.5	421.0	377.0	349.7	346.3	334.3	347.4
Social Security	64.1	69.7	68.8	65.2	64.6	64.9	64.9
Other	57.9	61.5	68.4	69.5	70.9	74.4	76.9
Total	890.3	983.0	973.2	831.4	967.0	1,029.9	1,118.3

[1] The Pension Contribution amount includes debt service on the Pension Obligation Bonds, Series 1999, which were outstanding in the principal amount of $1,389,345,000 on August 31, 2012. See also "*Pension Obligation Bonds*" under "Municipal Pension Fund (Related to All Funds)" below.
[2] From the estimates for the Adopted Fiscal 2013 Budget.

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. 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 "*Funded Status of the Municipal Pension Fund*" below. 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 21 "Annual City Contribution Status for the Municipal Pension Fund" below.

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 "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 "Labor Agreements" 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 2002 through 2011 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, 2011.

The City's actuarial report dated March 22, 2012, for the period ending July 1, 2011 (the "2011 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 2011 Actuarial Report is not incorporated into this Official Statement by reference. The 2011 Actuarial Report was prepared by Cheiron, McLean, Virginia (the "Actuary"). The 2011 Actuarial Report notes that the Actuary has accepted the assumptions and methodologies as adopted by the Pension Board. The City has not prepared the projections or actuarial assessments set forth in the 2011 Actuarial Report but has reviewed the information set forth in the 2011 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 decreased by 1.7% from July 1, 2010 to July 1, 2011 from 65,447 to 64,349 members, including a decrease of 4.5% in active members from 27,928 to 26,671. Between such dates, annual salaries decreased by 3.5% from approximately $1.42 billion to $1.37 billion; average salary per active member increased by 1.0% from $50,886 to $51,414; annual retirement allowances increased by 1.9% from approximately $615.24 million to $627.12 million and the average retirement allowance increased by 2.7% from $18,148 to $18,641.

Non-uniformed represented employees become vested in the Municipal Pension Plan upon the completion of ten years of service. Upon retirement, non-uniformed employees may receive up to 80% of their average final compensation depending upon their years of credited service. 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. City employees participate in arrangements set forth under one of two municipal pensions programs known as Plan 67 or Plan 87 (except as described for certain police employees below), depending, primarily, on such employee's date of hire. The retirement age differs for Plan 67 (age 55) and Plan 87 (age 60) for non-uniformed employees and also for Plan 67 (age 45) and Plan 87 (age 50) for uniformed employees.

Police employees hired on or after January 1, 2010 have the option to participate in 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% instead of 5.0%. See also "Labor Agreements."

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 2011 Actuarial Report and includes as of July 1, 2011, 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 2011 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 July 31, 2012 as well as the target allocation is set forth below:

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Table 15
Asset Allocation as of July 31, 2012

	Domestic Equity	Non-US Equity	Total Fixed Income	Real Estate	Private Equity	Hedge Funds	Real Assets	Cash
Current Allocation	21.0%	18.3%	30.5%	4.4%	13.5%	8.3%	1.7%	2.3%
Target Allocation	20.0%	21.5%	25.5%	5.0%	13.0%	10.0%	5.0%	De minimis*

Source: Current Allocation – JP Morgan
Target Allocation – Recommended by FIS Group with input from Staff; approved by Board of Trustees May 2010.
*Sufficient cash is kept on hand to meet monthly liabilities.

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 8.10% over a full market cycle with a standard deviation of not greater than 13.43%. It is anticipated that this return standard should enable the Fund to meet its actuarially assumed earnings projections (currently 8.10%) 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 Pension Board is currently reviewing the target allocations for the Municipal Pension Fund investments and expects to consider related consultant recommendations in October 2012.

The following table sets forth for the City's Fiscal Years 2002-2011 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, 2011 were 5.17% and 5.96%, respectively on a market value basis.

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Table 16
Municipal Pension Fund
Annual Rates of Return

Year Ending June 30,	Market Value	Actuarial Value*	Assumed Rate of Return
2002	-5.8%	3.4%	9.00%
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

Source: 2011 Actuarial Report for Market and Actuarial Value annual rates of return; annual Actuarial Valuation Reports prepared by Mercer for Fiscal Years 2002-2006 and Cheiron for Fiscal Years 2007-2011 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 2002-2011 the actuarial and market value of assets in the Municipal Pension Fund and the actuarial value as a percentage of market value.

Table 17
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
7/1/2002	$ 4,891.3	$ 3,957.9	123.6%
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

Source: 2011 Actuarial Report for Actuarial Value of Assets; 2002-2011 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, 2011 equaled $986,676.
(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 actuarial and market values of assets include the total deferred contribution of $230 million.

The 2011 Actuarial Report notes that regardless of whether the Municipal Pension Fund achieves the assumed long-term rate of return of 8.10%, the funding ratio can be adversely impacted by volatile returns year by year. The 2011 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 2011 Actuarial Report includes projections with respect to the Municipal Pension Fund based upon assumed consistent annual returns of 8.10% each year and assumed varying returns that average 8.10%. 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 2007-2011, 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 City's pension obligation funding bonds, issued in Fiscal Year 1999, are made from the City's General Fund and not made from the Municipal Pension Fund.

Table 18
Cash Flow of the Municipal Pension Fund
Fiscal Years 2007-2011
(Amount in Thousands of USD)

	2007	2008	2009	2010	2011
Beginning Net Assets (Market Value)[1]	$4,316,586.2	$ 4,899,355.1	$4,424,075.3	$3,375,767.1	$3,501,602.1
Cash Inflows					
- Member Contributions	49,179.8	51,690.2	54,022.6	51,569.9	52,705.6
- City Contributions[2][3]	432,267.2	426,934.5	455,389.0	312,556.3	470,154.8
- Investment Income[4]	764,914.2	(224,906.4)	(849,377.7)	455,792.6	699,847.9
- Miscellaneous Income[5]	3,041.5	8,468.0	(13,887.5)	(1,367.6)	991.7
Total	$1,249,402.7	$ 262,186.3	$ (353,853.6)	$ 818,551.2	$1,223,700.0
Cash Outflow					
- Benefits and Refunds	(660,103.5)	(729,860.8)	(685,872.9)	(684,642.0)	(687,033.5)
- Administration	(6,530.4)	(7,605.3)	(8,581.8)	(8,074.1)	(8,052.7)
Total	$(666,633.9)	$ (737,466.1)	$ (694,454.7)	$ (692,716.2)	$ (695,086.2)
Ending Net Assets (Market Value)	$4,899,355.1	$ 4,424,075.3	$3,375,767.1	$3,501,602.1	$4,030,215.9

Source: 2007-2011 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 $57.7 million, $59.6 million, $59.6 million, $59.2 million, and $61.8 million for the City's 2007-2011 Fiscal Years, respectively.
(3) City contributions are the actual contributions for FY 2010 and FY 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.

Funded Status of the Municipal Pension Fund

Based on the 2011 Actuarial Report, the UAAL was $4.768 billion which equals a funding ratio of approximately 50% and a UAAL as a percentage of covered payroll of approximately 348%, each based on actuarial assets of $4.719 billion. The market value of the net assets in the Municipal Pension Fund was $4.259 billion as of July 1, 2011, and the funding ratio based on such market value was approximately 45%. As of August 31, 2012, the market value of net assets in the Municipal Pension

Fund was $3.89 billion (subject to reporting lag times for certain categories of investment which are included as of March 31, 2012 and July 31, 2012).

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 increases 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 intends to use the proceeds of certain bonds to be 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 $56.3 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%.

The following two tables set forth as of the July 1st actuarial valuation date for the years 2002-2011, 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.

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Table 19
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]
7/1/2002	$ 4,891.3	$ 6,727.2	$ 1,835.9	72.7%	$ 1,207.3	152.1%
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	9,487.5	4,768.4	49.7	1,371.3	347.7

Source: 2011 Actuarial Report.
(1) The July 1, 2010 Actuarial Value of Assets includes the $150 million deferred contribution from Fiscal Year 2010 and the July 1, 2011 Actuarial Value of Assets includes the total deferred contribution of $230 million.

Table 20
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]
7/1/2002	$3,957.9	$6,727.2	$2,769.4	58.8%	$1,207.3	229.4%
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

Source: 2002-2011 Actuarial Valuation Reports
(1) The July 1, 2010 Market Value of Net Assets includes the $150 million deferred contribution from Fiscal Year 2010 and the July 1, 2011 Market Value of Net Assets includes the total deferred contribution of $230 million.

The Actuarial Value of Assets and Market Value of Net Assets in the Municipal Pension Fund will not increase due to the City's repayment of the $230 million of deferred contributions.

Annual Required Contributions

The following table sets forth for the City's Fiscal Years 2002-2011, information related to the City's annual pension contributions including, among other information, the MMO, the actuarial annual required contribution (the "ARC") for the Municipal Pension Fund and the percentage of the ARC

contributed. The ARC is the annual amount to be funded in accordance with the City's Municipal Pension Fund funding policy (the "Funding Policy"). The City is not required under law or pursuant to contract to contribute to the Municipal Pension Plan in accordance with the Funding Policy. Since 2004, the City has been making contributions to the Municipal Pension Fund based primarily upon the MMO rather than the City's Funding Policy. See "*Comparison of State Law (MMO) and City Funding Policy Funding Methods*" below.

