REMARKETING CIRCULAR Book-Entry Only **RATINGS: See "Ratings of the Reoffered Bonds" herein**

In the opinion of Bond Counsel, assuming compliance with certain covenants of the Authority, interest on the Reoffered Bonds is excluded from gross income of the owners of the Reoffered Bonds for federal income tax purposes under existing law, as currently enacted and construed. Interest on the Reoffered Bonds is not an item of tax preference for purposes of either individual or corporate alternative minimum tax. Interest on the Reoffered Bonds may be indirectly subject to corporate alternative minimum tax and certain other taxes imposed on certain corporations as more fully described under the caption "TAX MATTERS" herein. Under the laws of the Commonwealth of Pennsylvania, as currently enacted and construed, the Reoffered Bonds are exempt from personal property taxes in Pennsylvania and the interest on the Reoffered Bonds is exempt from Pennsylvania personal income tax and Pennsylvania corporate net income tax.

THE PITTSBURGH WATER AND SEWER AUTHORITY

$26,870,000 Water and Sewer System Subordinate Revenue Refunding Bonds
Series C-1D of 2008 (Term Mode)
(CUSIP: 725304RL5)

Dated:	Last Day of Term Rate Period	Mandatory Tender Date:	Price:	Term Rate:	Final Maturity:
September 1, 2012	August 31, 2015	September 1, 2015	100%	1.40%	September 1, 2035

The Pittsburgh Water and Sewer Authority (the "Authority" or "PWSA") is remarketing its (Variable Rate Demand) Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1D of 2008 (the "Series 2008C-1D Bonds" or the "Reoffered Bonds") as of September 1, 2012 in the Term Mode for a Term Rate Period commencing on September 1, 2012 and ending on, but not including September 1, 2015. **See "REMARKETING PLAN."** The Reoffered Bonds will be subject to mandatory tender on September 1, 2015 (the "Mandatory Tender Date"). The Reoffered Bonds will bear interest at the Term Rate established by the Remarketing Agent during the Term Rate Period commencing on September 1, 2012 and ending on, but not including September 1, 2015. Interest accruing on the Reoffered Bonds during such Term Rate Period will be payable on March 1, 2013 and on each September 1 and March 1 thereafter through September 1, 2015. **This Remarketing Circular describes the terms and provisions of the Reoffered Bonds while in the Term Mode only.**

The Reoffered Bonds will be dated their date of delivery and were originally issued pursuant to the Subordinate Trust Indenture, dated as of July 15, 1995, as amended and supplemented (the "Subordinate Indenture"), by and between the Authority and The Bank of New York Mellon Trust Company, N.A., as Trustee (in such capacity, the "Trustee"). The Reoffered Bonds will be issued in book-entry form registered in the name of Cede & Co., the nominee of The Depository Trust Company, New York, New York ("DTC"). The payment of the principal of and premium, if any, and interest on the Reoffered Bonds will be made by the Trustee directly to Cede & Co., as nominee for DTC, a registered owner of the Reoffered Bonds, to be subsequently disbursed to DTC Participants and thereafter to beneficial owners of the Reoffered Bonds, all as described herein. Purchasers of the Reoffered Bonds will not receive physical delivery of certificates representing their ownership interest in the Reoffered Bonds. See "BOOK-ENTRY ONLY SYSTEM". The Reoffered Bonds will initially be issued in fully registered form in minimum denominations of $5,000.

The Reoffered Bonds will bear interest at the applicable Term Rate for the Term Rate Period as set forth above. On the Mandatory Tender Date set forth above, such Reoffered Bonds will be subject to mandatory tender for purchase at a price equal to one-hundred percent (100%) of the principal amount thereof. The purchase price of such Reoffered Bonds tendered will be payable solely from the proceeds of the remarketing of such Reoffered Bonds. THE REOFFERED BONDS ARE NOT SUPPORTED BY A LIQUIDITY FACILITY, AND THE AUTHORITY DOES NOT HAVE AN OBLIGATION TO PAY THE PURCHASE PRICE OF TENDERED BONDS EVEN IF REMARKETING PROCEEDS ARE INSUFFICIENT. Thus, failure by the Authority to purchase tendered Bonds does not constitute an event of default under the Subordinate Indenture. If any Reoffered Bonds tendered for purchase are not remarketed to new Holders, such Reoffered Bonds will be returned to the Holders that tendered such Reoffered Bonds, and the Reoffered Bonds will bear interest at the Maximum Rate for a Failed Remarketing Period.

The Reoffered Bonds are limited obligations of the Authority payable from the Receipts and Revenues (as defined in the Subordinate Indenture) pledged thereto and subordinate to the pledge thereon securing the First Lien Bonds issued pursuant to the provisions of the First Lien Indenture, as described herein, and Periodic Payments due under Interest Rate Swap Agreements related to the First Lien Bonds, and on a parity with the other Subordinate Bonds issued pursuant to the provisions of the Subordinate Indenture, as described herein.

The scheduled payment of principal of and interest on the Reoffered Bonds when due (but not Purchase Price upon tender) is guaranteed under a municipal bond insurance policy originally delivered on June 12, 2008 by ASSURED GUARANTY MUNICIPAL CORP. (FORMERLY KNOWN AS FINANCIAL SECURITY ASSURANCE INC.) See "BOND INSURANCE".

ASSURED GUARANTY® MUNICIPAL

THE REOFFERED BONDS ARE LIMITED OBLIGATIONS OF THE AUTHORITY PAYABLE FROM A SUBORDINATE LIEN ON THE RECEIPTS AND REVENUES (AS DEFINED IN THE INDENTURE) PLEDGED THERETO. NEITHER THE CITY OF PITTSBURGH, THE COMMONWEALTH OF PENNSYLVANIA NOR ANY POLITICAL SUBDIVISION (OTHER THAN THE AUTHORITY) THEREOF IS OBLIGATED TO PAY THE PRINCIPAL, REDEMPTION PRICE OF, OR INTEREST ON, THE REOFFERED BONDS, AND NEITHER THE FULL FAITH, CREDIT NOR TAXING POWER OF THE CITY OF PITTSBURGH, THE COMMONWEALTH OF PENNSYLVANIA OR ANY POLITICAL SUBDIVISION (OTHER THAN THE AUTHORITY) THEREOF IS PLEDGED TO SUCH PAYMENT. THE AUTHORITY HAS NO TAXING POWER.

The Reoffered Bonds are being remarketed by the Authority, subject to the receipt of the approving legal opinion of Pepper Hamilton LLP, Bond Counsel. Certain legal matters will be passed upon for the Authority by Thorp, Reed & Armstrong, LLP and for the Remarketing Agent by its counsel Buchanan Ingersoll & Rooney PC. The Authority expects that delivery of the Reoffered Bonds in definitive form will be made in New York, New York, on or about September 1, 2012.

J.P. Morgan, as Remarketing Agent

Dated: August 22, 2012

THE PITTSBURGH WATER AND SEWER AUTHORITY

BOARD MEMBERS
Dan Deasy, Chairman
Robert P. Jablonowski, Vice Chairman
Scott Kunka, Treasurer
Henry C. Blum, Secretary
Margaret L. Lanier, Assistant Secretary/Assistant Treasurer
Patrick Dowd, Member
Pat Bigley, Member

ADMINISTRATION
Jim Good, Interim Executive Director
Tom L. Palmosina, Director of Water Operations
Stephen T. Simcic, Director of Finance

AUTHORITY COUNSEL
Thorp, Reed & Armstrong, LLP
Pittsburgh, Pennsylvania

AUTHORITY CONSULTING ENGINEER
Chester Engineers
Pittsburgh, Pennsylvania

FINANCIAL ADVISOR
PNC Capital Markets LLC
Pittsburgh, Pennsylvania

REMARKETING AGENT
J.P. Morgan Securities LLC

BOND COUNSEL
Pepper Hamilton LLP
Pittsburgh, Pennsylvania

REMARKETING AGENT'S COUNSEL
Buchanan Ingersoll & Rooney PC
Pittsburgh, Pennsylvania

TRUSTEE AND PAYING AGENT
The Bank of New York Mellon Trust Company, N.A.
Pittsburgh, Pennsylvania

BOND INSURER
Assured Guaranty Municipal Corp.

No dealer, broker, salesperson or other person has been authorized by the Authority to give any information or to make any representation in connection with the Reoffered Bonds or the matters described herein, other than those contained in this Reoffering Circular, and, if given or made, such other information or representation must not be relied upon as having been authorized by any of the foregoing. This Reoffering Circular does not constitute an offer to sell or the solicitation of an offer to buy nor shall there be any sale of the Reoffered Bonds by any person in any jurisdiction in which it is unlawful for such person to make such offer, solicitation or sale.

All quotations from and summaries and explanations of provisions of laws herein do not purport to be complete and reference is made to said laws for full and complete statements of their provisions.

This Reoffering Circular is not to be construed as a contract or agreement between the Authority and the purchasers or holders of any of the Reoffered Bonds. Any statements made in this Reoffering Circular involving matters of opinion, whether or not expressly so stated, are intended merely as opinion and not as representations of fact. The order and placement of materials in this Reoffering Circular, including the Appendices, are not to be deemed to be a determination of relevance, materiality or importance, and this Reoffering Circular, including the Appendices, must be considered in its entirety.

The Authority has deemed this Reoffering Circular to be final for the purposes of Securities and Exchange Commission Rule 15c2-12(b)(3) promulgated under the Securities Exchange Act.

Certain information contained herein has been obtained by the Authority from Assured Guaranty Municipal Corp. (formerly known as Financial Security Assurance Inc.) and other sources believed to be reliable, but it is not guaranteed as to accuracy or completeness, and it is not to be construed as a representation of the Authority or the Remarketing Agent. The information contained herein is subject to change without notice and neither the delivery of this Reoffering Circular nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in the affairs of the Authority or Assured Guaranty Municipal Corp. since the date hereof.

The Remarketing Agent has reviewed the information in this Reoffering Circular in accordance with, and as a part of, its responsibilities to investors under federal securities law, as applied to the facts and circumstances of this transaction, but the Remarketing Agent does not guarantee the accuracy or completeness of such information.

Assured Guaranty Municipal Corp. (formerly known as Financial Security Assurance Inc.) ("AGM") makes no representation regarding the Reoffered Bonds or the advisability of investing in the Reoffered Bonds. In addition, AGM has not independently verified, makes no representation regarding, and does not accept any responsibility for the accuracy or completeness of this Reoffering Circular or any information or disclosure contained herein, or omitted herefrom, other than with respect to the accuracy of the information regarding AGM supplied by AGM and presented under the heading "Bond Insurance" and APPENDIX F - SPECIMEN MUNICIPAL BOND INSURANCE POLICY ISSUED ON JUNE 12, 2008.

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

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TABLE OF CONTENTS

INTRODUCTION 1
THE AUTHORITY 2
DEBT OF THE AUTHORITY 3
PLAN OF FINANCE 3
THE REOFFERED BONDS 4
REGISTRATION, TRANSFER AND EXCHANGE OF THE REOFFERED BONDS 9
BOOK-ENTRY ONLY SYSTEM 10
SECURITY FOR THE REOFFERED BONDS 11
BOND INSURANCE 12
FLOW OF FUNDS 14
RATE COVENANT 15
INTEREST RATE SWAP AGREEMENTS 16
CERTAIN BONDHOLDERS' RISKS 17
INVESTMENT CONSIDERATIONS 20
LITIGATION 21
TAX MATTERS 21
THE TRUSTEE 21
LEGAL OPINIONS 22
INDEPENDENT AUDITORS 22
RATINGS OF THE REOFFERED BONDS 22
CONTINUING DISCLOSURE; DISCLOSURE DISSEMINATION 22
REMARKETING 24
FINANCIAL ADVISOR 25
CERTAIN RELATIONSHIPS 25
MISCELLANEOUS 26

APPENDIX A – CERTAIN INFORMATION REGARDING THE AUTHORITY AND WATER AND SEWER SYSTEM
APPENDIX B – SUMMARY OF THE INDENTURES
APPENDIX C – AUTHORITY FINANCIAL STATEMENTS AS OF DECEMBER 31, 2011 AND DECEMBER 31, 2010
APPENDIX D – CERTAIN INFORMATION REGARDING THE CITY OF PITTSBURGH
APPENDIX E – CONSULTING ENGINEER'S REPORT AS OF MAY 10, 2012
APPENDIX F – MUNICIPAL BOND INSURANCE POLICY ISSUED ON JUNE 12, 2008
APPENDIX G – FORM OF BOND COUNSEL OPINION

SUMMARY INFORMATION

THIS SUMMARY STATEMENT IS SUBJECT IN ALL RESPECTS TO THE MORE COMPLETE INFORMATION CONTAINED IN THIS REOFFERING CIRCULAR AND OFFERING OF THE REOFFERED BONDS TO THE POTENTIAL PURCHASERS IS MADE ONLY BY MEANS OF THIS REOFFERING CIRCULAR. NO PERSON IS AUTHORIZED TO DETACH THIS SUMMARY FROM THE REOFFERING CIRCULAR OR OTHERWISE TO USE THE SAME WITHOUT THE ENTIRE REOFFERING CIRCULAR.

Issuer	The Pittsburgh Water and Sewer Authority (the "Authority" or "PWSA")
Reoffered Bonds	$26,870,000 Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1D of 2008 (Term Mode);
Date of Bonds	Date of Delivery
Denomination	$5,000 and integral multiples of $5,000 in excess thereof.
Final Maturity	September 1, 2035.
Interest	Payable on March 1, 2013 and each September 1 and March 1 through and including the September 1, 2015 Mandatory Tender Date.
Security	The Reoffered Bonds are secured (along with all other bonds issued pursuant to the Subordinate Indenture, certain Periodic Payments due under Qualified Interest Rate Swap Agreements related to such Subordinate Bonds, if any, and obligations due under the Reimbursement Agreements (as defined herein)) by a subordinate lien on the Receipts and Revenues of the Authority after payment of the Current Expenses, payment of principal and interest or the First Lien Bonds (as defined herein), and the function of certain reserves together with certain funds held by the Trustee under the Subordinate Indenture as provided therein. (See "SECURITY FOR THE REOFFERED BONDS – Pledge of Subordinate Receipts and Revenues" herein.)
	THE REOFFERED BONDS ARE NOT SUPPORTED BY A LIQUIDITY FACILITY, AND THE AUTHORITY DOES NOT HAVE AN OBLIGATION TO PAY THE PURCHASE PRICE OF TENDERED BONDS EVEN IF REMARKETING PROCEEDS ARE INSUFFICIENT. Thus, failure by the Authority to purchase tendered Bonds does not constitute an event of default under the Subordinate Indenture. If any Bonds tendered for purchase are not remarketed to new Holders, such Bonds will be returned to the Holders that tendered such Bonds, and the Bonds will bear interest at the Maximum Rate for a Failed Remarketing Period.
Bond Insurance	The scheduled payment of the principal of and interest on the Reoffered Bonds when due is insured by a municipal insurance policy originally issued on June 12, 2008 by Assured Guaranty Municipal Corp. (formerly known as Financial Security Assurance Inc.) (See "BOND INSURANCE"). The Bond Insurer is not obligated to pay the Purchase Price of the Reoffered Bonds upon a tender thereof.
Use of Proceeds	The proceeds from the remarketing of the Reoffered Bonds will be used to pay the Purchase Price of the Reoffered Bonds to prior holders tendering their Reoffered Bonds on September 4, 2012 [as September 1, 2012 is not a Business Day, the mandatory tender is on the next succeeding Business Day].
Mandatory Tender	The Reoffered Bonds will be subject to mandatory tender on September 1, 2015. (See "THE REOFFERED BONDS — Mandatory Tender" herein.)
Redemption	The Reoffered Bonds will be subject to redemption prior to maturity. (See "THE REOFFERED BONDS — Redemption Prior to Maturity" herein.)
Bond Ratings	Insured Rating: Standard & Poor's: "AA-" (stable outlook)
	Underlying Rating: Standard & Poor's: "A" (stable outlook)
Trustee & Paying Agent	The Bank of New York Mellon Trust Company, N.A.

$26,870,000

THE PITTSBURGH WATER AND SEWER AUTHORITY

Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1D of 2008 (Term Mode)

INTRODUCTION

The purpose of this Reoffering Circular, which includes this introductory statement, the cover page, the summary information and the Appendices hereto, is to set forth certain information pertaining to The Pittsburgh Water and Sewer Authority (the "Authority" or "PWSA"), a body corporate and politic duly created and existing under the Pennsylvania Municipality Authorities Act, 53 Pa. C.S.A. §5601 et seq. (the "Act"), and the reoffering by the Authority of its $26,870,000 Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1D of 2008 (Term Mode) (the "Series 2008C-1D Bonds" or the "Reoffered Bonds").

The Reoffered Bonds are being reoffered pursuant to the Subordinate Trust Indenture, dated as of July 15, 1995 (the "Original Subordinate Indenture"), as amended and supplemented by a First Supplemental Subordinate Indenture, dated as of March 1, 1998 (the "First Supplemental Subordinate Indenture"), a Second Supplemental Subordinate Indenture, dated as of June 1, 2008 (the "Second Supplemental Subordinate Indenture"), an Amending Supplement to the Initial Subordinate and Second Supplemental Subordinate Indenture dated as of November 1, 2009 (the "First Amendment"), an Amendment to the Amending Supplement to the Initial Subordinate and Second Supplemental Subordinate Indenture dated as of November 15, 2009 (the "2009 Amendment") and a Second Amending Supplement to the Second Supplemental Subordinate Indenture dated as of September 1, 2012 (the "Second Amending Supplement," and, together with the Original Subordinate Indenture, the First Supplemental Subordinate Indenture, the Second Supplemental Subordinate Indenture, the First Amendment and the 2009 Amendment, the "Subordinate Indenture"), by and between the Authority and The Bank of New York Mellon Trust Company, N.A., as Trustee (the "Trustee"). The Reoffered Bonds, together with any other bonds issued under the terms of the Subordinate Indenture are referred to herein as the "Subordinate Bonds".

The Reoffered Bonds are limited obligations of the Authority payable from the Subordinate Receipts and Revenues (as defined herein) pledged thereto (i) subordinate to the pledge thereon securing the first lien bonds (the "First Lien Bonds") issued pursuant to the provisions of the Trust Indenture, dated as of October 15, 1993, as amended and supplemented by a First Supplemental Indenture, dated as of July 15, 1995, a Second Supplemental Indenture, dated as of March 1, 1998, a Third Supplemental Indenture dated as of March 1, 2002, a Fourth Supplemental Indenture dated as of September 15, 2003, a Fifth Supplemental Indenture dated as of June 1, 2005, a Sixth Supplemental Indenture dated as of March 1, 2007 and a Seventh Supplemental Indenture dated as of June 1, 2008, as amended, including as amended by the Amending Supplement to the Initial First Lien Indenture and the Seventh Supplemental Indenture, dated as of October 15, 2009, as amended (collectively, the "First Lien Indenture") by and between the Authority and the Trustee and (ii) on a parity with the other Subordinate Bonds issued pursuant to the provisions of the Subordinate Indenture, as described herein.

The Reoffered Bonds will initially be reoffered in the Term Mode as more fully described herein. The Indenture provides for conversion of the Reoffered Bonds to a Weekly Mode or a Fixed Mode. If converted from the Term Mode to the Weekly Mode or the Fixed Mode, the Reoffered Bonds will be purchased from the existing Bondholders pursuant to the mandatory tender provisions of the Indenture on the conversion date. **This Reoffering Circular provides information with respect to the Reoffered Bonds in the Term Mode only.**

All capitalized terms not otherwise defined herein shall have the same meanings ascribed to them in the definitions set forth in APPENDIX B — SUMMARY OF THE INDENTURES – "Definitions of Certain Terms". All references herein to the Act, the Reoffered Bonds, the Subordinate Indenture, the First Lien Indenture, the Remarketing Agreement and the Continuing Disclosure Agreement are qualified in their entirety by reference to the complete texts thereof. Copies of drafts of such documents may be obtained during the initial offering period from the principal offices of the Remarketing Agent and thereafter, executed copies may be obtained from the Trustee. All statements in this Reoffering Circular involving matters of opinion, estimates, forecasts, projections or the like, whether or not expressly so stated, are intended as such and not as representations of fact. No representation is made that any of such statements will be realized.

THIS REOFFERING CIRCULAR PROVIDES CERTAIN INFORMATION CONCERNING THE REOFFERED BONDS WITH RESPECT TO THE UPCOMING TERM RATE PERIOD. OWNERS AND PROSPECTIVE PURCHASERS OF THE REOFFERED BONDS SHOULD NOT RELY ON THIS

REOFFERING CIRCULAR FOR INFORMATION CONCERNING THE REOFFERED BONDS ON AND AFTER THE END OF THE UPCOMING TERM RATE PERIOD, BUT SHOULD LOOK TO THE REVISIONS, AMENDMENTS, SUPPLEMENTS OR SUBSTITUTIONS THEREOF FOR INFORMATION CONCERNING THE REMARKETING OF THE REOFFERED BONDS FOLLOWING THE END OF THE UPCOMING TERM RATE PERIOD.

THE AUTHORITY

The Authority is a body corporate and politic organized and existing under the Act pursuant to Resolution No. 36 of the Council of the City of Pittsburgh (the "City"), duly enacted on February 6, 1984, approved by the Mayor on February 8, 1984, and effective February 16, 1984. The Secretary of the Commonwealth of Pennsylvania approved the Authority's Articles of Incorporation and issued a Certificate of Incorporation on February 17, 1984. Articles of Amendment were approved and a Certificate of Amendment was issued by the Pennsylvania Department of State on December 11, 1989, to include, among authorized projects, low head dams and facilities for generating surplus electric power. Articles of Amendment were approved and a Certificate of Amendment was issued by the Pennsylvania Department of State on May 9, 2008, to extend the term of existence of the Authority to May 21, 2045.

Under its Articles of Incorporation, the Authority is specifically authorized to acquire, hold, construct, finance, improve, maintain, operate, own and lease, either as lessor or lessee, projects of the following kinds and character: sewers, sewer systems or parts thereof, waterworks, water supply works, and water distribution systems, low head dams and facilities for generating surplus power.

The Authority was established in February 1984 by the City for the purpose of assuming responsibility for the operation of the City's water supply and distribution and wastewater collection systems (the "Water and Sewer System"). Pursuant to a lease and management agreement dated March 29, 1984 between the Authority and the City (the "Lease and Management Agreement"), the Water and Sewer System was leased to the Authority. In 1995, the Lease and Management Agreement was terminated and the Authority was granted an option to acquire the portion of the Water and Sewer System owned by the City pursuant to a Capital Lease Agreement dated as of July 15, 1995 between the Authority and the City (the "Capital Lease Agreement"). (See APPENDIX A — CERTAIN INFORMATION REGARDING THE AUTHORITY AND WATER AND SEWER SYSTEM — "Capital Lease Agreement with the City of Pittsburgh".)

The Water and Sewer System provides water, wastewater collection and transmission service to approximately 250,000 customers. The Water and Sewer System does not include wastewater treatment facilities; such facilities are the responsibility of Allegheny County Sanitary Authority ("ALCOSAN"), a separate and distinct legal entity. Rates and charges established by the Authority are not subject to the approval of any department, board or agency of the Commonwealth of Pennsylvania or the City.

Interim Management and Consulting Contract

On July 25, 2012, the Authority's Board of Directors approved an Agreement (the "Agreement") for Interim Executive Management Services with Veolia Water North America—Northeast, LLC ("Veolia Water"). The Agreement provides for two types of services.

First, Veolia Water is providing the Authority with the services of a full time, on site, interim executive director. That role is filled by Jim Good, President of Veolia Water North America—West, LLC. As the principal and manager of that entity, Mr. Good had direct financial responsibility for a $100 million budget and over 300 employees. Prior to joining Veolia Water ten years ago, Mr. Good was a vice president of California Water Service Company, a company that services more than two million people in four states. With the Authority, Mr. Good will be reporting to a steering committee made up of three Authority Board members and two individuals from Veolia upper management.

Second, Veolia Water is providing the Authority with consulting services, led by a full time, on site study manager, Doug Amos, a Vice President and Project Director with Veolia Water's North American operations group. The Agreement identifies various areas of consulting and implementation services to be provided—general administration and management, financial and budgeting, operations and maintenance, and includes many specific deliverables. Veolia Water will be bringing to Pittsburgh managers with experience in each of these areas. They will study the Authority's existing practices and, together with the Authority staff, identify specific initiatives for further study and implementation. Once initiatives are approved by the Authority Board, the Veolia Water managers will assist with implementation.

Veolia is performing all services under the Agreement for a base compensation of $150,572 per month, including expenses, plus additional incentive payments for the achievement of approved initiatives. The term of the Agreement is one year, which may be extended by an additional six months. Additional revenues or savings resulting from incentives approved under the Agreement will be shared with Veolia for four years following the expiration of the Agreement.

See APPENDIX A for a description of the Authority.

DEBT OF THE AUTHORITY

First Lien Debt

In addition to the Reoffered Bonds, the Authority has previously issued under the Indenture seven (7) other series of bonds that have a parity claim to the Receipts and Revenues of the Authority senior to that of the Reoffered Bonds, which together with any additional bonds which are hereafter issued under the Indenture are referred to herein collectively as the "First Lien Bonds". As of August 1, 2012, the Authority had $630,725,000 aggregate principal amount of First Lien Bonds Outstanding (of which $331,360,000 represents fixed rate bonds and $299,365,000 represents variable rate bonds).

Subordinated Debt

In addition to the Reoffered Bonds the Authority has outstanding four other subseries of subordinate revenue bonds (the "Subordinate Lien Bonds") issued pursuant to the Subordinate Indenture. As of August 1, 2012, the Authority had $103,795,000 aggregate principal amount of Subordinate Lien Bonds Outstanding, all of which are in variable rate mode.

Pennvest Loans and Other Indebtedness

The Authority also has entered into various loan agreements with the Pennsylvania Infrastructure Investment Authority ("PENNVEST"). The pledge of the Receipts and Revenues of the Authority securing the PENNVEST loans is subordinate to the pledge securing both the First Lien Bonds and the Subordinate Bonds. As of August 1, 2012, the Authority has $34.4 million aggregate principal amount of PENNVEST loans outstanding.

In connection with certain outstanding First Lien Bonds and Subordinate Bonds, the Authority has entered into letters of credit and standby bond purchase agreements, as more fully described under APPENDIX A. **EXCEPT FOR THE AGM BOND INSURANCE POLICY (defined below), THE REOFFERED BONDS ARE NOT SECURED BY A LETTER OF CREDIT, A STANDBY BOND PURCHASE AGREEMENT OR OTHER CREDIT OR LIQUIDITY SUPPORT INSTRUMENT**. See APPENDIX A — CERTAIN INFORMATION REGARDING THE AUTHORITY AND WATER AND SEWER SYSTEM - "Other Obligations".

PLAN OF FINANCE

Remarketing Plan For the Series 2008C-1D Bonds

The Authority has decided to remarket the Reoffered Bonds in the Term Mode for a Term Rate Period commencing on September 1, 2012, and ending on, but not including September 1, 2015. Following the end of the new Term Rate Period, the Reoffered Bonds will again be subject to mandatory tender for purchase on September 1, 2015. The Authority has entered into a remarketing agreement with J.P. Morgan Securities LLC. J.P. Morgan Securities LLC will establish the Term Rate applicable to the Reoffered Bonds for the new Term Rate Period on or prior to August 31, 2012.

The Authority's Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1A of 2008, Series C-1B of 2008 and Series C-1C of 2008 (Term Mode) (the "Series 2008C-1ABC Bonds") in the aggregate principal amount of $25,000,000 are also subject to mandatory tender for purchase on September 1, 2012. The reoffering of the Series 2008C-1ABC Bonds is not covered by this Reoffering Circular.

Bond Insurance

The scheduled payment of the principal of and interest on the Reoffered Bonds when due is insured by a municipal bond insurance policy (the "AGM Insurance Policy") originally issued on June 12, 2008 by Assured Guaranty Municipal Corp. (formerly known as Financial Security Assurance Inc.) ("AGM"). See "BOND INSURANCE."

THE REOFFERED BONDS

General

The Reoffered Bonds will be dated the date of delivery and will bear interest from the date of the first authentication and delivery thereof. The Reoffered Bonds will initially be issued in fully registered form in the denomination of $5,000 or any integral multiple of $5,000 above such amount. The Reoffered Bonds shall bear interest from the Interest Payment Date to which interest has been paid next preceding the date of authentication, unless the date of authentication (i) is an Interest Payment Date to which interest has been paid, in which event the Reoffered Bonds shall bear interest from the date of authentication, or (ii) is on or prior to the Regular Record Date for the first Interest Payment Date for the Reoffered Bonds, in which event such Reoffered Bonds shall bear interest from the Conversion Date, or (iii) is after a Regular Record Date and on or before the succeeding Interest Payment Date, in which event the Reoffered Bonds shall bear interest from the next succeeding Interest Payment Date. Interest on the Reoffered Bonds shall be paid on each Interest Payment Date. Each Reoffered Bond will bear interest on overdue principal at the rate of 6% per annum during the period such principal is overdue. Both principal and interest will, however, be payable out of the Subordinate Receipts and Revenues (as defined herein) of the Authority derived from the Water and Sewer System and shall be payable at the designated corporate trust office of the Trustee in lawful money of the United States of America. Principal of and interest payable at Maturity will be payable to the owner of the Reoffered Bonds at the designated trust office of the Trustee upon the surrender for cancellation of the Reoffered Bonds.

Notwithstanding the foregoing, interest payable on the Reoffered Bonds on any Interest Payment Date will accrue from and including the last Interest Payment Date on which interest has been paid through and including the day next preceding the next Interest Payment Date. The foregoing notwithstanding, no interest will accrue on any Reoffered Bonds prior to their date of initial reoffering and delivery or after the maturity thereof or after the redemption date for such Reoffered Bond (provided the redemption price is paid or provided for in accordance with the provisions of the Subordinate Indenture).

SEE "REGISTRATION, TRANSFER AND EXCHANGE OF THE REOFFERED BONDS" AND "BOOK-ENTRY ONLY SYSTEM" FOR A DESCRIPTION OF PROVISIONS RELATING TO THE REGISTRATION, TRANSFER AND EXCHANGE OF THE REOFFERED BONDS.