Table 21
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	Commonwealth Contribution	City Interfund Transfers [2]
2002	$135.9	$178.2	$178.2	100.0%	$36.4	$23.2
2003	142.4	195.5	179.7	91.9	40.3	24.1
2004	195.8	253.8	202.8	79.9	42.8	26.0
2005	294.0	358.1	299.2	83.6	49.8	41.5
2006	306.9	395.0	331.7	84.0	57.3	45.5
2007	400.3	527.9	432.2	81.9	57.7	57.0
2008	412.4	536.9	426.9	79.5	59.6	60.0
2009	438.5	539.5	455.3	84.4	59.6	65.4
2010	447.4	581.1	312.5	53.8[3]	59.2	47.4
2011	511.0	715.5	470.1	65.7[3]	61.8	68.3

Source: 2002-2011 Actuarial Valuation Reports and the City.
(1) Includes amounts shown under Commonwealth Contribution and City Interfund Transfers columns.
(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 FY 2010 and FY 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.

For the City's Fiscal Year ended June 30, 2012, the City's all City Funds total contribution to the Municipal Pension Fund was approximately $539,497,000 (unaudited). The City has budgeted $616,900,000 for its all City Funds total contribution to the Municipal Pension Fund for the Fiscal Year ending June 30, 2013. Such contributions for the 2012 and 2013 Fiscal Years are intended to equal the MMO for such years.

The amounts of Commonwealth Contributions and City Interfund transfers for pensions do not affect the MMO.

Comparison of State Law (MMO) and City Funding Policy Funding Methods

Pennsylvania state law (Act 205) and the City's 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 City's 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. 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 City's 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 intends to repay such deferred contributions and accrued interest thereon with proceeds of the bonds to be issued in October 2012, together with certain other available amounts. Certain differences between the MMO and the City's Funding Policy are:

- The City's 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 City's 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 City's Funding Policy and the MMO utilize valuation results developed in the previous year (e.g., the July 1, 2011 valuation report determined contribution amounts for Fiscal Year 2012). 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 City's 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 2002-2011, 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.

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Table 22
Calculation of Annual Pension Cost
(Amounts in Thousands of USD)

	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011
ARC	$178,239	$195,514	$253,844	$358,141	$394,950	S527,925	$536,874	$539,464	$581,123	$715,544
Interest on NPO	(106,975)	(103,330)	(98,392)	(90,448)	(82,068)	(71,541)	(60,685)	(48,957)	(39,899)	(14,155)
Adjustment to ARC	147,470	142,446	135,638	124,687	113,135	99,953	84,785	68,399	55,744	20,353
Annual Pension Cost	$218,734	$234,630	$291,090	$392,380	$426,017	$556,337	$560,974	$558,906	$596,968	$721,742
Contributions	178,239	179,757	202,827	299,266	331,765	432,267	426,934	455,389	312,556	470,155
Increase in NPO	$40,495	$54,873	$88,263	$93,114	$94,252	$124,069	$134,040	$103,517	$284,412	$251,587
NPO at beginning of the year	(1,188,611)	(1,148,116)	(1,093,243)	(1,004,980)	(911,866)	(817,614)	(693,545)	(559,505)	(455,987)	(171,575)
NPO at end of the year	$(1,148,116)	$(1,093,2432)	$(1,004,980)	$(911,866)	$(817,614)	$(693,545)	$(559,505)	$(455,987)	$(171,575)	$80,012
Interest Rate	9.00%	9.00%	9.00%	9.00%	9.00%	8.75%	8.75%	8.75%	8.75%	8.25%

Source: 2011 Actuarial Report.

Pension Obligation Bonds

In Fiscal Year 1999, PAID issued $1.3 billion in pension funding bonds (the "Pension Obligation Bonds") on behalf of the City. The Pension Obligation Bonds are special, limited obligations of PAID and are secured by payments to be made by the City pursuant to a service agreement. The City's service agreement payments with respect to the Pension Obligation Bonds are made from the City's General Fund. The City's payment obligations with respect to the Pension Obligation Bonds are not included within either the ARC or the MMO. Substantially all the net proceeds of the Pension Obligation 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 22 above for information regarding changes in the City's net pension obligations/(net pension assets) for Fiscal Years 2002 through 2011. See Section IV in the 2011 Actuarial Report for Pension Obligation Bond debt service shown allocated among the City's municipal, police and fire divisions. The City's service agreement payments with respect to the 2012 Pension Bonds (hereinafter defined) will be made from the City's General Fund and will not be included within either the ARC or the MMO. Debt service on the 2012 Pension Bonds is structured to substantially match the timing and amounts of payments the City would have otherwise made of the deferred portions of MMO contributions and accrued interest thereon were it not to finance such payments through the 2012 Pension Bonds.

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 8.10%) plus 1.0% and are limited to 2.5%. Currently, 50% of earnings in excess of 9.10% up to 14.10% 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, 2011 was $986,676.

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 2011 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 8.10% 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 2011 Actuarial Report for a further discussion of the assumptions and methodologies used by the Actuary in preparing the 2011 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.**

Table 23
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
2012	$ 507.0	$ 4,597.0	$ 9,546.5	$ 4,949.5	48.2%
2013	492.0	4,574.2	9,603.4	5,029.2	47.6
2014	517.1	4,520.7	9,656.5	5,135.8	46.8
2015	533.6	4,570.5	9,773.6	5,203.1	46.8
2016	553.5	4,655.1	9,891.3	5,236.2	47.1
2017	570.7	4,758.5	10,011.6	5,253.1	47.5

Source: The Actuary; Total General Fund Expenditures from the City.
[1] Values for actuarially determined contributions represents the MMO and do not reflect interest or principal amounts related to the deferred contribution of $230 million.

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 City's 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 8.10% compounded annually, net of expenses;
- Total annual payroll growth is assumed to be 3.5% 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 3.5% per year.

The Actuary's assumptions and methods are summarized in greater detail within Appendix C of the 2011 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. 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 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 2011, the City's ARC was $101.2 million and it contributed $65.5 million for OPEB expense; its net OPEB obligation for Fiscal Year 2011 was $79.5 million.

Further information on the City's annual OPEB expense and net OPEB obligation for Fiscal Years 2009, 2010 and 2011 and the funded status of the OPEB benefits is contained in the Fiscal Year 2011 Comprehensive Annual Financial Report.

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 2006 through 2013.

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Table 24
Purchase of Service in the General Fund
Fiscal Years 2006-2013
(Amounts in Millions of USD)

	Actual						Current Estimate (9,10)	Adopted Budget (9)
	2006	2007	2008	2009	2010	2011	2012	2013
Human Services(1)	467.9	495.3	515.3	499.0	465.5	448.2	68.4	69.3
Public Health	61.1	65.5	65.1	67.9	64.7	66.1	65.7	66.1
Public Property(2)	137.9	156.3	139.5	142.6	136.2	138.7	140.6	149.0
Streets(3)	54.8	58.3	58.4	51.0	55.8	51.0	44.8	42.5
Sinking Fund - Lease Debt(4)	77.0	84.3	85.1	86.1	79.9	87.5	89.8	95.0
Legal Services(5)	33.6	35.4	37.3	37.3	35.9	36.6	37.1	37.1
First Judicial District	24.4	24.8	25.6	23.6	23.7	22.9	22.0	13.2
Licenses & Inspections(6)	11.5	11.4	11.9	9.6	8.2	4.1	7.1	7.1
Supportive Housing (7)	28.6	31.3	33.9	32.3	31.7	30.2	30.4	31.6
Prisons	82.8	87.5	93.6	110.7	106.4	106.6	104.0	103.2
All Other(8)	86.4	101.5	123.0	114.1	103.4	131.0	147.9	154.5
Total	1,065.7	1,151.6	1,188.7	1,174.2	1,111.4	1,127.9	757.8	768.6

(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 2006 through Fiscal Year 2012.
(7) Includes homeless shelter and boarding home payments.
(8) Includes payment for Convention Center Subsidy and Vehicle leasing.
(9) From the estimates for the Adopted Fiscal 2013 Budget.
(10) 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.

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. The current estimate for Fiscal Year 2012 includes an additional contribution of $10 million, bringing the total contribution to $48.9 million. The adopted budget 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.

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."

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 includes the PGW annual payment of $18,000,000 to the City's General Fund but discontinues 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 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 2013, 2014, 2015, 2016 and 2017. 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 current estimate for Fiscal Year 2012 of operating subsidy payments to SEPTA is $66.4 million. The adopted budget for fiscal Year 2013 projects operating subsidy payments to SEPTA of $66.4 million. The Twenty-First Five-Year Plan provides that the City's contribution to SEPTA will increase to $71.4 million by Fiscal Year 2017.

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.