Rate Modes

Each Reoffered Bond will be reoffered in the Term Mode. The Reoffered Bonds may be converted to a Weekly Mode or Fixed Mode (the Weekly Mode, the Fixed Mode and the Term Mode are referred to collectively herein as "Rate Modes" and individually as a "Rate Mode"), as provided in the Subordinate Indenture. All of the Reoffered Bonds must operate in the same Rate Mode. This Reoffering Circular provides information with respect to the Reoffered Bonds while bearing interest at a Term Rate in the Term Mode only. There are significant differences in the terms of the Reoffered Bonds when bearing interest in other Rate Modes. In connection with any future remarketing of the Reoffered Bonds upon a change to a Rate Mode other than a Term Mode or the remarketing of the Reoffered Bonds on the Mandatory Tender Date (September 1, 2015), this Remarketing Circular will be supplemented to include more detailed information with respect to the new Rate Mode.

Method of Payment

The Reoffered Bonds are available in book-entry form only. See "BOOK-ENTRY ONLY SYSTEM." So long as Cede & Co. is the registered owner of the Reoffered Bonds, as nominee of The Depository Trust Company, New York, New York ("DTC"), references herein to the owners of the Reoffered Bonds mean Cede & Co. and not the Beneficial Owners (as defined hereafter) of the Reoffered Bonds.

The principal of and interest on the Reoffered Bonds will be payable by the Trustee to Cede & Co.

Term Mode

The following is a summary of certain of the terms applicable to the Reoffered Bonds while such Reoffered Bonds operate in a Term Mode. This Reoffering Circular describes the terms and conditions of the Reoffered Bonds only while such Reoffered Bonds bear interest at a Term Rate in the Term Mode. There are significant differences in the terms of the Reoffered Bonds when bearing interest in other Rate Modes. In connection with any future remarketing of the Reoffered Bonds upon a change to a Rate Mode other than a Term Mode or the remarketing of the Reoffered Bonds on the Mandatory Tender Date (September 1, 2015), this Remarketing Circular will be supplemented to include more detailed information with respect to the new Rate Mode. All references to the Reoffered Bonds are qualified by reference to the definitive form thereof and the information with respect thereto included in the Subordinate Indenture. Capitalized terms used in this section but not otherwise defined herein have the meanings set forth in the Subordinate Indenture.

General

The Reoffered Bonds will be remarketed as Subordinate Bonds that bear interest at the Term Rate set forth on the inside front cover of this Reoffering Circular for a Term Rate Period commencing on September 1, 2012 and ending, but not including, September 1, 2015. In connection with the Mandatory Tender Date at the end of the Term Rate Period, the Authority may remarket the Reoffered Bonds in the Term Mode for subsequent Term Rate Periods at a Term Rate determined by the Remarketing Agent appointed pursuant to the Subordinate Indenture. See "THE REOFFERED BONDS—Term Rate." All of the Reoffered Bonds may be converted at the Authority's option, subject to certain restrictions, to Subordinate Bonds that bear interest at a Weekly Rate or a Fixed Rate. Each of the Reoffered Bonds will be dated its date of delivery. The Reoffered Bonds will mature on the dates set forth on the inside front cover of this Reoffering Circular. Interest on the Reoffered Bonds during the Term Mode will be computed on the basis of a 360-day year, consisting of twelve 30-day months; notwithstanding the foregoing, with respect to Reoffered Bonds in the Term Mode for which the Term Rate Period is a Failed Remarketing Period (as defined below), interest accruing on such Reoffered Bond will be computed on the basis of a 365 or 366-day year, as applicable, for the number of days actually elapsed. Authorized Denominations of the Reoffered Bonds will be $5,000 or any integral multiple thereof. The Reoffered Bonds will be remarketed in fully-registered form in the name of Cede & Co., as nominee of DTC.

The Reoffered Bonds will bear interest at the Term Rate established by the Remarketing Agent during the Term Rate Period commencing on September 1, 2012 and ending on, but not including September 1, 2015. Interest accruing on the Reoffered Bonds during such Term Rate Period will be payable on March 1, 2013 and on each September 1 and March 1 thereafter through September 1, 2015. Each Reoffered Bond will be dated as of the date of its authentication and will bear interest from the Interest Payment Date next preceding the date of authentication of such Reoffered Bond, unless: (a) such Reoffered Bond is authenticated as of an Interest Payment Date, in which event such Reoffered Bond will bear interest from said Interest Payment Date; or (b) such Reoffered Bond is authenticated prior to the Regular Record Date (hereinafter defined) immediately preceding March 1, 2013, in which event such Reoffered Bond will bear interest from the date of delivery; or (c) such Reoffered Bond is authenticated after a Regular Record Date and before the next succeeding Interest Payment Date, in which event such Reoffered Bond will bear interest from the next succeeding Interest Payment Date; or (d) as shown by the records of the Trustee, interest on such Reoffered Bond shall be in default, in which event such Reoffered Bond shall bear interest from the date on which interest was last paid on such respective Reoffered Bond.

Principal of the Reoffered Bonds will be paid to the registered owners thereof or assigns, when due, upon surrender of the Reoffered Bonds at the designated corporate trust office of the Trustee.

Interest on each Reoffered Bond is payable by check drawn on behalf of the Trustee, which shall be mailed to the registered owner whose name and address shall appear, at the close of business on the fifteenth (15th) day of the month, (whether or not a business day) next preceding each Interest Payment Date (the "Regular Record Date"), on the registration books maintained by the Trustee, irrespective of any transfer or exchange of the Reoffered Bond subsequent to such Regular Record Date and prior to such Interest Payment Date, unless the Authority shall be in default in payment of interest due on such interest payment date. In the event of any such default, such defaulted interest shall be payable to the person in whose name the Reoffered Bond is registered at the close of business on a special record date for the payment of such defaulted interest established by notice mailed by the Trustee to the registered owners of Reoffered Bonds not less than ten (10) days preceding such special record date. Such notice shall be mailed to the persons in whose names the Reoffered Bonds are registered at the close of business on the fifth (5th) day preceding the date of mailing. If the date for the payment of the principal of or interest on any Reoffered Bonds shall be a Saturday, Sunday, legal holiday or on a day on which banking institutions in the

Commonwealth are required or authorized by law or executive order to close, then the date for payment of such principal or interest shall be the next succeeding day which is not a Saturday, Sunday, legal holiday or a day on which such banking institutions are required or authorized to close, and payment on such date shall have the same force and effect as if made on the nominal date established for such payment.

When the Reoffered Bond is not in Book-Entry Only form, interest will be paid on each Interest Payment Date with respect to the Reoffered Bond during a Term Rate Period by check mailed to the registered owner at such owner's address as it appears on the registration books kept by the Trustee at the close of business on the Regular Record Date immediately preceding such Interest Payment Date. However, interest on the Reoffered Bond will be payable to any registered owner of at least $1,000,000 in aggregate principal amount of such Reoffered Bond by wire transfer upon written notice received by the Trustee at least five Business Days prior to the Regular Record Date from such registered owner containing the wire transfer address (which must be in the continental United States) to which such registered owner wishes to have such wire directed. "Business Day" means any day other than (a) a Saturday, Sunday, or other day on which the banks in the City of New York, New York, or any other city in which the Authority's principal office or the principal office of the Trustee is located, are authorized by law to close or (b) a day on which the New York Stock Exchange is closed.

Term Rate

Each Reoffered Bond in a Term Mode will bear interest at a Term Rate during the Term Rate Period (as defined herein). The Term Rate for the initial Term Rate Period commencing on the date of delivery of the Reoffered Bonds is set forth on the inside front cover of this Reoffering Circular. The Term Rate with respect to each Term Rate Period (other than a Failed Remarketing Period) is equal to the rate of interest per annum established by the Remarketing Agent as the minimum rate of interest per annum, which, in the opinion of the Remarketing Agent, would be necessary to sell the Reoffered Bond in a secondary market transaction at a price equal to one-hundred percent (100%) of the principal amount thereof; provided, however, that such interest rate may not exceed the lesser of 12 percent per annum (12%) or the highest rate permitted by law (the "Maximum Rate"). Such Term Rate (other than for a Failed Remarketing Period) will be determined no later than 2:00 p.m., Eastern Time, on the Calculation Date (i.e., the first Business Day prior to the end of the existing Term Rate Period).

In the event that by 2:00 p.m. on the first Business Day prior to the end of the then existing Term Rate Period (i) the Remarketing Agent has not set the Term Rate for the next Term Rate Period, (ii) there is no Remarketing Agent or (iii) the Term Rate, as determined by the Remarketing Agent, is deemed to be invalid or unenforceable by a court of competent jurisdiction, or (iv) by 5:00 p.m. on the last day of the Term Rate Period all of the Reoffered Bonds have not been remarketed at the Purchase Price, then a Failed Remarketing Period shall commence on the day after the end of the then existing Term Rate Period. While any Reoffered Bonds are in a Failed Remarketing Period, such Reoffered Bonds will (1) be retained by the existing Holders through the end of such Failed Remarketing Period and any additional Failed Remarketing Period(s) that immediately succeed(s) such Failed Remarketing Period, (2) bear interest at the Maximum Rate, and (3) be subject to mandatory tender for purchase pursuant to Section 2-6.02(a)(ii) of the Subordinate Indenture. If during a Failed Remarketing Period, the Reoffered Bonds are not successfully remarketed, converted to another Rate Mode or redeemed by the third (3rd) day prior to the end of the Failed Remarketing Period, the Trustee will provide written notice to the Holders of the Reoffered Bonds that such Reoffered Bonds are subject to another Failed Remarketing Period. See "THE REOFFERED BONDS – Remarketing of the Reoffered Bonds – Failed Remarketing Period."

The Term Rate Period for the Reoffered Bonds in the Term Mode is the period from and including the date the Reoffered Bonds are initially converted to the Term Mode from the Weekly Mode and ending on, but not including, the March 1 or September 1 of the following year or another year, as determined by the Authority, and thereafter, each period commencing on March 1 or September 1 of such year and ending on, but not including, the March 1 or September 1 of the following year or another year, as determined by the Authority. If a new Term Rate Period is not selected by the Authority prior to the Business Day next preceding the end of the Term Rate Period then in effect, the new Term Rate Period will be of the same duration as that of the Term Rate Period then in effect. The Reoffered Bonds will be subject to mandatory tender for purchase on the first Business Day following the end of the Term Rate Period. See "THE REOFFERED BONDS – Mandatory Tenders."

Determination of Rates Conclusive

With respect to the Reoffered Bonds, the determination of a Term Rate by the Remarketing Agent in accordance with the Subordinate Indenture will be conclusive and binding upon the Authority, the Trustee, and the

Remarketing Agent, each issuer of a Letter of Credit or Liquidity Facility supporting payments on the Reoffered Bonds, if any, and the registered and beneficial owners of such series of Reoffered Bonds.

Remarketing of the Reoffered Bonds

Remarketing of the Reoffered Bonds Subject to Mandatory Tender

The Remarketing Agent for the Reoffered Bonds will offer for sale, and use its best efforts to remarket, any Reoffered Bond with any such remarketing to be made a price equal to one-hundred percent (100%) of the principal amount thereof plus accrued interest, if any, to the Purchase Date. The Purchase Price of such tendered Reoffered Bond will be payable solely from the proceeds of the remarketing of such Reoffered Bond. The Reoffered Bonds are not supported by a Letter of Credit or Liquidity Facility, and the Authority does not have any obligation to pay the Purchase Price of tendered Bonds even if the remarketing proceeds are insufficient. Thus, failure by the Authority to purchase tendered Reoffered Bonds does not constitute an event of default under the Subordinate Indenture. If any Reoffered Bond that is subject to mandatory tender on the first Business Day following the end of the Term Rate Period, or upon a change in the Rate Mode is not remarketed at the Purchase Price, then all of the Reoffered Bonds will be returned to the Holders tendering such Reoffered Bonds and a Failed Remarketing Period will commence. See "THE REOFFERED BONDS – Remarketing of the Reoffered Bonds – Failed Remarketing Period."

Failed Remarketing Period

A "Failed Remarketing Period" means, with respect to the Reoffered Bonds while not then supported by a Letter of Credit, Confirming Letter of Credit or other Liquidity Facility, a Term Rate Period commencing on the day following the end of a preceding Term Rate Period in which any one of the following events exists:

(i) by 2:00 p.m. on the first Business Day prior to the end of the then existing Term Rate Period (A) the Remarketing Agent has not set the Term Rate for the next Term Rate Period for the Reoffered Bonds when the Reoffered Bonds are not being converted to another Rate Mode, redeemed or defeased at the end of the then existing Term Rate Period, (B) there is no Remarketing Agent for the Reoffered Bonds when the Reoffered Bonds are not being converted to another Rate Mode, redeemed or defeased at the end of the then existing Term Rate Period or (C) the Term Rate, as determined by the Remarketing Agent, is deemed to be invalid or unenforceable by a court of competent jurisdiction; or

(ii) by 5:00 p.m. on the last day of a Term Rate Period all such Reoffered Bonds have not been remarketed at the Purchase Price,

and ending on the first to occur of (i) the end of the thirtieth (30th) following the commencement of such Term Rate Period, (ii) the Purchase Date on which all of such Reoffered Bonds are successfully remarketed, and (iii) the date of redemption of all such Reoffered Bonds. If as of the end of any Failed Remarketing Period any one of the events specified in clauses (i) or (ii) immediately above exists, then a new Failed Remarketing Period will commence immediately upon the expiration of such expiring Failed Remarketing Period.

While any Reoffered Bonds are in a Failed Remarketing Period, such Reoffered Bonds will (1) be retained by the existing Holders through the end of such Failed Remarketing Period and any additional Failed Remarketing Period(s) that immediately succeed(s) such Failed Remarketing Period, (2) bear interest at the Maximum Rate, and (3) be subject to mandatory tender for purchase pursuant to Subordinate Indenture (See "THE REOFFERED BONDS – Mandatory Tenders below). If, by the end of the third consecutive Failed Remarketing Period, the Reoffered Bonds have not been successfully remarketed, converted to another Rate Mode or redeemed, then the Bond Insurer may, at its option, direct the Authority to convert the Reoffered Bonds to the Fixed Rate Mode. However, in the absence of action by the Bond Insurer, Failed Remarketing Periods will continue as described above.

Mandatory Tenders

The Bondholder of each Reoffered Bond shall be required to tender such Reoffered Bond to the Trustee for purchase on the following dates (each such date being herein called a "Mandatory Tender Date"):

(1) the first Business Day following the end of each Term Rate Period;

(2) on each Conversion Date, or if such Conversion Date is not a Business Day, the first Business Day succeeding such Conversion Date; or

(3) any Business Day during a Failed Remarketing Period selected by the Trustee in consultation with the Remarketing Agent following the Trustee's receipt from the Remarketing Agent of notice that it has a firm commitment to remarket all of such subseries of Reoffered Bonds on the proposed Purchase Date at the Purchase Price.

The Trustee shall promptly give notice of mandatory tender for purchase by first-class mail to the Bondholders of all Reoffered Bonds on or before the third (3rd) day prior to the Mandatory Tender Date (on or before the second (2nd) day prior in the case of a tender pursuant to clause (3) above). Such notice of Mandatory Tender shall state that the Reoffered Bonds are subject to mandatory tender for purchase pursuant to the provisions thereof and the provisions of the Subordinate Indenture and will be purchased on the Mandatory Tender Date (which date shall be set forth in such notice) by payment of a Purchase Price equal to the principal amount thereof plus accrued interest.

Any Reoffered Bond subject to mandatory tender must be tendered by the Holder thereof for purchase on the Mandatory Tender Date by delivering such Reoffered Bond to the Delivery Office of the Trustee. Any such Reoffered Bond that is subject to purchase, but that is not so delivered to the Trustee on the Mandatory Tender Date ("Undelivered Reoffered Bond"), will nevertheless be deemed to have been tendered for purchase by the Holder thereof on the Mandatory Tender Date if the Trustee is in receipt of the Purchase Price for such Reoffered Bonds.

On the Mandatory Tender Date with respect to any Reoffered Bond, the Trustee shall pay the Purchase Price to the Bondholder of such Reoffered Bond. Funds for payment of the Purchase Price of such Reoffered Bond shall be drawn by the Trustee from the Remarketing Proceeds Purchase Account as provided in the Subordinate Indenture. If sufficient funds are not available for the purchase of all tendered Reoffered Bonds, no purchase shall be consummated.

If the Trustee is in receipt of the Purchase Price of any Undelivered Reoffered Bond, such Undelivered Reoffered Bond shall be deemed to have been tendered for purchase and purchased from the Bondholder thereof on such Mandatory Tender Date and the Bondholder of such Undelivered Reoffered Bond shall not be entitled to receive interest on such Undelivered Reoffered Bond for any period on and after the Mandatory Tender Date. The Trustee shall, as to any tendered Reoffered Bonds which are Undelivered Reoffered Bonds, (i) promptly notify the Remarketing Agent of such non-delivery and (ii) place a stop transfer against such Reoffered Bonds until they are delivered to the Trustee. Upon such delivery, the Trustee shall pay, or cause to be paid, the Purchase Price of such Undelivered Reoffered Bond to the Bondholder thereof and make any necessary adjustments to the Register.

Redemption Prior to Maturity

The Reoffered Bonds shall be subject to redemption prior to Maturity as follows:

Optional Redemption

While the Reoffered Bonds are in the Term Mode, such Reoffered Bonds may be redeemed by the Authority prior to maturity in whole or in part (and, if in part, by the redemption of any Bank Bonds first and thereafter in authorized denominations by lot), on the Mandatory Tender Date occurring on the first Business Day following the end of each Term Rate Period (September 1, 2015 with respect to the new Term Rate Period) applicable to such Reoffered Bonds at a redemption price equal to one-hundred percent (100%) of the principal amount thereof plus accrued interest to the redemption date, upon obtaining prior written consent of the Bond Insurer.

Mandatory Sinking Fund Redemption

The Reoffered Bonds are subject to mandatory sinking fund redemption at a redemption price of 100% of the principal amount redeemed plus accrued interest to the redemption date, on the dates and in the principal amounts specified in the redemption schedule set forth below:

Redemption Date September 1	Principal Amount
2013	$ 30,000
2030	755,000
2031	3,975,000
2032	6,605,000
2033	6,855,000
2034	7,160,000
2035*	1,490,000

*Final Maturity

Extraordinary Optional Redemption

The Reoffered Bonds are subject to extraordinary redemption prior to maturity at the option of the Authority in whole or in part at any time in the event of condemnation, damage or destruction of all or a substantial portion of the Water and Sewer System, from moneys deposited with or held by the Trustee for such purpose, upon payment of 100% of the principal amount thereof being redeemed, together with interest accrued to the date fixed for redemption.

Partial Redemption

If less than all Reoffered Bonds are to be redeemed, the particular Reoffered Bonds to be redeemed shall be selected by the Trustee by lot or by such other method as the Trustee shall deem fair and appropriate and which may provide for the selection for redemption of portions (in Authorized Denominations) of the principal of Reoffered Bonds in a denomination larger than the smallest Authorized Denomination.

Effect of Redemption

Reoffered Bonds (or portions thereof as aforesaid) for which redemption and payment provision is made in accordance with the Subordinate Indenture shall cease to bear interest from and after the date fixed for redemption.

Notice of Redemption

Any notice of redemption shall he given by registered or certified mail, mailed not less than fifteen (15) days prior to the redemption date, to each Bondholder of Reoffered Bonds to be redeemed, at his address appearing in the Register. So long as DTC is effecting book-entry transfers of the Reoffered Bonds, the Trustee shall provide the notices specified under this heading only to DTC. It is expected that DTC shall, in turn, notify its Participants and that the Participants, in turn, will notify or cause to be notified the beneficial owners. Any failure on the part of DTC or a Participant, or failure on the part of a nominee of a beneficial owner of a Reoffered Bond to notify the beneficial owner of the Reoffered Bond so affected, shall not affect the validity of the redemption of such Reoffered Bond.

REGISTRATION, TRANSFER AND EXCHANGE OF THE REOFFERED BONDS

The Trustee has been appointed bond registrar and as such shall keep the bond register at its designated office. The Person in whose name any Reoffered Bond shall be registered on the bond register shall be deemed and regarded as the absolute owner of such Reoffered Bond for all purposes, and payment of or on account of the principal of and redemption premium, if any, and interest on any such Reoffered Bond shall be made only to or upon the order of the Registered Owner thereof or his legal representative. All such payments shall be valid and effectual to satisfy, and discharge the liability upon such Reoffered Bond, including the interest thereon, to the extent of the sum or sums so paid.

Any Reoffered Bond may be transferred only upon the bond register upon surrender thereof to the Trustee duly endorsed for transfer or accompanied by an assignment duly executed by the Registered Owner or his attorney or legal representative in such form as shall be satisfactory to the Trustee. Upon any such transfer, the Authority shall execute and the Trustee shall authenticate and deliver in exchange for such Reoffered Bond a new Reoffered Bond or Reoffered Bonds, registered in the name of the transferee, of any authorized denomination and of the same maturity and series and bearing interest at the same rate.

The Trustee may charge an amount sufficient to reimburse it for any tax, fee or other governmental charge required to be paid in connection with any such transfer, registration, conversion or exchange. The Trustee shall not be required to (i) transfer or exchange any Reoffered Bond during a period beginning at the opening of business 15 days before the day of the mailing of a notice of redemption of such Reoffered Bond and ending at the close of business on the day of such mailing, or (ii) transfer or exchange any Reoffered Bond so selected for redemption in whole or in part, or (iii) during a period beginning at the opening of business on any Record Date for such Reoffered Bond and ending at the close of business on the relevant Interest Payment Date therefor. See also "BOOK-ENTRY ONLY SYSTEM" herein for further information regarding registration, transfer and exchange of the Reoffered Bonds.

BOOK-ENTRY ONLY SYSTEM

The information in this section has been obtained from materials provided by DTC for such purpose. The Authority and the Remarketing Agent do not guaranty the accuracy or completeness of such information and such information is not to be construed as a representation of the Authority or the Remarketing Agent.

The Depository Trust Company ("DTC"), New York, New York, will act as securities depository for the Reoffered Bonds. The Reoffered Bonds will be issued as fully-registered securities registered in the name of Cede & Co. (DTC's partnership nominee) or in such other name as may be requested by an authorized representative of DTC. One fully-registered certificate for the Reoffered Bonds of each maturity will be issued in principal amount equal to the aggregate principal amount of such maturity, 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 (the "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 (the "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 Reoffered Bonds under the DTC system must be made by or through Direct Participants, which will receive a credit for the Reoffered Bonds on DTC's records. The ownership interest of each actual purchaser of each Reoffered Bond (the "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 Owners entered into the transaction. Transfers of ownership interests in the Reoffered Bonds are to be accomplished by entries made on the books of Direct and Indirect Participants acting on behalf of the Beneficial Owners. ***Beneficial Owners will not receive certificates representing their ownership interests in the Reoffered Bonds except in the event that use of the book-entry system for the Reoffered Bonds is discontinued.***

To facilitate subsequent transfers, all Reoffered 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 Reoffered 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 Reoffered Bonds; DTC's records reflect only the identity of the Direct Participants to whose accounts such Reoffered 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. Beneficial Owners of Reoffered Bonds may wish to take certain steps to augment transmission to them of notices of significant events with respect to the Reoffered Bonds, such as redemptions, tenders, defaults, and proposed amendments to the security documents. For example, Beneficial Owners of Reoffered Bonds may wish to ascertain that the nominee holding the Reoffered Bonds for their benefit has agreed to obtain and transmit notices of Beneficial Owners. In the alternative, Beneficial Owners may wish to provide their names and addresses to the Trustee and request that copies of the notices be provided directly to them.

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

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

So long as the Reoffered Bonds are held by DTC under a book-entry system, payments of the principal of and interest on the Reoffered Bonds and, if applicable, any premium payable upon redemption thereof, 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 Authority or the Trustee on the 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 Participants and not of DTC, the Trustee or the Authority, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of the principal of and interest on Bonds and, if applicable, any premium payable upon redemption thereof to Cede & Co. (or such other nominee as may be requested by an authorized representative of DTC) is the responsibility of the Authority or the Trustee, 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 its services as a securities depository for the Reoffered Bonds at any time by giving reasonable notice to the Authority or the Trustee. Under such circumstances, in the event that a successor securities depository is not obtained, Reoffered Bonds are required to be printed and delivered.

The Authority may decide to discontinue use of the system of book-entry transfers through DTC (or a successor securities depository). In that event, bond certificates will be printed and delivered.

The Authority and the Trustee cannot give any assurances that DTC or the Participants will distribute payments of the principal or redemption price of and interest on the Reoffered Bonds paid to DTC or its nominee, as the registered owner of the Reoffered Bonds, or any redemption or other notices, to the Beneficial Owners or that they will do so on a timely basis or that DTC will serve and act in the manner described in this Remarketing Circular.

SECURITY FOR THE REOFFERED BONDS

Limited Obligations

THE REOFFERED BONDS ARE LIMITED OBLIGATIONS OF THE AUTHORITY. THE REOFFERED BONDS DO NOT PLEDGE THE GENERAL CREDIT OR TAXING POWER OF THE CITY OF PITTSBURGH (THE "CITY"), THE COMMONWEALTH OF PENNSYLVANIA (THE "COMMONWEALTH") OR ANY POLITICAL SUBDIVISION THEREOF; NOR SHALL THE REOFFERED BONDS BE DEEMED AN OBLIGATION OF THE CITY, THE COMMONWEALTH OR ANY POLITICAL SUBDIVISION THEREOF (OTHER THAN THE AUTHORITY); NOR SHALL THE CITY, THE COMMONWEALTH OR ANY POLITICAL SUBDIVISION THEREOF (OTHER THAN THE AUTHORITY) BE LIABLE FOR PAYMENT OF THE PRINCIPAL OF, PREMIUM, IF ANY, OR INTEREST ON THE REOFFERED BONDS. THE AUTHORITY HAS NO TAXING POWER.

Pledge of Subordinate Receipts and Revenues

The Reoffered Bonds, together with the other Subordinate Bonds issued under the Subordinate Indenture and the Authority's obligation to make Periodic Payments under Qualified Interest Rate Swap Agreements related to such Subordinate Bonds, if any, and the Authority's obligations under Reimbursement Agreements, as defined under the Subordinate Indenture, are secured, on a parity, by a pledge of the Receipts and Revenues of the Water and Sewer System after payment of (i) Current Expenses, (ii) the debt service due on the First Lien Bonds and Periodic Payments related thereto, (iii) the funding of the Debt Service Reserve Fund, the Operating Reserve Fund, the Renewal and Replacement Fund, held pursuant to and as required and defined in the First Lien Indenture and Policy Costs (as defined in the First Lien Indenture), (the "Subordinate Receipts and Revenues"), together with cash and investments from time to time held in certain funds pursuant to the Subordinate Indenture. Any other amounts due, including any termination payments under Qualified Interest Rate Swap Agreement related to either First Lien Bonds or Subordinate Bonds are subordinate to payment of debt service payments on Subordinate Bonds. (See "DEBT OF THE AUTHORITY" and APPENDIX B - SUMMARY OF THE INDENTURES.)

Debt Service Reserve Fund

The Subordinate Indenture requires that a Debt Service Reserve Fund be funded in an amount which when added to the amounts on hand in the Debt Service Reserve Fund of the First Lien Indenture is equal to the maximum annual debt service requirements on all Authority Bonds, subject to restrictions of federal tax laws. Currently, the Debt Service Reserve Funds for such First Lien Bonds and the Subordinate Bonds are fully funded as required under the First Lien Indenture and the Subordinate Indenture. Debt Service Reserve Fund requirements currently are satisfied through Municipal Bond Debt Service Reserve Fund Policies issued by Assured Guaranty Municipal Corp.

Additional Debt

The Authority may issue additional bonds on a parity with the First Lien Bonds for the purposes of financing the cost of acquiring, constructing or completing capital additions or refunding outstanding indebtedness incurred under the First Lien Indenture, upon satisfaction of the conditions set forth in the First Lien Indenture. Additional bonds may be issued under the Subordinate Indenture for any lawful purpose, including refunding. The Subordinate Indenture also permits the incurrence of debt that is subordinated to payments due on the Subordinate Bonds.

Covenants of the Authority

Under both the First Lien Indenture and the Subordinate Indenture the Authority covenants, among other things: (1) to insure the property of the Water and Sewer System in accordance with customary practice, (2) to employ a consulting engineer to make recommendations annually concerning, among other things, the proper maintenance, repair and operation of the Water and Sewer System, (3) to maintain the Water and Sewer System in good repair, working order and condition, (4) to maintain its rates and charges at a specified level, and (5) limiting the disposition of assets and encumbering assets with liens. (See "RATE COVENANT" and APPENDIX B — SUMMARY OF THE INDENTURES).

BOND INSURANCE

BOND INSURANCE POLICY

Simultaneously with the initial issuance of the Reoffered Bonds, Assured Guaranty Municipal Corp. (formerly known as Financial Security Assurance Inc.) ("AGM") issued its Municipal Bond Insurance Policy for the Reoffered Bonds (the "Policy"). The Policy guarantees the scheduled payment of principal of and interest on the Reoffered Bonds when due as set forth in the form of the Policy included as an exhibit to this Remarketing Circular. The Policy does not insure payment of the Purchase Price of the Reoffered Bonds upon any tender thereof.

The Policy is not covered by any insurance security or guaranty fund established under New York, California, Connecticut or Florida insurance law.

ASSURED GUARANTY MUNICIPAL CORP.

AGM is a New York domiciled financial guaranty insurance company and a wholly owned subsidiary of Assured Guaranty Municipal Holdings Inc. ("Holdings"). Holdings is an indirect subsidiary of Assured Guaranty Ltd. ("AGL"), a Bermuda-based holding company whose shares are publicly traded and are listed on the New York

Stock Exchange under the symbol "AGO". AGL, through its operating subsidiaries, provides credit enhancement products to the U.S. and global public finance, infrastructure and structured finance markets. No shareholder of AGL, Holdings or AGM is liable for the obligations of AGM.

AGM's financial strength is rated "AA-" (stable outlook) by Standard and Poor's Ratings Services, a Standard & Poor's Financial Services LLC business ("S&P") and "Aa3" (on review for possible downgrade) by Moody's Investors Service, Inc. ("Moody's"). An explanation of the significance of the above ratings may be obtained from the applicable rating agency. The above ratings are not recommendations to buy, sell or hold any security, and such ratings are subject to revision or withdrawal at any time by the rating agencies, including withdrawal initiated at the request of AGM in its sole discretion. In addition, the rating agencies may at any time change AGM's long-term rating outlooks or place such ratings on a watch list for possible downgrade in the near term. Any downward revision or withdrawal of any of the above ratings, the assignment of a negative outlook to such ratings or the placement of such ratings on a negative watch list may have an adverse effect on the market price of any security guaranteed by AGM. AGM only guarantees scheduled principal and scheduled interest payments payable by the issuer of bonds insured by AGM on the date(s) when such amounts were initially scheduled to become due and payable (subject to and in accordance with the terms of the relevant insurance policy), and does not guarantee the market price or liquidity of the securities it insures, nor does it guarantee that the ratings on such securities will not be revised or withdrawn.