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 September 1, 2012, the Constitutional debt limitation for tax-supported general obligation debt was approximately $1,622,314,000. 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 $1,494,233,000, including $570,599,000 of authorized but unissued debt, leaving a legal debt margin of $128,081,000. The calculation of the legal debt margin is as follows:

Table 25
General Obligation Bonded Debt
September 1, 2012
(Amounts in Thousands)

Authorized, issued and outstanding	$1,284,505
Authorized and unissued	570,599
Total	1,855,104
Less: Self-supporting debt	(353,936)
Less: Serial bonds maturing within a year	(6,935)
Total amount of authorized debt applicable to debt limit	1,494,233
Legal debt limit	1,622,314
Legal debt margin	$ 128,081

The City is also authorized to issue revenue bonds pursuant to The First Class City Revenue Bond Act of 1972. Currently, the City issues revenue bonds to support the Division of Aviation, the Water Department and PGW. Bonds so issued are excluded for purposes of the calculation of the Constitutional debt limit.

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 $173 million of Tax and Revenue Anticipation Notes on December 7, 2011. The Notes matured and were paid on June 29, 2012.

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, 2011, see the Fiscal Year 2011 Comprehensive Annual Financial Report.

Of the total balance of City tax-supported general obligation bonds issued and outstanding on June 30, 2012, approximately 19% is scheduled to mature within five fiscal years and approximately 41% is scheduled to mature within ten fiscal years.

Table 26
Bonded Debt -- City of Philadelphia and Component Units
as of August 31, 2012
(Amounts in Thousands)

(Unaudited)

Tax-supported bonds		
General Fund		$1,284,505
PA Intergovernmental Cooperation Authority		452,935
Subtotal: Tax-supported bonds		1,737,440
Other Long-Term Debt-Related Obligations		
Philadelphia Municipal Authority		
Municipal Services Building	$ 19,746	
Criminal Justice Center	121,120	
Juvenile Justice Center	96,945	
Energy Conservation	12,605	250,416
Philadelphia Authority for Industrial Development		
Pension Bonds	1,389,345	
Stadiums	325,560	
Library	8,180	
Cultural and Commercial Corridor	119,425	
One Parkway	43,470	1,885,980
Parking Authority		14,820
Redevelopment Authority		227,595
Subtotal		4,116,252
Revenue bonds		
Water Fund		1,862,075
Aviation Fund		1,366,920
Gas Works		1,093,440
Subtotal: Revenue bonds		4,322,435
Grand total		$ 8,438,687

Source: Office of Director of Finance

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Table 27
City of Philadelphia
Annual Debt Service on City-Related Long-Term Debt
As of June 30, 2012
(Amounts in Millions of USD)

Fiscal Year	Tax Supported Bonds[1]			Other Long-Term Obligations[2]			Total		
	Principal	Interest[3]	Total	Principal	Interest[3]	Total	Principal	Interest	Total
2013	48.54	68.17	116.71	82.48	138.35	220.83	131.01	206.52	337.53
2014	50.74	66.10	116.84	82.96	139.86	222.82	133.69	205.96	339.65
2015	52.47	63.40	115.87	84.17	143.51	227.68	136.64	206.91	343.55
2016	52.01	60.80	112.81	84.04	139.89	223.93	136.05	200.70	336.75
2017	54.57	58.15	112.71	84.19	139.56	223.74	138.75	197.70	336.45
2018	57.21	55.29	112.50	89.61	138.77	228.38	146.82	194.06	340.88
2019	60.12	52.28	112.39	74.59	138.02	212.60	134.70	190.29	325.00
2020	61.73	49.19	110.92	64.09	137.79	201.88	125.81	186.98	312.80
2021	54.36	46.32	100.68	64.21	137.70	201.91	118.56	184.03	302.59
2022	56.77	43.56	100.33	64.49	137.47	201.95	121.26	181.03	302.28
2023	60.70	40.52	101.22	64.93	137.05	201.98	125.63	177.57	303.20
2024	63.80	37.24	101.04	65.53	136.49	202.02	129.33	173.73	303.06
2025	67.00	33.79	100.79	66.46	135.60	202.06	133.46	169.39	302.85
2026	62.93	30.38	93.31	79.82	121.44	201.26	142.75	151.83	294.58
2027	66.02	27.00	93.02	160.04	43.88	203.92	226.06	70.88	295.95
2028	69.82	23.61	93.42	165.25	34.60	199.85	235.07	58.21	293.27
2029	42.84	20.90	63.74	277.50	17.61	295.11	320.34	38.51	358.85
2030	58.20	18.39	76.58	53.73	7.81	61.53	111.92	26.20	138.12
2031	61.32	15.37	76.68	56.27	5.32	61.58	117.58	20.69	138.27
2032	64.58	12.18	76.76	13.63	3.21	16.84	78.21	15.39	93.60
2033	28.16	9.70	37.86	4.90	2.71	7.61	33.06	12.42	45.47
2034	14.70	8.38	23.07	5.22	2.39	7.61	19.91	10.77	30.68
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	0.00	0.00	0.00	8.52	1.50	10.02
2041	9.10	0.93	10.02	0.00	0.00	0.00	9.10	0.93	10.02
2042	9.71	0.32	10.02	0.00	0.00	0.00	9.71	0.32	10.02
TOTAL	1,326.11	868.56	2,194.67	1,819.70	2,045.47	3,865.17	3,145.80	2,914.03	6,059.84

[1] Includes General Obligation 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.

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 26. 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 $1,334,700 for Fiscal Year 2013.

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 and Fiscal Year 2012 was $25,409,207. The budgeted amount for Fiscal Year 2013 is $25,409,207. 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 August 31, 2012, the principal amount of PICA bonds outstanding was $452,935,000.

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 2011 and the current estimates for Fiscal Year 2012 and Fiscal Year 2013 are set forth below.

Table 28
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 (Current Estimate)[2]	356.7	66.2	290.5
2013 (Adopted Budget)[2]	367.8	66.0	301.8

[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 2013 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 29
Summary of Swap Information
for General Fund Supported Bonds
as of August 31, 2012

City Entity Related Bond Series	City GO 2009B[1]	City Lease - PAID 2001 (Stadium)	City Lease - PAID 2007B (Stadium)	City Lease - PAID 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.	JP Morgan Chase Bank, N.A.	Merrill Lynch Capital Services, Inc.
Fair Value[3]	($27,709,512)	($3,858,316)	($56,834,978)	($18,938,932)

(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 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 August 31, 2012, 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 2011 Comprehensive Annual Financial Report. In addition, PICA has entered into swaps which are detailed in the Fiscal Year 2011 Comprehensive Annual Financial Report.

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:

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Table 30
Summary of Letter of Credit and Standby Agreements
for General Fund Supported Bonds
as of August 31, 2012

Variable Rate Bond Series	Amount Outstanding	Provider	Expiration Date
General Obligation Bonds, Series 2009B	$ 100,000,000	RBC	08/04/2014
PAID Multi-Modal Lease Revenue Refunding Bonds, Series 2007B-1	117,275,000	JP Morgan	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 the first quarter of 2013, the City together with Philadelphia Water Department, expects to issue Water and Wastewater Revenue Bonds, Series 2013 in the amount of approximately $200 million.

In October 2012, the City, through Philadelphia Authority for Industrial Development, expects to issue City Service Agreement Revenue Bonds, Series 2012 (Federally Taxable), in the amount of approximately $231,185,00 ("2012 Pension Bonds").

In October 2012, the City together with Philadelphia Water Department, expects to issue Water and Wastewater Refunding Revenue Bonds, Series 2012 in the amount of approximately $80 million.

Prior to the end of 2012, the City together with Philadelphia International Airport expects to issue Aviation Revenue Commercial Paper Notes, consisting of tax exempt (non-AMT), Tax-Exempt (AMT), and Federally Taxable notes, in an amount not to exceed $350,000,000.

In December 2012, the City expects to issue tax and revenue anticipation notes in the amount of approximately $175 million.

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 2011:

In May 2012, the City, through the Philadelphia Redevelopment Authority, issued its Revenue Refunding Bonds, Series 2012 (City of Philadelphia Neighborhood Transformation Initiative) in the amount of approximately $91 million.

In May 2012, the City issued its $21,295,000 General Obligation Refunding Bonds, Series 2012A to refund certain outstanding general obligation bonds of the City.

In May 2012, the City, through the Philadelphia Municipal Authority, issued its City Agreement Revenue Bonds (Government Building Energy Conservation Project), Series 2012, in the amount of approximately $12 million.

In December 2011, the City, together with Philadelphia International Airport, remarketed the City's Airport Revenue Bonds, Series 2005C in the amount of $162.6 million and issued $233.83 million of AMT revenue refunding bonds.

In December 2011, the City issued tax and revenue anticipation notes in the amount of $173 million.

In November 2011, the City, together with the Water Department, issued $135 million of Water and Wastewater Revenue Bonds, Series 2011A and $49.8 million of Water and Wastewater Revenue Refunding Bonds, Series 2011B.

In September 2011, the City along with PGW, remarketed the Eighth Series B-E bonds in the amount of approximately $225.5 million and issued approximately $88.8 million of Twentieth (1975 Ordinance) and Tenth (1998 Ordinance) Series Refunding Bonds.

In September 2011, the City along with the Water Department, remarketed the Water and Wastewater Revenue Bonds, Variable Rate Series 1997B Bonds in the amount of approximately $70 million.

In August 2011, the City remarketed the General Obligation Multi-Modal Refunding Bonds, Series 2009B in the amount of $100 million.