Current Financial Strength Ratings

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. AGM can give no assurance as to any further ratings action that Moody's may take. Reference is made to the press release, a copy of which is available at www.moodys.com, for the complete text of Moody's comments.

On November 30, 2011, S&P published a Research Update in which it downgraded AGM's financial strength rating from "AA+" to "AA-". At the same time, S&P removed the financial strength rating from CreditWatch negative and changed the outlook to stable. AGM can give no assurance as to any further ratings action that S&P may take. Reference is made to the Research Update, a copy of which is available at www.standardandpoors.com, for the complete text of S&P's comments.

For more information regarding AGM's financial strength ratings and the risks relating thereto, see AGL's Annual Report on Form 10-K for the fiscal year ended December 31, 2011, its Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2012, and its Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2012.

Capitalization of AGM

At June 30, 2012, AGM's consolidated policyholders' surplus and contingency reserves were approximately $3,169,404,271 and its total net unearned premium reserve was approximately $2,204,572,593, in each case, in accordance with statutory accounting principles.

AGM's statutory financial statements for the fiscal year ended December 31, 2011, for the quarterly period ended March 31, 2012, and for the quarterly period ended June 30, 2012, which have been filed with the New York State Department of Financial Services and posted on AGL's website at http://www.assuredguaranty.com, are incorporated by reference into this Remarketing Circular and shall be deemed to be a part hereof.

Incorporation of Certain Documents by Reference

Portions of the following documents filed by AGL with the Securities and Exchange Commission (the "SEC") that relate to AGM are incorporated by reference into this Remarketing Circular and shall be deemed to be a part hereof:

(i) the Annual Report on Form 10-K for the fiscal year ended December 31, 2011 (filed by AGL with the SEC on February 29, 2012);

(ii) the Quarterly Report on Form 10-Q for the quarterly period ended March 31, 2012 (filed by AGL with the SEC on May 10, 2012); and

(iii) the Quarterly Report on Form 10-Q for the quarterly period ended June 30, 2012 (filed by AGL with the SEC on August 9, 2012).

All information relating to AGM included in, or as exhibits to, documents filed by AGL pursuant to Section 13(a) or 15(d) of the Securities Exchange Act of 1934, as amended, after the filing of the last

document referred to above and before the termination of the offering of the Bonds shall be deemed incorporated by reference into this Remarketing Circular and to be a part hereof from the respective dates of filing such documents. Copies of materials incorporated by reference are available over the internet at the SEC's website at http://www.sec.gov, at AGL's website at http://www.assuredguaranty.com, or will be provided upon request to Assured Guaranty Municipal Corp.: 31 West 52nd Street, New York, New York 10019, Attention: Communications Department (telephone (212) 826-0100).

Any information regarding AGM included herein under the caption "BOND INSURANCE – Assured Guaranty Municipal Corp." or included in a document incorporated by reference herein (collectively, the "AGM Information") shall be modified or superseded to the extent that any subsequently included AGM Information (either directly or through incorporation by reference) modifies or supersedes such previously included AGM Information. Any AGM Information so modified or superseded shall not constitute a part of this Remarketing Circular, except as so modified or superseded.

Miscellaneous Matters

AGM or one of its affiliates may purchase a portion of the Reoffered Bonds or any uninsured bonds offered under this Remarketing Circular and may hold such Reoffered Bonds or uninsured bonds for investment or may sell or otherwise dispose of such Bonds or uninsured bonds at any time or from time to time.

AGM makes no representation regarding the Reoffered Bonds or the advisability of investing in the Reoffered Bonds. In addition, AGM has not independently verified, makes no representation regarding, and does not accept any responsibility for the accuracy or completeness of this Remarketing Circular or any information or disclosure contained herein, or omitted herefrom, other than with respect to the accuracy of the information regarding AGM supplied by AGM and presented under the heading "BOND INSURANCE".

FLOW OF FUNDS

Pursuant to the First Lien Indenture, the Authority has heretofore established a special fund (the "Revenue Fund") with Authorized Depositaries into which it deposits its Receipts and Revenues. The Authority will withdraw from the Revenue Fund for deposit to the credit of the following funds in the order, on the dates and for the following purposes:

1. *Operation and Maintenance Fund* - Established Pursuant to First Lien Indenture

Each month or more frequently as required, the Authority shall transfer from the Revenue Fund to an Operation and Maintenance Fund established with Authorized Depositaries an amount equal to the amount required by the Authority for that month or as then needed for payment of the Current Expenses as the same become due.

2. *Operating Reserve Account*- Established Pursuant to First Lien Indenture

There is a special account within the Operation and Maintenance Fund called the "Operating Reserve Account," which is held by the Trustee under the First Lien Indenture, There shall be maintained in the Operating Reserve Account one-sixth of the amount equal to the Authority's budgeted Current Expenses for the current Fiscal Year. Amounts in the Operating Reserve Account shall be applied to pay the Current Expenses of the Authority to the extent that the amounts on deposit in the Operation and Maintenance Fund are insufficient.

3. *Debt Service Fund* - Established Pursuant to First Lien Indenture

After making the foregoing transfers, on or before each Interest Payment Date and Periodic Payment Date, moneys in the amount of the interest to come due on the First Lien Bonds on such Interest Payment Date, Periodic Payments owed, if any, to such Counterparty under a Qualified Swap Agreement related to any First Lien Bonds on such Periodic Payment Date, and obligations owed under the Reimbursement Agreements, and on or before the first day of each month moneys in the amount of 1/12 of the principal to come due on the First Lien Bonds on the next principal payment date are to be transferred to the Debt Service Fund of the First Lien Indenture.

4. *Deficiency in Debt Service Reserve Fund or Operating Reserve Account* – Established Under First Lien Indenture

Next, on the first day of each month in which there is a deficiency in the Debt Service Reserve Fund or the Operating Reserve Account, both established under the First Lien Indenture, or if there has been a draw on the surety bond held in the Debt Service Reserve Fund of the First Lien Indenture, amounts sufficient to repay any deficiency or repay any such draw, together with expenses due, in not more than 12 equal monthly payments shall be transferred, as applicable, to the Debt Service Reserve Fund or the Operating Reserve Account or paid to the surety provider.

5. *Renewal and Replacement Fund*-- Established Pursuant to First Lien Indenture

After the foregoing transfers, on the dates and in the amounts, if any, set forth in the annual consulting engineer's report moneys are to be transferred to the Renewal and Replacement Fund held pursuant to the First Lien Indenture.

6. *Debt Service for Subordinated Debt* – Held under the Subordinated Indenture

After making the foregoing transfers, on the first day of each month moneys shall be transferred in amounts sufficient to make all payments due on Subordinate Bonds and Periodic Payments on Qualified Swap Agreements related to any Subordinate Bonds and payments due under the Reimbursement Agreements relating to Letters of Credit and Confirming Letters of Credit supporting certain of the Subordinate Bonds (THE REOFFERED BONDS ARE NOT SUPPORTED BY A LETTER OF CREDIT OR OTHER LIQUIDITY FACILITY).

7. *Debt Service Fund* – Established Pursuant to First Lien Indenture and the Subordinated Indenture

Any payments, other than Periodic Payments, due under any Qualified Swap Agreements relating to Authority Bonds, including, without limitation, termination payments.

8. *Depreciation Reserve Account* – Held outside of the First Lien Indenture

On December 1 of each year, after making the foregoing transfers, moneys shall be transferred to a Depreciation Reserve Account to be held by an Authorized Depository as an account within the Revenue Fund required to be established by the First Lien Indenture, in an amount, if any, equal to the excess of the depreciation on the Water and Sewer System during such year over the principal payments on the Bonds outstanding during such year and the amount of Capital Additions funded from the Authority's Gross Revenues during such year. Moneys in the Depreciation Reserve Account may be used by the Authority to pay (i) principal on the Bonds of the Authority; (ii) Capital Additions; and (iii) the costs of construction, acquisition and improvements to the Water and Sewer System.

RATE COVENANT

Under the First Lien Indenture and the Subordinate Indenture the Authority has covenanted with the owners of the Bonds to adopt rates complying with either (1) or (2) of the following in each fiscal year:

(1) The Authority will maintain, charge and collect, so long as any Bonds are outstanding, reasonable rates, rentals and other charges for the use of the facilities of the Water and Sewer System which (after making due and reasonable allowances for contingencies and a margin of error in the estimates) together with other Receipts and Revenues, including any unrestricted cash and investments accumulated in the Revenue Fund at the beginning of each Fiscal Year, shall be at all times at least sufficient to provide annually:

(a) Amounts sufficient to pay all of the Current Expenses of the Authority; and

(b) An amount equal to 120% of the debt service requirements with respect to the Authority Bonds (i.e., the First Lien Bonds and Subordinate Bonds) and other Authority Long Term Indebtedness during the then current fiscal year of the Authority.

(2) The Authority will maintain, charge and collect, so long as any Bonds are outstanding, reasonable rates, rentals and other charges for the use of the facilities of the Water and Sewer System which (after making due and reasonable allowances for contingencies and a margin of error in the estimates), together with other Receipts and Revenues, for the then current fiscal year (exclusive of interest income earned by the Authority on funds other than the Debt Service Reserve Fund; provided, however, that earnings on the construction acquisition funds may also be included during any construction period, but only to the extent such earnings are expressly required to be either retained in the construction acquisition funds and may be used to pay debt service on the Authority Bonds or other Authority Long Term Indebtedness or are applied directly to payment of debt service on the Authority Bonds or other Authority Long Term Indebtedness), shall be at all times at least sufficient to provide annually:

(a) Funds to pay all of the Current Expenses of the Authority; and

(b) An amount equal to 100% of the debt service requirements with respect to the Authority Bonds and other Authority Long Term Indebtedness during the then current fiscal year of the Authority.

Calculation of compliance with the covenant shall be made on the following basis: (a) operating revenue, construction/acquisition fund income, earnings on the Debt Service Reserve Fund, expenses, required deposits to replenish any withdrawals from the Debt Service Reserve Fund and the Renewal and Replacement Fund which have not been capitalized shall be accounted for on the accrual basis; (b) costs of issuance of the Authority Bonds and other Authority Long Term Indebtedness may be treated as if such amounts are amortized over the life of the Authority Bonds and other Authority Long Term Indebtedness irrespective of any shorter period over which such costs are actually amortized; and (c) depreciation is specifically excluded from the calculation. In the event that any Policy Costs are due and owing at the time of the calculation of the rate covenant, Gross Revenues of the Authority shall be reduced by the amount of any Policy Costs then due and owing.

The Authority also covenants with the holders of First Lien Bonds and Subordinate Bonds that if at any time the revenues collected shall not be sufficient to enable the Authority to comply with the provisions set forth above, it will promptly revise its water or sewer rates, rents and other charges so that the Authority will be in compliance and so that any deficiencies in transfers of funds required to be made pursuant to the First Lien Indenture or the Subordinate Indenture will be remedied before the end of the next ensuing fiscal year.

INTEREST RATE SWAP AGREEMENTS

The Authority has previously entered into International Swaps and Derivatives Association (ISDA) Master Agreements, and related supporting schedules and confirmations (each a "Swap Agreement") relating to outstanding bonds, including Series 2008C-1D Bonds, with JPMorgan Chase Bank, National Association, and with Merrill Lynch Capital Services, Inc., (each a "Counterparty" and together, the "Counterparties").

The Swap Agreements provide, in general, that the Authority will pay to the respective Counterparties periodic fixed amounts ("Periodic Payments") based on a fixed percentage on an aggregate notional amount equal to the Authority's aggregate outstanding amount of Reoffered Bonds) and that the respective Counterparties will pay to the Authority periodic floating amounts based on the Securities Industry and Financial Market Association ("SIFMA") Municipal Swap Index times the same notional amount until September 1, 2040, unless earlier terminated. The execution and delivery of the Swap Agreements does not alter the Authority's obligation to pay the principal of, premium, if any, and interest on the Reoffered Bonds. However, as the Swap Agreements will be "Qualified Interest Rate Swap Agreements" as defined in the Subordinate Indenture, the obligations of the Authority to make Periodic Payments (but not Settlement Amounts (defined below) payable under the Swap Agreements) will be secured on parity with the Authority's obligations to make payments on the Reoffered Bonds and the related series of other Bonds issued under the Subordinate Indenture.

The Authority has adopted a policy relating to interest rate management agreements ("Swap Policy") to establish guidelines for the use and management of all interest rate management agreements, including, but not limited to, interest rate swaps, swaptions, caps, collars and floors (collectively "Swaps" or "Agreements") incurred in connection with the incurrence of debt. The Authority may change the Swap Policy at any time in its sole discretion.

The Swap Policy authorizes the Authority to use swaps to hedge interest rate movement, basis risk and other risks, to lock-in a fixed rate or, alternatively, to create synthetic variable rate debt. Swaps may also be used to produce interest rate savings, limit or hedge variable rate payments, alter the pattern of debt service payments, manage exposure to changing market conditions in advance of anticipated bond issues (through the use of anticipatory hedging instruments) or for asset/liability matching purposes. The Swap Policy includes provisions relating to the credit quality of counterparties, the term and notional amount of Swaps, monitoring of existing Swaps, the engagement of advisors to assist the Authority in monitoring the Swaps, disclosure and reporting of amounts, value and issues relative to existing Swaps, and other related matters. Pursuant to the Swap Policy, the Authority will actively monitor the degree of risk and exposure associated with Swaps to which it is a party but can offer no assurances that compliance with its Swap Policy will prevent the Authority from suffering adverse financial consequences as a result of these transactions.

See "Interest Rate Swap Agreements" under Appendix A for a list of outstanding swap agreements.

CERTAIN BONDHOLDERS' RISKS

Investment in the Reoffered Bonds may involve certain risks and each investor should carefully consider the risks involved to determine whether to purchase any of the Reoffered Bonds. Each prospective investor should carefully examine this Reoffering Circular and his or her own financial condition (including the diversification of his or her investment portfolio) in order to make a judgment as to whether the Reoffered Bonds are an appropriate investment.

The Authority has identified and summarized below certain "bondholders' risks" that could adversely affect the finances of the Authority, the operation of the Water and Sewer System and/or the funds available for payment of the Reoffered Bonds, which should be considered by prospective investors. The following discussion is not intended to be exhaustive, but includes certain major factors, which should be considered along with other factors set forth elsewhere in this Reoffering Circular, including the Appendices hereto.

No Liquidity on Series C-1D Bonds

The purchase price of such Reoffered Bond tendered will be payable solely from the proceeds of the remarketing of such Reoffered Bond. The Reoffered Bond is not supported by a Liquidity Facility, and the Authority does not have any obligation to pay the Purchase Price of tendered Reoffered Bond even if the remarketing proceeds are insufficient. Thus, failure by the Authority to purchase tendered Reoffered Bonds does not constitute an event of default under any Subordinate Indenture. Any Reoffered Bond that is subject to mandatory tender on the Business Day immediately following a Calculation Period or upon a change in the Interest Rate Mode that is not remarketed will be returned to the Holders tendering such Reoffered Bond and a Failed Remarketing Period will commence. See "*—Failed Remarketing Period*."

Certain Environmental Matters

The Authority is subject to a variety of federal, state and local environmental laws and regulations governing discharges to air and water, conveyance of sanitary/storm wastewaters and possibly the storage and disposal of solid waste materials. The Sewer System conveys wastewater generated within the City boundaries, and from certain other municipalities connected to the Sewer Conveyance Systems to ALCOSAN interceptors located along the rivers and streams of the City for conveyance to ALCOSAN's wastewater treatment facility for processing prior to discharge into the Ohio River. The Combination Sewer System is designed so that during wet weather, a portion of the collected storm water and diluted wastewater is discharged to natural watercourses by diversion chambers located throughout the PWSA Sewer Systems and at connections to the ALCOSAN interceptors. The Sewer System operates satisfactorily and has adequate capacity for the dry weather wastewater flows; during wet weather, however, the Sewer System is often taxed beyond its treatment capacity, resulting in certain overflows, bypassing and flooding. See APPENDIX A - CERTAIN INFORMATION REGARDING THE AUTHORITY AND WATER AND SEWER SYSTEM — "Government Regulation" and "The Sewer System".

The U.S. Environmental Protection Agency ("USEPA") has adopted regulations governing discharges to surface bodies of water under the Federal Clean Water Act, coupled with a Combined Sewer Overflow Policy (the "CSO Policy") regarding overflows from combined sewers during wet weather events that result in the discharge to receiving water of untreated sanitary sewage. These combined sewer overflows ("CSOs") contain pollutants that are present in domestic and industrial wastewater, as well as those in the urban storm water runoff that enter the combined sewer system. 73% of the 1,234 miles of the Authority's sewers are combined sewers and there are 194 Permitted CSOs within the Authority's Sewer System including connections to ALCOSAN's interceptors. The CSO Policy requires owners of any sewer system having CSOs to acquire National Pollutant Discharge Elimination System ("NPDES") discharge permits for each overflow site. On January 29, 2004, pursuant to a resolution adopted by its Board on December 19, 2003, the Authority entered into a Consent Order and Agreement (the "Order") regarding alleged wet weather sewer overflows within the City of Pittsburgh, Allegheny County, Pennsylvania. The other signatories to the Order are the City of Pittsburgh, the Pennsylvania Department of Environmental Protection ("DEP") and the Allegheny County Health Department ("ACHD").

The Order was developed as part of a two-year process of negotiation and consensus-building among the DEP, the ACHD, the Authority and eighty-two other municipalities and municipal authorities whose sewage is ultimately treated by ALCOSAN at its Woods Run Sewage Treatment Plant. In the negotiations and consensus-building, the participants developed proposed orders to be used by the municipalities served by ALCOSAN to address regional concerns regarding wet weather sewer overflows.

Generally, the Order requires the Authority and the City to assess the combined and separate sanitary sewers within the City in order to develop a plan to address alleged wet weather sewer overflows within the City. The assessment activities required under the Order include performing: (1) a physical survey and visual inspection of manholes; (2) sewer line cleaning and closed circuit television internal inspections; (3) sewer system mapping; (4) sewer system dye testing; (5) a system of hydraulic characterization; and (6) flow monitoring. The Order provides a very specific schedule for the completion of assessment activities. Most assessment activities for critical sewers and the separate sanitary portion of the sewer system were completed by 2010. Most assessment activities for non-critical sewers are to be completed by 2012.

In addition to assessment activities, the Order requires the Authority and the City to implement the Nine Minimum Controls for the control of CSOs, and to perform repairs and maintenance to the deficiencies in the sewer system revealed by the assessment activities. Such deficiency corrections include eliminating the conveyance of streams by the sewer system and repairing or replacing sewer lines that restrict flows causing unpermitted overflows. Generally, deficiency corrections in the critical sewers and the separate sanitary sewer system were completed by 2010. Most deficiency corrections in the assessed, non-critical sewers are to be completed by 2012.

The Order called for collection system investigations, repairs and further studies. The collection system investigation and repairs are reflected in the Capital Improvement Program**.** Please refer to APPENDIX E — CONSULTING ENGINEER'S REPORT AS OF MAY 10, 2012 for more information.

The Authority is currently developing a feasibility study in conjunction with ALCOSAN to address the combined sewer overflow issue and achieve compliance with water quality standards and the Clean Water Act and expects to submit its Report on the Current Status of the Development of the Wet Weather Feasibility Study to ALCOSAN in July 2012. The Authority is required to submit its final feasibility study to DEP and ACHD by July 2013.

Ultimately, an ALCOSAN Regional Wet Weather Plan must be developed for the elimination of sanitary sewer overflows and the reduction of combined sewer overflows to acceptable levels. The Regional Wet Weather Plan developed by ALCOSAN must be submitted to the regulatory agencies by January 2013. The Authority's share is estimated to cost $300,000,000, but will be more accurately determined when the Regional Wet Weather Plan is finally approved. The amount is dependent, in part, on coordination with other regional providers and ALCOSAN. According to the ALCOSAN Consent Decree, the construction of all wet weather facilities by ALCOSAN is to be completed by 2026.

The DEP has issued to the Authority and the City a National Pollutant Discharge Elimination System ("NPDES") permit regarding the CSOs within the City. The Authority is permitted for a total of 194 CSOs in the sewage collection system. Of these, the Authority operates and maintains 40 of the CSOs. The remainder of CSOs are operated and controlled by the regional treatment provider, ALCOSAN.

The Authority has an National Pollutant Discharge Elimination System ("NPDES") permit that authorizes wastewater discharges from its water treatment plant. On July 9, 2010, the Authority and DEP entered into a Consent Order and Agreement that required modifications to wastewater discharges covered by the permit. The Authority paid a penalty of $110,000 based on failure to implement the modifications by the deadline in the order. The non-compliance resulted from a failure by an engineering contractor to properly design the required modifications, resulting in a delay in construction. Action is in progress to correct the non-compliance, however, there is a potential assessment for additional penalties by DEP. The Authority is in negotiations with DEP and is exploring a claim against the engineering contractor.

Water Supply

Although the quantity of water available from the Authority's sole source of water, the Allegheny River, is believed to be adequate, it is possible that circumstances could change this condition. The total flow of the river could, for example he limited by drought conditions, and any constraints that may be imposed on withdrawals in drought conditions, such as pass-by flow conditions designed to leave sufficient water in the stream for navigation and fisheries.

Geographic Concentration

The number of customers using the Water and Sewer System may be adversely affected by regional and local economic conditions, competitive conditions, changes in population and general market conditions or a decision to secure water from their own sources and treat such water with their own treatment facilities. There can

be no assurance that the Water and Sewer System will be able to maintain the current number of existing users, if there are changes in the resident and/or commercial population of the service area.

Insurance and Legal Proceedings

The Authority carries property and general liability insurance in amounts deemed adequate by the Board and consistent with industry practices. Since January 1, 2002, the Authority has been self-insured as to general liability claims. While there are no current claims in excess of liability limits, there can be no assurance that future claims will be covered by applicable insurance coverage. A claim against the Authority not covered by, or in excess of, the Authority's insurance could have a material adverse effect upon the financial affairs of the Authority.

Governmental Regulation

The federal and local governments significantly regulate providers of water and sewer systems. Future regulations and conditions affecting the acquisition, development ownership and operation of the Water and Sewer System could increase the operating expenses of the Water and Sewer System or could otherwise have a material adverse effect on the financial condition of the Authority. See APPENDIX A — DESCRIPTION OF THE AUTHORITY AND WATER AND SEWER SYSTEM – "Government Regulation".

Swap Agreements

Under the Indenture and Subordinate Lien Indenture, the Authority is also a party to seven separate variable to fixed interest rate exchange agreements in the combined aggregate outstanding notional amount as of August 1, 2012 of $403,160,000 with respect to certain Series of Bonds issued under the Indenture and the Subordinate Lien Indenture (collectively, the "Swap Agreements"). See "SWAP AGREEMENTS" herein and APPENDIX A hereto.

Collateral Posting Requirements

The Authority has entered into various swap agreements as described under "Swap Agreements" herein. Under certain circumstances (including certain events of default with respect to the Authority or either of the Counterparties), the Swap Agreements could terminate in whole or in part prior to their respective stated termination dates. Following any such early termination of the Swap Agreements, either the Authority or the Counterparties, as applicable may owe a termination payment ("Settlement Amounts") to the other, depending upon market conditions. If at the time of an early termination of the Swap Agreements long-term interest rates are significantly lower than they were when the Swap Agreements were executed and delivered, the Authority could owe substantial Settlement Amounts to the Counterparties. The Authority's obligation to pay any Settlement Amounts with respect to Qualified Interest Rate Swap Agreements relating to any First Lien Bonds will be subordinate to the Authority's obligation to make all payments due and owing on the Reoffered Bonds, any other outstanding First Lien Bonds and Periodic Payments due under the Swap Agreements, and to any of the Authority's obligation to make any payments on any Subordinate Bonds and any Periodic Payments under Qualified interest Rate Swap Agreements related to such Subordinate Bonds.

The Authority's payment obligation with respect to Periodic Payments, but not any Settlement Amounts, under the Swap Agreements will be guaranteed by FSA under one or more swap insurance policies. The provider of the swap insurance policy will be given certain rights under the Swap Agreements, including rights to consent to the designation of an early termination date (which may result in the payment of a Settlement Amount) upon the occurrence of certain events and the right to designate an early termination date with respect to the Authority, if an event of default under the Swap Agreements occurs with respect to the Authority as the defaulting party.

There are a number of risks associated with the Swap Agreements that could affect the value of the Swap Agreements, the ability of the Authority to accomplish its objectives in entering into the Swap Agreements and the ability of the Authority to meet its obligations under the Swap Agreements and with respect to the Reoffered Bonds. These risks include, among others, the following:

(i) counterparty risk - the failure of the Counterparty to make required payments;

(ii) credit risk — the occurrence of an event modifying the credit rating of the Authority or the respective Counterparties;

(iii) termination risk — the need to terminate the transaction in a market that dictates a payment of a Settlement Amount by the Authority; and

(iv) basis risk - the mismatch between actual variable rate debt service on the Authority's variable rate bonds and variable rate indices used to determine swap payments.

In addition, the Swap Agreements require the posting of collateral from one counterparty to the other counterparty based on the mark to market calculations when such calculations result in an amount that exceeds certain thresholds set forth in the contract. Collateral posting may be required if there is a change in the ratings of either counterparty. As of the date of this offering, the Authority has not had to post collateral under the Swap Agreements.

Liquidity Support for certain Authority Variable Rate Bonds

In connection with the issuance of certain First Lien Bonds and Subordinate Bonds, the Authority entered into various credit agreements which are subject to renewal. Please refer to APPENDIX A — "CERTAIN INFORMATION REGARDING THE AUTHORITY AND WATER AND SEWER SYSTEM – "Letter of Credit and Liquidity Agreements" for more information.

INVESTMENT CONSIDERATIONS

The Reoffered Bonds are subject to certain investment risks, which are described throughout this Remarketing Circular. Accordingly, each prospective purchaser should make an independent evaluation of all of the information presented in this Remarketing Circular in order to make an informed investment decision, This section of the Remarketing Circular does not include all risks to which payment of the Reoffered Bonds is subject, but is merely an attempt to summarize certain of those risks, Each potential investor in the Reoffered Bonds should read this Remarketing Circular in its entirety.

Limited, Subordinate Lien Obligations

The Reoffered Bonds are special, limited obligations of the Authority payable solely from and secured by a subordinate lien on the Receipts and Revenues of the Authority after payment of the Current Expenses, payment of principal and interest or the First Lien Bonds. The Reoffered Bonds are secured on a parity basis with the lien on all Outstanding Subordinate Bonds and any Additional Subordinate Bonds. See "SECURITY FOR THE ROFFERED BONDS".

Additional First Lien Bonds

The Authority is permitted by the First Lien Indenture, subject to certain restrictions and limitations, to issue additional First Lien Bonds payable from and secured by Receipts and Revenues of the Authority senior to the lien thereon of the Reoffered Bonds and any other then outstanding Subordinate Bonds. See "SECURITY FOR THE ROFFERED BONDS".

Future Changes in Law

Various federal and state laws, constitutional provisions, rules and regulations apply to the operation of the Authority's Water and Sewer System, the receipt of Receipts and Revenues and the obligations created by the issuance of the Reoffered Bonds, the First Lien Bonds and the other Subordinate Bonds. No assurance can be given that there will not be any change in, interpretation of or addition to such applicable laws, rules and regulations which would have a material effect, directly or indirectly, on the affairs of the Authority or the Water and Sewer System.

Future Financial Performance; Ability to Finance Future Projects

All financial and other information presented herein has been provided by the Authority from its records, except for information expressly attributed to other sources. The presentation of information, including tables of receipts from rates, charges, taxes, and other sources, is intended to show recent historical information, and is not intended to indicate future or continuing trends in the financial position or other affairs of the Authority or its Water and Sewer System except as otherwise specifically indicated herein. No representation is made that past experience, as might be shown by such financial and other information, will necessarily continue or be repeated. The ability to complete its storm water remediation program and comply with the applicable federal and state legal requirements depends, in part, on the ability of the Authority to finance such future construction either through external

borrowings, funds on deposit, or funds raised through future rate increases. No assurance can be given that due to unforeseen factors that such additional financings will be completed.

LITIGATION

In the opinion of Authority Counsel, there is no litigation pending or threatened seeking to enjoin the issuance, sale or delivery of the Reoffered Bonds or affecting the security pledged therefor.

There are no pending claims or actions against the Authority arising from the operation and maintenance of the Water and Sewer System, that, if determinations or settlements were made adverse to the Authority, and upon consideration of available insurance coverage, would have, in the opinion of the Authority's Counsel, a material adverse effect on the Authority 's financial position.

TAX MATTERS

In the opinion of Bond Counsel, assuming compliance with certain covenants of the Authority, interest on the Reoffered Bonds is excluded from gross income of the owners of the Reoffered Bonds for federal income tax purposes under existing law, as currently enacted and construed. Interest on the Reoffered Bonds will not be an item of tax preference under the Internal Revenue Code of 1986, as amended (the "Code"), for purposes of determining the alternative minimum tax imposed on individuals and corporations. Interest on a Bond held by a corporation (other than an S corporation, regulated investment company, real estate investment trust or real estate mortgage investment conduit) may be indirectly subject to alternative minimum tax because of its inclusion in the earnings and profits of the corporate holder. Interest on a Bond held by a foreign corporation may be subject to the branch profits tax imposed by the Code.

Ownership of the Reoffered Bonds may give rise to collateral federal income tax consequences to certain taxpayers, including, without limitation, financial institutions, property and casualty insurance companies, S corporations with Subchapter C earnings and profits, individual recipients of Social Security or Railroad Retirement benefits and taxpayers who may be deemed to have incurred or continued indebtedness to purchase or carry the Reoffered Bonds. Bond Counsel expresses no opinion as to any such collateral federal income tax consequences. Purchasers of the Reoffered Bonds should consult their own tax advisors as to collateral federal income tax consequences.

The Code sets forth certain requirements which must be met subsequent to the issuance and delivery of the Reoffered Bonds for interest thereon to remain excludible from the gross income of the owners of the Reoffered Bonds for federal income tax purposes. The Authority has covenanted in the Subordinate Indenture to comply with such requirements. Noncompliance with such requirements may cause the interest on the Reoffered Bonds to be includible in the gross income of the owners of the Reoffered Bonds for federal income tax purposes, retroactive to the date of issue of the Reoffered Bonds. The opinion of Bond Counsel assumes compliance with such covenants, and Bond Counsel has not undertaken to determine (or to inform any person) whether any actions taken (or not taken) or events occurring (or not occurring) after the date of issuance of the Reoffered Bonds may affect the tax status of interest on the Reoffered Bonds.