CITY CAPITAL IMPROVEMENT PROGRAM

The Capital Improvement Program for Fiscal Years 2013-2018 contemplates a total budget of $9,999,174,000, of which $2,400,752,000 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 2013-2018 on June 28, 2012.

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Table 31
Fiscal Years 2013-2018
Capital Program
(Amounts in Thousands of USD)

City Funds – Tax Supported	2013	2014	2015	2016	2017	2018	2013-2018
Carried-forward Loans	274,505	0	0	0	0	0	274,505
Operating Revenue	40,697	4,929	4,429	3,929	1,229	1,229	56,442
New Loans	118,911	90,310	89,789	95,543	95,246	94,786	584,585
Pre-financed Loans	0	0	0	0	0	0	0
PICA Pre-financed Loans	7,297	0	0	0	0	0	7,297
Tax-supported Subtotal	441,410	95,239	94,218	99,472	96,475	96,015	922,829
City Funds – Self-Sustaining							
Carried-forward Loans	1,695,122	0	0	0	0	0	1,695,122
Operating	173,157	18,844	19,221	19,606	19,998	20,398	271,224
New Loans	475,227	595,498	673,645	918,708	1,043,559	984,610	4,691,247
Self-Sustaining Subtotal	2,343,506	614,342	692,866	938,314	1,063,557	1,005,008	6,657,593
Revolving Funds	18,000	0	0	0	0	0	18,000
Other Than City Funds							
Carried-Forward Other Government	29,971	0	0	0	0	0	29,971
Other Governments Off Budget	4807	366	643	1,189	2,041	2,482	11,528
Other Goverments/Agencies	7570	0	0	0	0	0	7,570
Carried-Forward State	89,355	0	0	0	0	0	89,355
State Off Budget	48,314	38,512	80,874	136,389	228,802	277,437	810,328
State	26,065	4,855	5,920	3,900	5,200	4,150	50,090
Carried-Forward Private	89,399	0	0	0	0	0	89,399
Private	63,935	45,520	37,020	30,020	25,020	20,020	221,535
Carried-Forward Federal	412,748	0	0	0	0	0	412,748
Federal Off Budget	45,671	42,681	71,748	60,063	38,184	8,444	266,791
Federal	99,491	67,436	66,280	76,880	51,900	49,450	411,437
Other Than City Funds Subtotal	917,326	199,370	262,485	308,441	351,147	361,983	2,400,752
TOTAL	$3,720,242	$908,951	$1,049,569	$1,346,227	$1,511,179	$1,463,006	$9,999,174

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 $24.1 million for Fiscal Year 2003, $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, and $32.6 million for Fiscal Year 2012. Estimates of settlements and judgments from the General Fund are $32.46 million for each of the Fiscal Years 2013 through 2017, respectively (based on the Twenty-First 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 2012, payments for claims arising from labor settlements in the General Fund were $1.3 million and were paid from the Indemnities account. For Fiscal Year 2011, payments for claims arising from labor settlements in the General Fund were $807,629 of which $741,022 was paid from the Indemnities account, and $66,607 from the operating budgets of the affected departments. Actual claims paid out from the General Fund for settlements and judgments averaged $32.7 million per year over the five years from Fiscal Year 2008 through Fiscal Year 2012.

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 $4.9 million, and $5.4 million in Fiscal Year 2011. The aggregate loss for Fiscal Year 2012 was $3.0 million. The Water Fund's budget for Fiscal Year 2013 contains an appropriation for Water Department claims in the amount of $6.5 million, although the current estimate, based on the prior three fiscal years' expenditures, is for only $4.4 million in Fiscal Year 2013. 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 $881,600 and $1.7 million for Fiscal Year 2011. The aggregate loss for Fiscal Year 2012 was $1.3 million. The Indemnities budget for Aviation Fund claims for Fiscal Year 2013 contains an appropriation in the amount of $2.5 million, although the current estimate, based on the prior three fiscal years' expenditures, is only $1.3 million in Fiscal Year 2013. 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 City 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 156,740 live within the geographic boundaries of the City. Some of the City's top priorities include attracting and retaining knowledgeable 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. The City is positioned for continued growth, given its diverse economy.

Since 2008, substantial private and public investment aggregating over $12.7 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

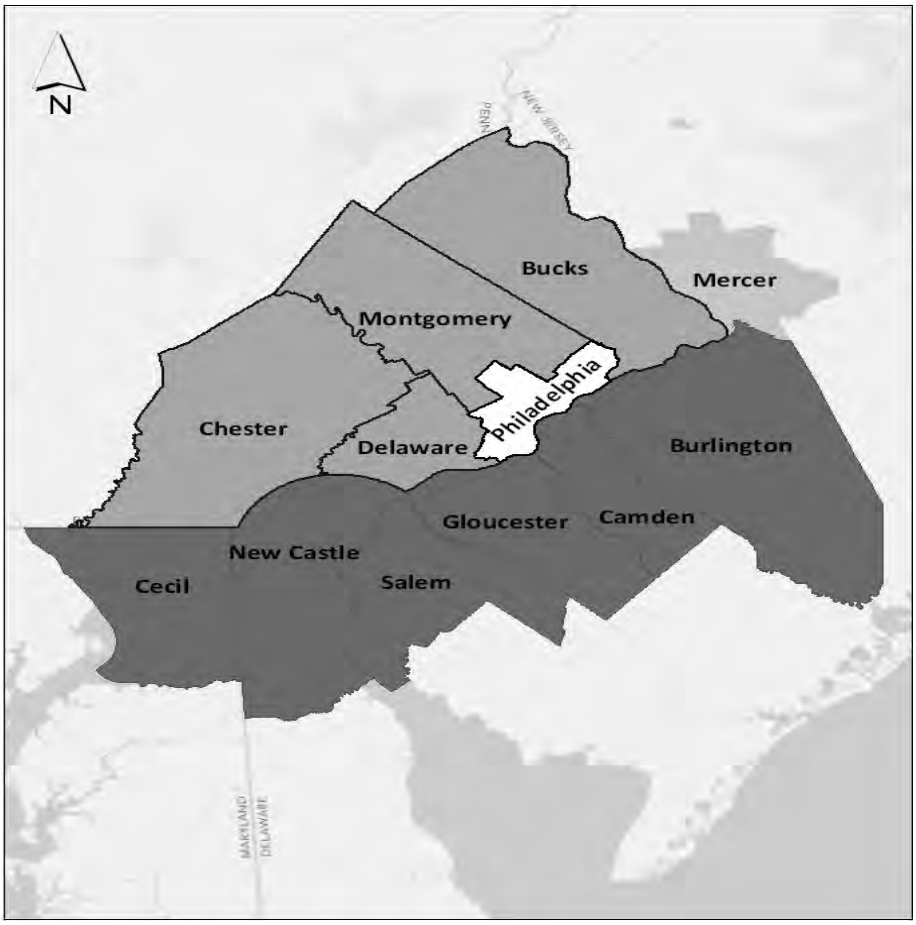
The City includes within its boundaries an area of approximately 134 square miles along the southeastern border of the Commonwealth of Pennsylvania (the "Commonwealth") and is located at the confluence of the Delaware and Schuylkill Rivers. The City, highlighted in white in Figure 1, lies at the geographical 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 light and dark grey, is the eleven-county area named the Philadelphia-Camden-Wilmington metropolitan statistical area, representing an area of approximately 5,118 square miles with approximately 5,965,343 residents.[1]

Philadelphia Primary Metropolitan Statistical Area (PMSA), outlined in light 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.

[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 stability from the 2000 to the 2010 U.S. Census.

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. 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 295,000 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 young 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. 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 (BRAC), 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.

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 1.536 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 greatest share of Philadelphia's population is composed of residents between the ages of 18 and 34. Of comparison cities, Philadelphia trails only three cities, Boston, Washington, DC and Milwaukee, in its share of residents in that age group. The City's many universities and diverse employment bases are likely draws for residents in the 18 to 34 age group. In addition, 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 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	% Change 1990-2000	% Change 2000-2010
Philadelphia	**1,585,577**	**1,517,550**	**1,526,006**	**-4.3%**	**0.6%**
Philadelphia-Camden-Wilmington MSA	5,437,468	5,687,147	5,965,343	4.6%	9.7%
Pennsylvania	11,881,643	12,281,054	12,702,379	3.4%	3.4%
United States	248,709,873	281,421,906	308,745,538	13.2%	9.7%

Source: U.S. Census Bureau, 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. Four of the top five 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 47,905 more students in higher education than top ranked Boston. Philadelphia has the fifth highest share of its residents in higher education of the selected cities shown in Table 2 below and the fourth largest university student population.