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

Pursuant to the provisions of Act 68 of 1993 of the Commonwealth of Pennsylvania ("Act 68"), profits, gain or income from the sale of the Reoffered Bonds shall be subject to Pennsylvania personal income tax and Pennsylvania corporate net income tax.

Purchasers of the Reoffered Bonds should consult their tax advisors regarding any pending or proposed legislation, regulatory initiatives or litigation. The disclosures and opinions expressed herein 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 Reoffered Bonds, and no opinion is expressed as of any date subsequent thereto or with respect to any proposed or pending legislation, regulatory initiatives or litigation.

THE TRUSTEE

The obligations and duties of the Trustee are described in the Subordinate Indenture, and the Trustee has undertaken only those obligations and duties which are expressly set out in the Subordinate Indenture. The Trustee has not independently passed upon the validity of the Reoffered Bonds, the security therefor, the adequacy of the

provisions for payment thereof or the tax-exempt status of the interest on the Reoffered Bonds. The Trustee has relied upon the opinion of Bond Counsel for the validity and tax-exempt status of the interest on the Reoffered Bonds. The Subordinate Indenture expressly provides that the Trustee shall not be responsible for any loss or damage resulting from any action or inaction taken in good faith in reliance upon an opinion of counsel.

Under the terms of the Subordinate Indenture, the Trustee is liable only for those damages caused by its gross negligence or willful misconduct. Under the Subordinate Indenture, the Trustee is not required to take notice and is not deemed to have notice, of any default under the Subordinate Indenture, except failure by the Authority to cause to be made any of the payments required to be made for payment of principal of the Reoffered Bonds, when due at maturity or earlier redemption, or interest on the Reoffered Bonds, or unless the Trustee has been specifically notified in writing of such default by the Authority or the owners of at least 25% in aggregate principal amount of the Outstanding Bonds affected by such default. All notices or other instruments required by the Subordinate Indenture to be delivered to the Trustee must be delivered at the corporate trust office of the Trustee in Pittsburgh, Pennsylvania. In the absence of any such notice, the Trustee may conclusively assume no Event of Default (as defined in the Subordinate Indenture) exists, except as expressly stated above and in the Subordinate Indenture.

LEGAL OPINIONS

The remarketing of the Reoffered Bonds by the Remarketing Agent is subject to the receipt of the approving legal opinion of Pepper Hamilton LLP, Pittsburgh, Pennsylvania, Bond Counsel. The unqualified approving opinion of Bond Counsel will be substantially in the form attached to this Reoffering Circular as APPENDIX G. Certain legal matters for the Authority will be passed upon by its counsel, Thorp, Reed & Armstrong, LLP, Pittsburgh, Pennsylvania, for the Remarketing Agent by its counsel Buchanan Ingersoll & Rooney PC, Pittsburgh, Pennsylvania.

INDEPENDENT AUDITORS

The audited financial statements of the Authority, as of and for the years ended December 31, 2011 and 2010, included in APPENDIX C - AUTHORITY FINANCIAL STATEMENTS AS OF DECEMBER 31, 2011 AND DECEMBER 31, 2010 have been audited by Maher Duessel, independent certified public accountants, as indicated in their report with respect thereto, which report also appears in APPENDIX C.

RATINGS OF THE REOFFERED BONDS

Standard & Poor's Ratings Services previously assigned a municipal bond rating in 2008 on the strength of the Policy insuring the scheduled payment when due of the principal of and interest on the Reoffered Bonds. Currently, the rating of "AA- (stable)". In addition, Standard & Poor's Rating Group has assigned a long-term municipal underlying bond rating of "A".

The aforementioned ratings reflect only the respective views of such organizations, and an explanation of the significance of a rating may be obtained only from the rating agency furnishing the same. A rating is not a recommendation to buy, sell or hold securities. There is no assurance that such ratings will be retained for any given period of time or that they will not be revised downward or withdrawn entirely by S&P, if, in its judgment, circumstances so warrant. Any such downward revision or withdrawal of such ratings may have an adverse effect on the market price of the Reoffered Bonds.

CONTINUING DISCLOSURE; DISCLOSURE DISSEMINATION

Pursuant to Securities and Exchange Commission Rule 15c2-12 under the Securities Exchange Act of 1934, as amended (the "Rule"), the Authority undertook upon the original issuance of the Series 2008C-1 Bonds, for the benefit of the holders of such Bonds, to provide certain financial information and operating data on an annual basis (the "Annual Report") and to provide notice of certain enumerated events if such events are determined to be material under the federal securities laws.

The Authority entered into a Disclosure Dissemination Agent Agreement ("Disclosure Dissemination Agreement") with Digital Assurance Certification, L.L.C. ("DAC"), under which the Authority has designated DAC as Disclosure Dissemination Agent (the "Disclosure Dissemination Agent"). The Annual Report is to be filed by the Disclosure Dissemination Agent not later than 200 days after the end of the Authority's fiscal year to the Municipal Securities Rulemaking Board ("MSRB") through EMMA. Notices of material events are to be filed with MSRB

through EMMA and any State Information Depository established by the Commonwealth under the Rule, if any ("SID"). The Authority is currently in full compliance with its continuing disclosure obligations under the Rule.

Annual Information. The Annual Information concerning the Authority shall consist of (1) audited financial statements or the disclosure of the absence of such an audit, prepared in accordance with generally accepted accounting principles ("GAAP"), or accompanied by a quantified explanation of material deviations from GAAP or a full explanation of the accounting principles used, and a certificate regarding annual debt service coverage; (2) operating data regarding the Authority substantially of the type included in the tables appearing under the following headings and subheadings of this Reoffering Circular or in APPENDIX A hereto entitled "Water and Sewer Rates," "Water Consumption by Customer Classification," and "Survey of 10 Largest Users"; and (3) a narrative discussion that analyzes the Authority's financial condition and results of operations, as well as facts likely to have a material impact on the Authority.

Notice of Material Events. The notices to be provided under the Rule within a timely manner and not in excess of ten (10) business days after the occurrence of the event, which the Authority will undertake to provide as described above, include written or notice of the occurrence of any of the following events, if material, with respect to the Reoffered Bonds:

(i) Principal and interest payment delinquencies;
(ii) Non-payment related defaults, if material;
(iii) Unscheduled draws on debt service reserves reflecting financial difficulties;
(iv) Unscheduled draws on credit enhancements reflecting financial difficulties;
(v) Substitution of credit or liquidity providers, or their failure to perform;
(vi) Adverse tax opinions or events, 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 Reoffered Bonds, or other material events affecting the tax status of the Reoffered Bonds;
(vii) Modifications to rights of holders of the Reoffered Bonds, if material;
(viii) Bond calls if material, and tender offers;
(ix) Defeasances;
(x) Release, substitution or sale of property securing repayment of the Reoffered Bonds if material;
(xi) Rating changes,
(xii) Bankruptcy, insolvency, receivership, or similar event of the Authority
(xiii) The consummation of a merger, consolidation, or acquisition involving the Authority or the sale of all or substantially all of the assets of the Authority, other than in the course of ordinary business, the entry into a definitive agreement to undertake such an action or the termination of a definitive agreement relating to such actions, other than pursuant to its terms, if material, and
(xiv) The appointment of a successor or additional trustee or the change of name of a trustee, if material.

The Securities and Exchange Commission requires the listing of the above, although some of such events may not be applicable to the Reoffered Bonds.

Amendments. The Disclosure Dissemination Agreement may be amended, without the consent of the holders of the Reoffered Bonds, but only upon the Authority obtaining an opinion of counsel expert in federal securities laws acceptable to both the Authority and the Disclosure Dissemination Agent to the effect that such amendment, and giving effect thereto, will not materially impair the interests of the holders of the Reoffered Bonds and would not, in and of itself, cause the undertakings therein to violate the Rule; provided neither the Authority nor the Disclosure Dissemination Agent shall be obligated to agree to any amendment modifying their respective duties or obligations without their consent thereto. Notwithstanding the foregoing, the Disclosure Dissemination Agent shall have the right to adopt amendments to the Disclosure Dissemination Agreement necessary to comply with modifications to and interpretations of the provisions of the Rule as announced by the Securities and Exchange Commission from time to time by giving not less than 20 days written notice of the intent to do so together with a copy of the proposed amendment to the Authority. Not such amendment shall become effective if the Authority shall, within 10 days following the giving of such notice, sends a notice to the Disclosure Dissemination Agent in writing that it objects to such amendment.

Termination. The continuing obligation of the Authority and the Disclosure Dissemination Agent under the Disclosure Dissemination Agreement shall terminate upon the legal defeasance, prior redemption or payment in full of all of the Reoffered Bonds, when the Authority is no longer an Obligated Person with respect to the Reoffered

Bonds, or upon delivery by the Authority to the Disclosure Dissemination Agent of an opinion of nationally recognized bond counsel to the effect that continuing disclosure is no longer required.

Obligated Persons. At this time, only the Authority is an "Obligated Person" for annual reporting purposes under the criteria described in the Disclosure Agreement.

Any failure by the Authority to comply with the provisions of the Disclosure Dissemination Agreement shall not be an event of default with respect to the Reoffered Bonds (although any available remedy in equity may be pursued to compel the Authority's compliance). Nevertheless such failure must he reported in accordance with the Rule and must be considered by any broker, dealer or municipal securities dealer before recommending the purchase or sale of the Reoffered Bonds in the secondary market. Consequently, any such failure may adversely affect the transferability and liquidity of the Reoffered Bonds and their market price.

The Authority has not failed to comply with any prior such undertaking under the Rule. A failure by the Authority to comply with the Disclosure Dissemination Agreement will not constitute an Event of Default under the Indenture (although Bondholders will have any available remedy at law or in equity). Nevertheless, such a failure must be reported in accordance with the Rule and must be considered by any broker, dealer or municipal securities dealer before recommending the purchase or sale of the Reoffered Bonds in the secondary market. Consequently, such a failure may adversely affect the transferability and liquidity of the Reoffered Bonds and their market price.

Bondholders are advised that the Disclosure Dissemination Agreement, copies of which are available at the office of the Authority, should be read in its entirety for more complete information regarding its contents.

The Disclosure Dissemination Agent has only the duties specifically set forth in the Disclosure Dissemination Agreement. The Disclosure Dissemination Agent's obligation to deliver the information at the times and with the contents described in the Disclosure Dissemination Agreement is limited to the extent the Authority has provided such information to the Disclosure Dissemination Agent as required by the Disclosure Dissemination Agreement. The Disclosure Dissemination Agent has no duty with respect to the content of any disclosures or notice made pursuant to the terms of the Disclosure Dissemination Agreement. The Disclosure Dissemination Agent has no duty or obligation to review or verify any information in the Annual Report, Audited Financial Statements, notice of Notice Event or Voluntary Report (as defined in the Disclosure Dissemination Agreement), or any other information, disclosures or notices provided to it by the Authority and shall not be deemed to be acting in any fiduciary capacity for the Authority, the holders of the Reoffered Bonds or any other party. The Disclosure Dissemination Agent has no responsibility for the Authority's failure to report to the Disclosure Dissemination Agent a Notice Event or a duty to determine the materiality thereof. The Disclosure Dissemination Agent shall have no duty to determine or liability for failing to determine whether the Authority has complied with the Disclosure Dissemination Agreement. The Disclosure Dissemination Agent may conclusively rely upon certifications of the Authority at all times.

REMARKETING

Pursuant to the Indenture, J.P. Morgan Securities LLC has been appointed as exclusive Remarketing Agent for the 2008C-1D Bonds (the "Remarketing Agent").

Subject to certain conditions, upon the delivery or deemed delivery of Reoffered Bonds tendered for purchase by any owners thereof in accordance with the provisions of the Indenture, the Remarketing Agent will offer for sale such tendered Reoffered Bonds, any such remarketing to be made on the date such tendered Reoffered Bonds are to be purchased, at a price equal to 100% of the principal amount thereof plus accrued interest, if any. The Remarketing Agent may be removed or replaced by the Authority and the Remarketing Agent may also resign in accordance with the provisions of the Indenture.

J.P. Morgan Securities LLC ("JPMS") has entered into negotiated dealer agreements (each, a "Dealer Agreement") with each of UBS Financial Services Inc. ("UBSFS") and Charles Schwab & Co., Inc. ("CS&Co.") for the retail distribution of certain securities offerings, including the Reoffered Bonds, at the original issue prices. Pursuant to each Dealer Agreement, each of UBSFS and CS&Co. will purchase Reoffered Bonds from JPMS at the original issue price less a negotiated portion of the selling concession applicable to any Reoffered Bonds that such firm sells.

The Remarketing Agent is Paid by the Authority

The Remarketing Agent's responsibilities include determining the interest rate from time to time and remarketing Reoffered Bonds that are mandatorily tendered by the owners thereof (subject, in each case, to the terms

of the Remarketing Agreement), all as further described in this Reoffering Circular. The Remarketing Agent is appointed by the Authority and is paid by the Authority for its services. As a result, the interests of the Remarketing Agent may differ from those of existing holders and potential purchasers of Reoffered Bonds.

Bonds May be Offered at Different Prices on Any Date Including an Interest Rate Determination Date

Pursuant to the Remarketing Agreement, the Remarketing Agent is required to determine the applicable rate of interest that, in its judgment, is the lowest rate that would permit the sale of the Reoffered Bonds bearing interest at the applicable interest rate at par plus accrued interest, if any, on and as of the applicable Rate Determination Date. The interest rate will reflect, among other factors, the level of market demand for the Reoffered Bonds (including whether the Remarketing Agent is willing to purchase Reoffered Bonds for its own account). There may or may not be Reoffered Bonds tendered and remarketed on a Rate Determination Date, the Remarketing Agent may or may not be able to remarket any Reoffered Bonds tendered for purchase on such date at par and the Remarketing Agent may sell Reoffered Bonds at varying prices to different investors on such date or any other date. The Remarketing Agent is not obligated to advise purchasers in a remarketing if it does not have third party buyers for all of the Reoffered Bonds at the remarketing price. In the event the Remarketing Agent owns any Reoffered Bonds for its own account, it may, in its sole discretion in a secondary market transaction outside the tender process, offer such Reoffered Bonds on any date, including the Rate Determination Date, at a discount to par to some investors.

The Ability to Sell the Bonds other than through Tender Process May Be Limited

The Remarketing Agent may buy and sell Reoffered Bonds other than through the tender process. However, they are not obligated to do so and may cease doing so at any time without notice and may require holders that wish to tender their Reoffered Bonds to do so through the Tender Agent with appropriate notice. Thus, investors who purchase the Reoffered Bonds, whether in a remarketing or otherwise, should not assume that they will be able to sell their Reoffered Bonds other than by tendering the Reoffered Bonds in accordance with the tender process.

Under Certain Circumstances, the Remarketing Agent May Be Removed, Resign or Cease Remarketing the Bonds, Without a Successor Being Named

Under certain circumstances the Remarketing Agent may be removed or have the ability to resign or cease its remarketing efforts, without a successor having been named, subject to the terms of the Remarketing Agreement.

FINANCIAL ADVISOR

PNC Capital Markets LLC has served as the financial advisor (the "Financial Advisor") to the Authority in connection with the preparation, authorization and reoffering of the Reoffered Bonds. The Financial Advisor is not obligated to undertake, and has not undertaken to make an independent verification or to assume responsibility for the accuracy, completeness or fairness of the information contained in this Reoffering Circular. The Financial Advisor will receive a fee for its services with regard to the reoffering of the Reoffered Bonds.