Table 2
2010 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	196,802	111,921	56.87%	18.01%
Washington, DC	158,455	76,003	47.97%	12.57%
San Diego, CA	389,810	162,066	41.58%	12.35%
Milwaukee, WI	188,043	63,672	33.86%	10.69%
Philadelphia, PA	**431,360**	**156,740**	**36.34%**	**10.26%**
Baltimore, MD	163,071	59,152	36.27%	9.53%
Los Angeles, CA	1,048,029	333,611	31.83%	8.79%
Chicago, IL	723,940	227,881	31.48%	8.44%
Memphis, TN	178,140	53,921	30.27%	8.32%
San Antonio, TX	392,897	107,745	27.42%	8.07%
Detroit, MI	205,059	53,373	26.03%	7.50%
Cleveland, OH	105,921	29,269	27.63%	7.39%
Houston, TX	560,316	150,723	26.90%	7.15%
Phoenix, AZ	402,214	94,134	23.40%	6.49%
United States	**82,724,222**	**23,451,209**	**28.35%**	**7.60%**

Source: 2010 U.S. Census

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 our 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

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. At the direction of the Department of Commerce, the Philadelphia Industrial Development Corporation (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, 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

Philadelphia is experiencing a revival of construction, with over 30 major projects under construction concurrently, representing over $2.6 billion in investment. Twenty-six of those projects received no public subsidies. Higher education and health care institutions are currently the most active with building projects, while eight apartment complexes and condos are also under construction. Table 3 reflects notable real estate developments currently planned or under construction that are not reflected in other tables herein.

Table 3
Select Development Investments Under Construction

Select Investments	*Estimated Cost (Millions)*
2021 Chestnut Street Residential	40.0
2040 Market Residential	75.0
2116 Chestnut	100.0
2400 South Residential	Unavailable
31st & Girard - Bottom Dollar	9.0
Bakers Center (and Shop Rite)	53.0
Building 489 Medical Office	7.0
Children's Hospital of Philadelphia Ambulatory Care Facility	500.0
Children's Hospital of Philadelphia Karabots Primary Care Center	24.0
Convention Center Parking Facility	27.0
Drexel University Business School	92.0
Drexel University Dormitory	97.0
Glaxo Smith Kline	81.0
Goldtex Residential	38.0
Iroko	15.0
New Family Court	200.0
Robert Morris Building, The Arch, Residential	17.0
Spectrum Community Health Center	16.0
The Granery Residential	90.0
UPenn Hill House	100.0
UPenn Nanotechnology building	88.0
UPenn Perelman Center Expansion	100.0
Wistar Institute	102.0
William's Way Senior Housing (Planned)	19.0
1605 Sansom Residential (Planned)	35.0
Piers 34/35 Residential (Planned)	Unavailable
Marina View Tower Residential (Planned)	52.0
Select Investment Total	***$1,977.0***

Source: City of Philadelphia Department of Commerce

Table 4 below presents the 4-year trend of total value of building permits issued with a "Passed" final inspection by the City.

Table 4
Total Building Permit Value with a "Passed" Final Inspection, by Year Completed

Calendar Year	Commercial	Institutional	Miscellaneous Site Work	Residential	Total
2008	$ 1,621,168,416	$ 98,719,913	$ 2,126,715	$ 563,140,276	$ 2,285,155,320
2009	1,395,253,093	703,575,931	2,790,315	943,939,675	3,045,559,014
2010	2,270,044,948	761,256,771	211,140	756,116,210	3,787,629,069
2011	2,109,766,594	430,459,314	1,285,450	767,219,433	3,308,730,791
TOTAL	$ 7,396,233,051	$ 1,994,011,929	$ 6,413,620	$3,030,415,594	$12,427,074,194

Source: City of Philadelphia Department of Licenses & Inspections

Convention, Hospitality and Tourism

With Philadelphia's historic assets, the City has natural appeal as a tourist destination. 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.

The Convention Center has booked 225 meetings and conventions for 2012, with over 565,000 total hotel room nights, and an estimated economic impact of more than $813 million. In 2011, over 2.77 million room nights were sold within the City, which is the most in Philadelphia's history.

The Pennsylvania Convention Center expects an average annual growth of 5% in hotel rooms booked each year from 2012 to 2018. Currently the Convention Center is on track to book 860,000 hotel room nights in 2018, and has conferences committed through 2026.

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% occupancy. The City's current hotel room inventory is 10,586 rooms, with an average occupancy from January through July 2012 of 74.7 percent . The City, working with leaders in the hotel industry, seeks 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 (Estimate)
Le Meridien	61 (Estimate)
Kimpton Hotel Palomar	94
Homewood Suites University City	43
Marriott Courtyard, Navy Yard	31
Hotel Monaco by Kimpton (Fall 2012)	88
Hilton Home2 Suites (Summer 2013)	60
Total	***$391 million***

Source: City of Philadelphia Commerce Department and PIDC

Despite a drop during the national recession beginning in 2008, 2011 employment in the leisure and hospitality sector exceeded pre-recession levels, employing 60,684 people in the City.

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 tripled in Center City, Philadelphia, from 254,000 to 796,000 in 2011. 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 (PCVB). The U.S. Office of Travel and Tourism Industries reported that international visitors to Philadelphia in 2011 numbered 613,000. While the PCVB continues to work to attract international visitors from Western Europe, 2012 priorities include increasing the share of visitors from growth markets like China, India, and Brazil.

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, the Philadelphia Live Arts and Philly Fringe Festival, 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.

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Table 7
2011 Attendance Levels Philadelphia Visitor Center & Select Attractions

Visitor Center/Attraction	*Attendance*
Reading Terminal Market	6,350,706
Independence Visitor Center	2,338,400
Liberty Bell Center	2,045,680
Philadelphia Zoo	1,178,285
Franklin Institute	845,272
National Constitution Center	817,227
Independence Hall	689,723
Philadelphia Museum of Art	635,035
Please Touch Museum	574,692
Eastern State Penitentiary	264,671
University of Pennsylvania Museum of Archaeology and Anthropology	211,713
Academy of Natural Sciences	165,158

Source: Philadelphia Area Hospitality Snapshot, PKF Consulting; Greater Philadelphia Tourism Marketing Corporation, 2011.

Historic District Investments

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 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. Table 8 lists several key attractions that have been added since 2001, complementing existing historic assets. Coupled with proposed public and private developments, 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
Select Completed Investment Total	***$424.2***
Select Future Investments	
Franklin Court Museum (In Design)	$21.0
Lights of Liberty (Underway)	10.0
Penn Medicine at Washington Square (Underway)	75.0
Hotel Monaco by Kimpton (Fall 2012)	88.0
National Center For the American Revolution (Planned)	100.0
Independence Hall Tower Investments	4.8
Select Future Investment Total	***$298.8***
Total	***$723.0***

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 Development Projects

Development Project	***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
South Star Lofts, Mixed-use Development (Proposed)	32.0
Rock School/PA Ballet	2.0
Broad Street Improvements	6.3
Academy of Music Upgrades (Underway)	2.2
Kimmel Center Improvements (Underway)	14.0
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 North Broad Street. Recently opened Lenfest Plaza, adjacent to the Pennsylvania Academy of Fine Arts (PAFA), and across the street from the Convention Center's new front door, is 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 and the building previously home to the Inquirer and Daily News have been sold and are slated for housing and commercial development. At 600 N. Broad Street just north of Spring Garden, a former auto dealership and an adjacent former dress factory have been redeveloped to include 101 new residential lofts, new restaurants and a catering facility. The redevelopment of this block was initiated at 640 N. Broad with the conversion of an empty building into a mixed use development with 250 fully-leased apartments.

Temple University is undergoing a transformation to accommodate a student population that wants to live near campus. Temple is planning $1.2 billion of investment over the next decade to further develop their North Broad Street frontage. Planned upgrades include a new student recreation facility, new academic buildings such as a new library and a science research lab, and a new high rise residence hall featuring additional classroom space and a dining hall.

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
Convention Center Expansion 2011	786.0
PAFA Lenfest Plaza 2011	3.5
600 N. Broad Apts/Retail 2011	43.0
Avenue of the Arts N. Streetscape Improvements 2012	13.6
Ave Arts N. Beech (1600 N. Broad)	20.0
Progress Plaza/Fresh Grocer	14.0
1220 N. Broad Apt. Building Renovations (Pinzuk)	2.3
Beech Int'l House	22.0
Community Legal Services N. HQ (Underway)	8.0
Uptown Theatre (Underway)	2.0
PA Ballet (Underway)	17.0
Paseo Verde Residential (Underway)	48.0
Temple University Dormitory (Underway)	148.0
State Building Development (Proposed)	71.0
Inquirer Building Development (Proposed)	100.0
Blue Horizon Development (Proposed)	14.0
Divine Lorraine (Proposed)	42.0
Total	***$1,517.4***

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 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.

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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
Select Completed Investment Total	***$424.9***
Philadelphia Museum of Art Loading Dock (Underway)	$57.7
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 (Planned)	65.0
Philadelphia Museum of Art Expansion (Planned)	500.0
Holocaust Memorial (Planned)	3.5
Select Future Investment Total	***$776.2***
Total	***$1,201.1***

Source: City of Philadelphia Department of Commerce and PIDC

Opened in May 2012, the Barnes Foundation's new facility on the Benjamin Franklin Parkway is expected to have a significant impact on the City's leisure and hospitality industry. Within the first three months of opening, the Barnes has nearly 25,000 members, ranking it among the top institutions of its kind in the country, and more than 120,000 people have visited the new facility, surpassing a full year of operation in its previous location in Merion, Pennsylvania. Of overnight visitors, Arts and culture visitors represent 17%, or about 1.36 million, 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.

Since 2009, the Phillies have had a paid home season attendance in excess of 100% 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 2011 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% of actual seating, since its opening in 2003.

The latest 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 sports field, hosting a variety of sports leagues, 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

SugarHouse Casino opened on the Delaware River waterfront in 2010 with an array of slot machines, table games and dining options. In 2011 the Casino's total revenue was $245,180,125, and it employed 1,098 people. Average monthly revenue per slot machine is commensurate with competing casinos at $8,983, and SugarHouse's average monthly revenue per table game is nearly double that of its top competitors in Pennsylvania and Atlantic City, NJ, at $133,207.

The Commonwealth of Pennsylvania is currently accepting applications to award a second casino license in Philadelphia County. An announcement of the winning proposal is expected in fall 2013.

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)

Since 1990, in partnerships with business owners, residents, and non-profit organizations, the City has successfully created key business improvement districts within the City to revitalize neighborhood commercial areas. 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.

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 60,000 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 43.7 million square feet of office space in the Central Business District (CBD), and the market continues to show positive signs in 2012. The overall vacancy rate dropped to its lowest overall vacancy in the CBD since the first quarter of 2009. Total net absorption during the second quarter of 2012 was positive, with the Market West and University City submarkets driving the positive change. Several companies signed leases in the second quarter of 2012. Notable

companies included: Morgan Stanley Smith Barney, TranSystems Corporation, OSIsoft, LLC and Alteva, LLC. Ballard Spahr LLP's second quarter lease renewal was one of the largest of the quarter at 202,000 SF.

In the second quarter of 2012, Cushman & Wakefield ranked Philadelphia's downtown office market as having the seventh best vacancy rate among the twenty largest downtown office markets in the United States, with a vacancy rate of 14.9%.

Table 12
Comparative Office Vacancy Rates, 20 Largest Office Markets
Second Quarter 2012

Market	*Overall Vacancy Rate*
Manhattan (Midtown South)	6.1%
Manhattan (Midtown)	9.8%
San Francisco	11.0%
Cleveland	12.2%
Washinton DC	12.5%
Houston	13.9%
Philadelphia	**14.9%**
Denver	15.0%
Portland	15.1%
All Markets	**16.30%**
Pittsburgh	16.5%
Boston	17.3%
Orange County	17.3%
Seattle	17.5%
Chicago	17.8%
Los Angeles	18.6%
Minneapolis	20.0%
Atlanta	21.4%
Dallas	22.0%
Detroit	24.8%
Phoenix	25.7%

Source: Cushman Wakefield US Market Beat, Second Quarter 2012

Retail Market

Preliminary reports from the U.S. Bureau of Labor Statistics show that 46,801 people were employed in retail trades and 42,360 in food service and drinking places in 2011. The number of private retail establishments and private food services and drinking places has recovered to pre-recession levels, increasing by 222 and 2,863 establishments respectively from 2007 to 2011. Expected fall 2012 retail openings along the City's prime retail row, Walnut Street, include Anne Klein, Intermix, and the newly-renovated Brooks Brothers. Notably, West Coast retailer Bettie Page Clothing opened its first, and only, East Coast location on Walnut Street in September 2012. Along Chestnut Street, retailers were joined by boutiques Kembrel and Blink.

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. From 1992 to 2010, the number of fine dining establishments within the Center City District increased 322%. Notable additions to restaurants outside of Center City include celebrity chef, Marc Vetri's Alla Spina and Philadelphia

restaurateur Steven Starr's Route 6. Both restaurants are located along North Broad St. and take advantage of growing investment in that area.

Table 13 reflects taxable retail sales for the City from Fiscal Years 2007 to 2010.

Table 13
Taxable Retail Sales 2007-2010
(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

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.

Navy Yard

Acquired in 2000 by the Philadelphia Industrial Development Corporation 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 8,500 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.

Recent real estate developments include: new facilities for GlaxoSmithKline and Iroko Pharmaceuticals, both opening fall 2012; currently under construction is the expansion of Urban Outfitters headquarters, adding over 1,000 jobs to the Navy Yard; and expansion of the Navy Yard Commerce Center, adding 100,000 square feet in two buildings. Once the GlaxoSmithKline and Iroko Pharmaceuticals facilities are operational, it is expected that total Navy Yard employment will return to 10,000, an employment level not seen since the 1990s before the U.S. Navy ended its operations.

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 EEP 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.

The Navy Yard plans to release an updated master plan in fall of 2012, 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.

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 recently 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 3,993,616 metric tons of cargo in 2011, and is in the midst of an expansion project which will ultimately increase cargo capacity in the MSA. The Port of Philadelphia is the #1 meat port in the United States, and is among the nation's leaders for fruit, cocoa, forest products and steel.

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 other four 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 2009, there were approximately 170,000 residents of the four 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

Although dominated by manufacturing for much of the twentieth century, Philadelphia has developed an increasingly diverse economy centered on the healthcare industry, higher education, professional and business services, and leisure and hospitality. In its January 2012 Monthly Labor Review, the Bureau of Labor Statistics predicts that these sectors will grow nationally in the decade between 2010 and 2020. Healthcare and social assistance is predicted to grow 3%, educational services

will grow 2.3%, professional and business services will grow 2.1%, while financial activities and leisure and hospitality are predicted to both see a 1% gain.

In 2011 these sectors collectively represented 60% of total employment in the City, and 63 percent of total wages. Philadelphia has recovered over 15,000 jobs since the peak of the recession in 2010 and the City's job levels are consistent with average levels dating from 2005. As reflected in Table 14, 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.

In total, Philadelphia demonstrates concentrations in seven sectors when compared to the United States: 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 opportunities, 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. Entrepreneurs can access a burgeoning network of incubator, multi-tenant, and co-working spaces across the City. More than 44 organizations, such as BreadBoard, Independents Hall, the Philadelphia Fashion Incubator, and Globe Dye Works, 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.

In September of 2012, the third largest national venture capital firm by volume, First Round Capital, moved its headquarters from West Conshohocken, Pennsylvania, to a 10,000 square foot facility in Philadelphia that will include 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.

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 City 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, 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, 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. A Comprehensive Cancer Center is also located at the University of Pennsylvania.

Table 15 lists the number of beds in each of the major hospitals and medical centers in the City, as of June 2011, and does not reflect any mergers, consolidations or closures that have occurred since that date.

Table 15
Hospitals and Medical Centers as of June 2011

Institution Name	Total Beds
Aria Health System[1]	485
Belmont Center for Comprehensive Treatment	147
Chestnut Hill Hospital	119
Department of Veterans Affairs Medical Center-Philadelphia	142
Einstein Medical Center - Philadelphia	711
Fairmount Behavioral Health System	185
Fox Chase Cancer Center	100
Friends Hospital	192
Girard Medical Center/Continuing Care Hospital of Philadelphia	51
Good Shepherd Penn Partners	38
Hahnemann University Hospital	510
Hospital of the University of Pennsylvania	776
Jeanes Hospital	176
Kensington Hospital	35
Magee Rehabilitation Hospital	96
Mercy Hospital of Philadelphia	180
Methodist Hospital Division - TJUH	165
Nazareth Hospital	195
Penn Presbyterian Medical Center	245
Pennsylvania Hospital	435
Roxborough Memorial Hospital	141
Shriners Hospitals for Children - Philadelphia	39
St. Christopher's Hospital for Children	175
St. Joseph's Hospital	146
Temple University Hospital[2]	740
The Children's Hospital of Philadelphia	461
Thomas Jefferson University Hospital	701
Triumph Hospital Philadelphia	58

Source: Delaware Valley Healthcare Council of HAP, Monthly Utilization Report, June 2011.
[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 expansion in Philadelphia through 2017. A $500 million, 700,000 square foot Ambulatory Care Facility, is currently under construction, and will open in late 2013. 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 $370 million medical research building, the Translational Research Center, which opened in May 2011. Penn will continue more than $61 million in fit out to three floors in the facility through the winter of 2012-13. In 2011, Penn broke ground on its Krishna P. Singh Center for Nanotechnology, an $88 million nanotechnology research facility combining expertise from both Penn's School of Arts and Sciences and its School of Engineering and Applied Science (SEAS). This newest research facility will open in spring 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. 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, January 2012

Employer	*Sector*	*Employees within Philadelphia*
University of Pennsylvania	Education	16,539
University of Pennsylvania Health System	Health	15,827
Drexel University	Education	9,356
Children's Hospital of Philadelphia	Health	9,355
Thomas Jefferson University Hospitals	Health	8,147
Temple University	Education	7,673
Albert Einstein Medical	Health	5,907
Independence Blue Cross	Insurance	3,894*
PNC Bank NA	Finance	3,847
Temple University Health System	Health	3,385
Comcast Corporation	Communications	3,250
Wells Fargo Bank	Finance	2,291
Aramark Corporation	Food Service	1,805
Ace Insurance Company	Insurance	1,388
GlaxoSmithKline LLC	Bio-tech	1,300*
	Total	93,964

Source: City of Philadelphia Department of Revenue
* Estimate

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 suburbs experienced employment losses during the recent recession and the subprime mortgage crisis, and employment gains throughout the housing bubble years from 2004 through 2008. However, employment gains and losses in the past decade have been much more pronounced in the suburbs, where construction of single-family housing developments far exceeded housing construction in the City.

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[2]	Change from 2002	Average Annual % Change	Share of Total Employment
Construction & Mining	12.1	11.8	10.9	11.7	12.1	11.6	11.7	9.7	9.5	9.5	-21.74%	-2.42%	1.50%
Manufacturing	38.0	33.9	32.1	31.2	30.1	28.3	27.2	26.0	24.7	23.7	-37.78%	-4.63%	3.76%
Trade, Transportation, & Utilities	92.8	93.1	87.2	87.6	85.6	84.5	84.5	82.5	83.0	83.8	-9.74%	-1.02%	13.31%
Information	16.5	16.8	13.3	13.1	12.6	12.6	12.1	12.2	12.0	11.4	-30.56%	-3.58%	1.81%
Financial Activities	50.6	50.2	47.7	47.5	46.9	46.0	45.2	43.9	41.4	40.4	-20.10%	-2.22%	6.42%
Professional & Business Services	82.8	82.1	80.7	79.3	80.9	82.0	81.8	75.3	77.7	79.0	-4.65%	-0.48%	12.54%
Education & Health Services	166.2	170.4	170.3	173.3	178.8	183.4	188.6	191.3	193.5	197.9	19.04%	1.76%	31.43%
Leisure & Hospitality	53.7	51.8	52.9	56.1	57.3	58.0	57.6	56.6	58.0	60.2	12.25%	1.16%	9.56%
Other Services	23.1	23.7	22.7	22.8	21.8	21.8	21.8	20.7	20.7	20.9	-9.81%	-1.03%	3.31%
Government	116.8	113.8	111.6	109.6	106.8	104.0	103.1	104.1	105.9	103.0	-11.82%	-1.25%	16.35%
Total	652.6	647.5	629.3	632.0	632.7	632.2	633.6	622.4	626.4	629.7	-3.51%	-0.36%	100%

Source: Bureau of Labor Statistics (BLS) 2011.
[1] Includes persons employed within the City, without regard to residency.
[2] Preliminary average employment estimates through December.

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Unemployment

Philadelphia's unemployment rate increased by 2.7% the year following the major economic downturn in 2008-2009, which increase is 0.2% lower than the total increase for the country. Philadelphia's overall increase in unemployment during the recessionary period between 2008 and 2010 was 3.8%, which is 0.2% lower than the average increase for the country during that period. Philadelphia's unemployment rate decreased by 0.4% between the years 2010 and 2011.

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, 2007-2011

Geographical Area	2007	2008	2009	2010	2011	*Change 2007-2011*
United States	4.6%	5.8%	9.3%	9.6%	8.9%	4.3%
Pennsylvania	4.4	5.4	8.0	8.5	7.9	3.5
Philadelphia-Camden-Wilimington MSA	4.3	5.3	8.3	9.0	8.6	4.3
Philadelphia	**6.0**	**7.1**	**9.6**	**10.8**	**10.8**	**4.8**

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 and median household (including unrelated individuals living together) income for Philadelphia, the MSA, the Commonwealth and the United States. Table 20 shows the average household income for the same areas. Over the period 2005-2009, median household income for Philadelphia increased by 12.1 percent, while average household income increased by 17.6 percent as a result of an influx of higher income households.

Table 19
Median Family Income for Selected Geographical Areas, 2005-2010

Geographical Area	2005	2006	2007	2008	2009	2010	*Change 2005-2010*
United States	$55,832	$58,526	$60,374	$63,211	$62,367	$62,112	$6,280
Pennsylvania	55,904	58,148	60,243	63,071	62,772	63,040	7,136
Philadelphia-Camden-Wilmington MSA	67,830	70,781	73,536	76,978	76,812	76,710	8,880
Philadelphia	**40,534**	**43,049**	**44,134**	**46,365**	**45,826**	**45,148**	**4,614**

Source: American Community Survey, Annual and 3-Year Estimates

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Table 20
Median Household Income for Selected Geographical Areas, 2005-2010

Geographical Area	2005	2006	2007	2008	2009	2010	*Change 2005-2010*
United States	$46,242	$48,451	$50,007	$52,175	$51,369	$51,222	**$4,980**
Pennsylvania	44,537	46,259	47,913	50,272	50,028	50,289	5,752
Philadelphia-Camden-Wilmington MSA	53,555	55,593	57,831	60,331	60,232	60,037	6,482
Philadelphia	**32,753**	**33,229**	**34,767**	**36,222**	**36,725**	**35,952**	**3,199**

Source: American Community Survey, Annual and 3-Year Estimates

Table 21
Average Household Income for Selected Geographical Areas
2000-2009

Year	City of Philadelphia	Philadelphia-Camden-Wilmington MSA	Pennsylvania	United States	Philadelphia as % of US
2000	$ 63,975	$ 91,695	$ 77,278	$ 79,967	80.00%
2001	65,744	93,854	78,414	81,785	80.39
2002	69,410	96,609	80,121	82,335	84.30
2003	72,077	99,382	82,135	84,038	85.77
2004	74,191	103,811	85,426	88,346	83.98
2005	76,764	107,515	88,016	92,206	83.25
2006	81,298	115,503	94,112	97,992	82.96
2007	85,593	119,560	98,745	102,370	83.61
2008	89,505	124,088	102,781	106,537	84.01
2009	90,260	120,454	99,618	101,721	88.73

Source: IHS Global Insight

Effective Buying Income (EBI)

Philadelphia benefits from having a relatively low cost-of-living. While median household incomes in Philadelphia are lower than the average for selected cities, Philadelphia's buying income is only $104 less than the average of these cities plus New York. Table 22 below shows Philadelphia's effective buying income in comparison to certain cities including select comparison cities.

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Table 22
2009 Effective Buying Income, Selected Cities, Ranked by Principal City, Ranked by Media Market*

City	*Media Market*	*Principal City*
Washington	$59,696	$40,072
Boston	51,735	41,678
Baltimore	50,675	31,590
San Diego	50,383	49,085
New York (Manhattan)	49,008	38,873
Los Angeles	47,986	38,783
Chicago	46,886	36,729
Philadelphia	**46,649**	**31,110**
Houston	44,880	37,098
Phoenix	44,575	41,174
Detroit	43,944	27,676
Milwaukee	$41,385	30,593
Cleveland	$39,674	26,105
San Antonio	$39,107	36,831
Memphis	$36,468	30,672

Source: Sales & Marketing Management, 2009 Median Effective Household Buying Income for Media Markets and Cities
* Media Market is defined as the Nielsen designated market area.

HOUSING

The 2010 U.S. Census reported 670,171 housing units in Philadelphia, with 599,736 occupied and 70,435 vacant, representing a vacancy rate of 10.5%. Of occupied housing units, 54.1% were owner-occupied and 45.9% were renter-occupied. The homeowner vacancy rate was just 2.1% while rental vacancy rate was 8.9%.

Although spring home sales volume was at its lowest since 1995, 3,079 homes changed owners, and the second quarter of 2012 showed a strong rebound of Philadelphia's housing market after several years of recession-induced price declines. The typical Philadelphia home increased in value by 7.6 percent on a quality, and seasonally, adjusted basis, according to the latest data from the City's Recorder of Deeds. With this latest gain homeowners have recovered nearly a third of their home's lost value since house prices began dropping five years ago. Currently, house prices are now back at levels not seen since mid-2005.

Philadelphia's housing market continues to outperform most US cities. With the recent positive prices, Philadelphia moved up in the rankings of U.S. cities for the least house price declines since the peak, according to Econsult Corporation and house price data tracked by S&P/Case-Shiller. Six months ago, Philadelphia was ranked fifth out of twenty-one U.S. cities with the least house price declines. Currently, Philadelphia is third, behind only Dallas and Denver, as having the least house price declines among large U.S. cities. Philadelphia's house prices are now down only 15 percent from their peak.

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 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 Center City business district and connects directly with the commuter rail network and the 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 thereby feeds into the Schuylkill Expressway (I-76) and thus into 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. The contract is currently in its last year, and the City is soliciting bids for a new contract, which will be awarded during the course of this fiscal year.

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, and includes 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.

APPENDIX VI

FORM OF OPINION OF CO-BOND COUNSEL

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FORM OF OPINION OF CO-BOND COUNSEL

Re: $70,370,000 City of Philadelphia, Pennsylvania
Water and Wastewater Revenue Refunding Bonds, Series 2012

Ladies and Gentlemen:

We have acted as Co-Bond Counsel to the City of Philadelphia (the "City") in connection with the issuance by the City of $70,370,000 aggregate principal amount of its Water and Wastewater Revenue Refunding Bonds, Series 2012 (the "Bonds"). The Bonds are 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, approved October 18, 1972 (the "Act"); (b) the City's Restated General Water and Wastewater Revenue Bond Ordinance of 1989 approved June 24, 1993, as amended by an Ordinance approved on January 23, 2007 (as so amended, the "General Ordinance"), and as supplemented, including by the Fifteenth Supplemental Ordinance approved July 5, 2011 (the "Fifteenth Supplemental Ordinance") authorizing the issuance of the Bonds; and (c) the Bond Committee Determination dated October 24, 2012 (the "Bond Committee Determination"). Capitalized terms used but not defined herein have the meanings assigned to such terms in the General Ordinance.

The Bonds are being issued for the purpose of providing funds that will be used to finance (a) the current refunding of all of the City's outstanding Water and Wastewater Revenue Bonds, Series 2001A and the current refunding of all of the City's outstanding Water and Wastewater Revenue Bonds 2001B, maturing after November 1, 2012; and (b) the costs of issuance relating to the Bonds.

The City has previously issued, pursuant to the General Ordinance, and there are outstanding Water and Wastewater Revenue Bonds, consisting of the Series 1995, the Variable Rate Series 1997B, the Series 1998, the Series 1999A, the Series 2001A, the Series 2001B, the Series 2005A, the Variable Rate Series 2005B, the Series 2007A, the Series 2007B, the Series 2009A, the Series 2009B, the Series 2009C, the Series 2009D, the Series 2010A, the Series 2010B, the Series 2010C Bonds, the Series 2011A and the Series 2011B (collectively, 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 covenanted in the Fifteenth Supplemental Ordinance and the Bond Committee Determination that it will make or permit no investment or other use of the proceeds of the Bonds that would cause the Bonds to be "arbitrage bonds" under Section 148 of the Internal Revenue Code of 1986, as amended (the "Code"), and the rules promulgated thereunder, and that it will comply with the requirements of said Section throughout the term of the Bonds. The City has further covenanted that it will comply with the requirements of the Code that must be met after the issuance of the Bonds in order that interest on the Bonds be excluded from gross income for federal income tax purposes. An officer of the City has executed a certificate stating the reasonable expectations of the City on the date of issue of the Bonds as to future events that are material for purposes of Section 148 of the Code pertaining to arbitrage bonds. We have reviewed this certificate, and in our opinion the Bonds are not arbitrage bonds.

The City is filing 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 for federal income tax purposes. We have not undertaken to monitor compliance with respect to the aforesaid covenants or to advise any party as to changes in the law that may affect the exclusion of interest on the Bonds from gross income for federal income tax purposes.

We have examined such proceedings, documents, statutes and decisions, as we consider necessary as the basis for this opinion, including, *inter alia*, the Act, the General Ordinance, the Fifteenth Supplemental Ordinance, the Bond Committee Determination, and the executed and authenticated Bonds. We assume that all other Bonds have been similarly executed and authenticated. We also assume that all documents, records, certifications and other instruments examined by us are genuine (including the signatures thereon), accurate and complete and we have not undertaken, by independent investigation, to verify the factual matters set forth in any such documents, records, certifications or other instruments.

Based on the foregoing, it is our opinion that:

1. The City has the power under the Constitution and the laws of the Commonwealth of Pennsylvania (the "Commonwealth") to perform its obligations under the General Ordinance, the Fifteenth 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 Fifteenth 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 and the Fifteenth Supplemental Ordinance have 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 rights created thereunder and 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 Bonds have been duly authorized, executed, authenticated, issued and delivered and are legal, valid and binding obligations of the City, enforceable in accordance with their terms, except as enforcement may be limited as described in paragraph 4 above.

6. Under the Act and the General Ordinance, the Bonds constitute special obligations of the City payable solely from 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). 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 property of the City other than 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 on amounts in such funds and accounts (other than the Rebate Fund).

7. Interest on the Bonds is excludable from gross income for purposes of federal income tax under existing laws as enacted and construed on the date of the initial delivery of the Bonds, assuming the accuracy of the certifications of the City and continuing compliance by the City with the requirements of the Code. Interest on the Bonds is not an item of tax preference for purposes of either individual or corporate federal alternative minimum tax; however, interest on Bonds held by a corporation (other than an S corporation, regulated investment company, or real estate investment trust) may be indirectly subject to federal alternative minimum tax because of its inclusion in the adjusted current earnings of a corporate holder. We express no opinion regarding other federal tax consequences relating to ownership or disposition of, or the accrual or receipt of interest on, the Bonds.

Original issue premium on a Bond issued at an issue price that exceeds its principal amount is amortizable periodically over the term of a Bond through reductions in the holder's tax basis for the Bond for determining taxable gain or loss from sale or from redemption prior to maturity. Amortization of premium does not create a deductible expense or loss.

In rendering this opinion, we have assumed compliance by the City with the covenants contained in the General Ordinance, the Fifteenth Supplemental Ordinance and the Bond Committee Determination that are intended to comply with the requirements in the Code relating to actions to be taken by the City in respect of the Bonds after the issuance thereof to the extent necessary to effect or maintain the federal exclusion from gross income of the interest on the Bonds. Failure to comply with such covenants could cause the interest on the Bonds to be includable in gross income retroactively to the date of issuance of the Bonds.

8. Under the laws of the Commonwealth, as enacted and construed on the date of the issuance of the Bonds, 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.

We render this opinion as of the date hereof on the basis of federal law and the laws of the Commonwealth as enacted and construed on the date hereof. We express no opinion as to any matter not set forth in the numbered paragraphs herein, including, without limitation, the accuracy or completeness of the preliminary or final official statement or other documents prepared or statements made in connection with the offering and sale of the Bonds, and make no representation that we have independently verified the contents thereof.

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 REFUNDING BONDS, SERIES 2012

This Continuing Disclosure Agreement (this "Disclosure Agreement") dated as of November 1, 2012, is executed and delivered by and between the City of Philadelphia, Pennsylvania (the "City") and Digital Assurance Certification, L.L.C., as dissemination agent (the "Dissemination Agent") in connection with the issuance and sale by the City of its $70,370,000 Water and Wastewater Revenue Refunding Bonds, Series 2012 (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 by (i) the First Supplemental Ordinance approved June 24, 1993 (the "First Supplemental Ordinance"), (ii) the Second Supplemental Ordinance approved May 9, 1994 (the "Second Supplemental Ordinance"), (iii) the Third Supplemental Ordinance approved October 27, 1997 (the "Third Supplemental Ordinance"), (iv) the Fourth Supplemental Ordinance approved December 11, 1998 (the "Fourth Supplemental Ordinance"), (v) the Fifth Supplemental Ordinance approved December 11, 1998 (the "Fifth Supplemental Ordinance"), (vi) the Sixth Supplemental Ordinance approved December 11, 1998 (the "Sixth Supplemental Ordinance"), (vii) the Seventh Supplemental Ordinance approved May 10, 2001 (the "Seventh Supplemental Ordinance"), (viii) the Eighth Supplemental Ordinance approved November 22, 2002 (the "Eighth Supplemental Ordinance"), (ix) the Ninth Supplemental Ordinance approved November 22, 2002 (the "Ninth Supplemental Ordinance"), (x) the Tenth Supplemental Ordinance approved November 16, 2006 (the "Tenth Supplemental Ordinance"), (xi) the Eleventh Supplemental Ordinance approved November 16, 2006 (the "Eleventh Supplemental Ordinance"), (xii) the Twelfth Supplemental Ordinance approved May 21, 2009 (the "Twelfth Supplemental Ordinance"), (xiii) the Thirteenth Supplemental Ordinance approved March 5, 2010 (the "Thirteenth Supplemental Ordinance"), (xiv) the Fourteenth Supplemental Ordinance approved July 5, 2011 (the "Fourteenth Supplemental Ordinance") and (xv) the Fifteenth Supplemental Ordinance approved July 5, 2011 (the "Fifteenth Supplemental Ordinance"), authorizing the issuance of the Bonds for purposes of refunding. The Restated General Ordinance, as supplemented and amended by any amendment thereto contained in the First Supplemental Ordinance, the Second Supplemental Ordinance, the Third Supplemental Ordinance, the Fourth Supplemental Ordinance, the Fifth Supplemental Ordinance, the Sixth Supplemental Ordinance, the Seventh Supplemental Ordinance, the Eighth Supplemental Ordinance, the Ninth Supplemental Ordinance, the Tenth Supplemental Ordinance, the Eleventh Supplemental Ordinance, the Twelfth Supplemental Ordinance, the Thirteenth Supplemental Ordinance, the Fourteenth Supplemental Ordinance and the Fifteenth Supplemental Ordinance, and as amended by an Ordinance approved on January 23, 2007 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) (the "Bond Committee") on October 24, 2012.

"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 October 24, 2012, 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 effective July 1, 2009. Any information to be filed with the Repository under this Disclosure Agreement shall be filed with EMMA at http://emma.msrb.org, or as otherwise provided by MSRB, and any future Repository identified by the City pursuant to the requirements of the Rule.

"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, 2012, 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. The Annual Financial Information will be in the form of the City's Comprehensive Annual Financial Report and will contain unaudited financial statements if audited financial statements are not available.

(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, 2012, 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. No mandatory redemption shall 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 Material 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: Other Information; Duties of Dissemination Agent

(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 Material 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: Default

(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: Concerning the Dissemination Agent

(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: <u>Term of Disclosure Agreement</u>

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: <u>Beneficiaries</u>

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: <u>Notices</u>

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 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.

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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, L.L.C., 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.

CITY OF PHILADELPHIA, PENNSYLVANIA

By: _____
Name: Rob Dubow
Title: Director of Finance

DIGITAL ASSURANCE CERTIFICATION, L.L.C.,
as Dissemination Agent

By:_____
Name:
Title:

APPENDIX A

1. Commencing with the fiscal year ended June 30, 2012, 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, 2012, 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 REFUNDING BONDS, SERIES 2012

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FSC
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