CERTAIN RELATIONSHIPS

J.P. Morgan Securities LLC is the Remarketing Agent for the 2008 C-1D Bonds. JPMorgan Chase Bank, National Association is acting as a Counterparty under certain of the Swap Agreements. J.P. Morgan Securities LLC and JPMorgan Chase Bank, National Association are each wholly-owned subsidiaries of JPMorgan Chase & Co.

The Remarketing Agent and its affiliates together comprise a full service financial institution engaged in various activities, which may include securities trading, commercial and investment banking, financial advisory, investment management, principal investment, hedging, financing and brokerage activities. The Remarketing Agent and its affiliates may have, from time to time, performed and may in the future perform, various investment banking services for the Authority for which they received or will receive customary fees and expenses. In the ordinary course of their various business activities, the Remarking Agent and its affiliates may make or hold a broad array of investments and actively trade debt and equity securities (or related derivative securities and financial instruments which may include bank loans and/or credit default swaps) for its own account and for the accounts of its customers

and may at any time hold long and short positions in such securities and instruments. Such investment securities activities may involve securities and instruments of the Authority.

The Remarketing Agent is not acting as a financial advisor to the Authority in connection with the remarketing of the 2008C-1D Bonds.

PNC Capital Markets LLC has served as Financial Advisor in connection with the Reoffered Bonds. PNC Bank, National Association has provided to the Authority liquidity facilities in the form of a Standby Bond Purchase Agreement and a direct pay letter of credit on various other outstanding Authority bond issues. From time to time in the normal course of business PNC Bank, National Association and/or affiliates of the same, may have a credit or other financial relationships with the Authority. PNC Capital Markets LLC and PNC Bank, National Association are each wholly-owned subsidiaries of The PNC Financial Services Group, Inc. See "FINANCIAL ADVISOR" herein.

MISCELLANEOUS

The references, excerpts and summaries of all documents referred to herein do not purport to be complete statements of the provisions of such documents, and reference is made to all such documents for full and complete statements of all matters of fact relating to the Reoffered Bonds, the security for the payment of the Reoffered Bonds and the rights of the owners thereof. All capitalized terms used herein are used with the meaning set forth in the Subordinate Indenture unless otherwise so specified.

The information contained in this Reoffering Circular has been compiled from official and other sources deemed to be reliable and, while not guaranteed as to completeness or accuracy, is believed to be correct as of its date.

Any statement made in this Reoffering Circular involving matters of opinion or of estimates, whether or not expressly so stated, are set forth as such and not as representations of fact, and no representation is made that any of the estimates will be realized. The information and expressions of opinion herein are subject to change without notice and neither the delivery of this Reoffering Circular nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in the affairs of the Authority since the date hereof.

This Reoffering Circular has been duly executed and delivered on behalf of the Authority by an Authorized Representative.

THE PITTSBURGH WATER AND SEWER AUTHORITY

By: /s/ Dan Deasy
Chairman

APPENDIX A

DESCRIPTION OF THE AUTHORITY AND THE WATER AND SEWER SYSTEM

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Governance

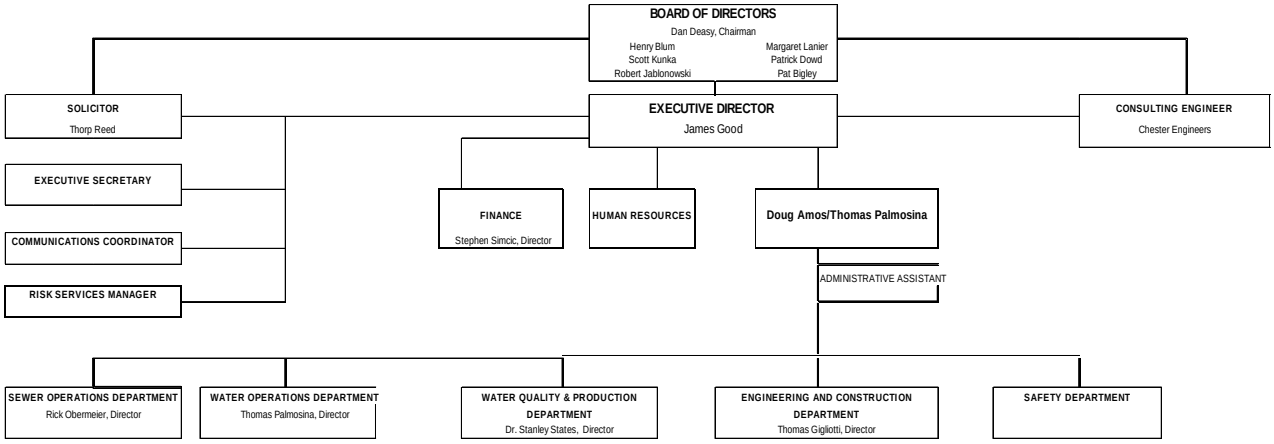
The Board of the Authority consists of seven (7) members with no fewer than six (6) members appointed by the Mayor of the City and approved by City Council. The terms of Office of the members commence on the date of appointment, and the members serve staggered five (5) year terms from the first Monday in January next succeeding the date of appointment or until appointment of a successor, whichever is later. The present members of the Board and officers of the Authority and their principal private affiliations are as follows:

Member	Occupation
Dan Deasy, Chairman	Member, 27th Legislative District, House of Representatives, PA
Robert P. Jablonowski, Vice Chairman	Retired Chemist, Duquesne Light Co.
Scott Kunka, Treasurer	Director of Finance, City of Pittsburgh
Henry C. Blum, Secretary	1st Vice President, Public Events Employees Union Local No. 188
Margaret L. Lanier, Asst. Sec./Asst. Treasurer	Treasurer, City of Pittsburgh
Patrick Dowd, Member	Pittsburgh City Councilman
Patrick Bigley, Member	Plumber

Organization Summary

The Authority is organized into two operating divisions: Administration and Operations.

Pittsburgh Water and Sewer Authority
2012 Organizational Chart



The Administration Division is responsible for the various administrative and support functions within the Authority. These include: customer service, billing and collections, personnel and finance, procurement, and management and data information systems.

The Operations Division includes the Water and Sewer Operations Department which is responsible for the production and transmission of potable water and the collection and transmission of wastewater. Operating sections within this Department are: "Water Quality and Production" which ensures that the water produced meets all health and safety requirements, and also includes the water treatment plant and storage facilities; "Distribution and Collection" which is responsible for maintaining and repairing the water distribution system and repairing and maintaining the sewer collection system; "Facilities Support" which is responsible for overseeing capital and scheduled facility repairs, system safety and security and "Stores Management" which is responsible for inventory. The Engineering and Construction Department is responsible for developing, designing, initiating and monitoring all of the Authority's Capital Improvement Projects. In addition, this Department is responsible for reviewing plans prior to issuing permits for any connection into, or modification of, the water and sewer system; and for the maintenance and updating of the Authority's geographical information system.

Key Management Personnel

Director, Water Operations – Thomas Palmosina is responsible for overseeing the daily operations and distribution of water for the Authority's Water System. The Authority's repair and maintenance teams partner with a network of qualified private contractors to implement repairs and system upgrades quickly and correctly.

Mr. Palmosina began his employment with the City of Pittsburgh Water Department (later to become the Pittsburgh Water and Sewer Authority) in 1973 as a Laborer. He has held several positions including Pipeline Repairman, Repair Foreman, Service Foreman, Supervisor, and Manager of Operations. He holds an Associate's Degree in Liberal Arts from Robert Morris University and is a 25 year member of the American Water Works Association. Mr. Palmosina is a current board member for the Pa-One Call System and a 5 year member of PA Rural Waterworks Association. Mr. Palmosina has a current DEP Water Operator's License with the Commonwealth of Pennsylvania and is also a certified Emergency Responder for Water and Waste/Water Disasters.

Director of Finance -- Stephen Simcic joined the Authority's Administrative Division in September 2001. Mr. Simcic is responsible for various administrative operations of the Authority. As Director of Finance, he oversees the Finance and Accounting Departments including Accounts Payable, Procurement, Receivables, Payroll, Budgets, Forecasts, Banking and Investor Relations and Collections. Effective April, 2010 the Director of Finance was also assigned oversight responsibilities of the Customer Service, Human Resource and Management Information System Departments. Mr. Simcic came to the Authority with ten years' experience in the corporate accounting field with two major energy companies followed by eight years as Controller with an environmental remediation engineering consulting firm subcontracting with the DOD and DOE. Mr. Simcic has a Bachelor of Science Degree in Business Administration from Robert Morris University, with a primary focus in Accounting. He is a member of the Government Financial Officer's Association.

Director of Water Quality and Production -- Stanley States, Ph.D., has been the Water Quality Manager for the Authority and its predecessor the City of Pittsburgh, Department of Water, since 1977. In 2009, he was appointed Director of Water Quality and Production. In his new role, he is responsible for the operation of the two water treatment plants, including reservoirs, tanks, pumping stations, and sewage lift stations; the laboratory; compliance with federal, state, and county water quality regulations; and the actual treatment process. He holds an MS in Forensic Chemistry and a Ph.D. in Environmental Biology from the University of Pittsburgh. Dr. States has conducted research and published extensively in the areas of water quality and treatment. He has served as an adjunct professor and has taught in the Graduate School of Public Health and the School of Engineering at the University of Pittsburgh. Most recently Dr. States has been involved in authoring and delivering counterterrorism security courses, to water and wastewater personnel across the nation, for the Department of Homeland Security and the Environmental Protection Agency. Dr. States is a member of the American Water Works Association, the Water Works Operators Association of Pennsylvania, the American Society for Microbiology, and the American Chemical Society.

Director of Engineering and Construction – Thomas M. Gigliotti, P.E., joined the Authority in 1996 after 12 years with an engineering and construction firm and two years with the Mine Safety and Health Administration. In September of 2009, Mr. Gigliotti was appointed as the Director of Engineering and Construction responsible for the overall coordination and management of the Engineering and Construction Division's involvement in the Capital Improvement Program. Mr. Gigliotti held the position as Plant Manager from 2004 to 2009 and was responsible for the operation and maintenance of two water treatment plants, 14 pump stations and 13 tanks and reservoirs. Mr. Gigliotti has published articles in several periodicals including the Journal of American Waterworks Association, Trenchless Technology, Water Engineering and Management and presented at AWWA conferences. Mr. Gigliotti earned a Masters of Science, Civil and Environmental Engineering and a Bachelor of Science, Mining Engineering from the University of Pittsburgh. He is a Registered Professional Engineer in the Commonwealth of Pennsylvania and is a member of the Water Environment Federation, Water Works Operators Association of Pennsylvania, and American Water Works Association.

Director, Sewer Operations – Cyril Obermeier is currently the Director of Sewer Operations for the Authority.

After receiving a Journeyman Plumbing License with Allegheny County in 1979, he worked in the plumbing field installing plumbing in homes and commercial buildings for ten years. On April 19, 1982 he accepted and held the position of Plumber with the Pittsburgh Water Department of the City of Pittsburgh (which later became the Pittsburgh Water and Sewer Authority) until 1988 when he was promoted to the position of Service Foreman. In 1990 he accepted and served in the position of Service Supervisor until 2001 when he was promoted to Sewer Manager for the Pittsburgh Water and Sewer Authority. In February 2010 he was appointed to the position of Director, Sewer Operations and continues to serve in that capacity. As Director of Sewer Operations, he is responsible for the daily maintenance of sewer operations as well as service of the water meters.

Cyril is an active member of AWWA, ICC (International Building Code Council) NFPA (National Fire Protection Assoc.), Rural Water Works Association and holds an Allegheny County Master Plumbing license HP# 1453, DEP Class E Water Operator's License with the Commonwealth of Pennsylvania certificate # W9566, DEP Class E Wastewater Operator's License with the Commonwealth of Pennsylvania certificate # S16625, ASSE Certified Backflow Prevention Program Administrator Certification # 18967.

Interim Management and Consulting Contract

On July 25, 2012, the Authority's Board of Directors approved an Agreement (the "Agreement") for Interim Executive Management Services with Veolia Water North America—Northeast, LLC ("Veolia Water"). The Agreement provides for two types of services.

First, Veolia Water is providing the Authority with the services of a full time, on site, interim executive director. That role is filled by Jim Good, President of Veolia Water North America—West, LLC. As the principal and manager of that entity, Mr. Good had direct financial responsibility for a $100 million budget and over 300 employees. Prior to joining Veolia Water over ten years ago, Mr. Good was a vice president of California Water Service Company, a company that services more than two million people in four states. With the Authority, Mr. Good will be reporting to a steering committee made up of three Authority Board members and two individuals from Veolia upper management.

Second, Veolia Water is providing the Authority with consulting services, led by a full time, on site study manager, Doug Amos, a Vice President and Project Director with Veolia Water's North American operations group. The Agreement identifies various areas of consulting and implementation services to be provided—general administration and management, financial and budgeting, operations and maintenance, and includes many specific deliverables. Veolia Water will be bringing to Pittsburgh managers with experience in each of these areas. They will study the Authority's existing practices and, together with the Authority staff, identify specific initiatives for further study and implementation. Once initiatives are approved by the Authority Board, the Veolia Water managers will assist with implementation.

Veolia is performing all services under the Agreement for a base compensation of $150,572 per month, including expenses, plus additional incentive payments for the achievement of approved initiatives. The term of the Agreement is one year, which may be extended by an additional six months. Additional revenues or savings resulting from incentives approved under the Agreement will be shared with Veolia for four years following the expiration of the Agreement.

Capital Lease Agreement with the City of Pittsburgh

In 1984, pursuant to the Lease and Management Agreement, the Authority leased the Water and Sewer System from the City and assumed responsibility for establishing and collecting user fees and charges and for maintaining and improving the Water and Sewer System. The Lease and Management Agreement further provided that the Water and Sewer System was to be operated and maintained for the Authority by the City, subject to the general supervision of the Authority. In 1995, the Authority and the City terminated the Lease and Management Agreement, and the Authority has the option to acquire the Water and Sewer System pursuant to the terms of the Capital Lease Agreement. The Capital Lease Agreement, which has a term of thirty (30) years, provides for payments totaling One Hundred One Million Four Hundred Sixteen Thousand Nine Hundred Seventy-Four Dollars and Sixty Cents ($101,416,974.60), which, payments were made to the City during the initial three (3) years of said contract and further provides that on September 1, 2025, upon payment of One Dollar ($1.00), the Authority will acquire title to the Water and Sewer System.

Concurrently with entering into the Capital Lease Agreement, the City and the Authority entered into a Cooperation Agreement, dated as of June 15, 1995 (the "Cooperation Agreement"). Pursuant to the Cooperation Agreement, the City provides certain specified engineering, communications, vehicle maintenance, legal, information and financial services to the Authority on a fee for services basis and the Authority makes certain other payments to the City to reimburse it for costs and capital expenses incurred by the City in regard to the operation and maintenance of the Sewer System. The Cooperation Agreement may be terminated by either party, upon ninety (90) days written notice. The City and Authority are currently negotiating changes to the Cooperation Agreement to more accurately reflect changes in services the City and the Authority provide to each other. The amount of the annual payment currently under the Cooperation Agreement is $7.15 million paid in quarterly payments.

The Water Supply and Distribution System

The water supply and distribution system (the "Water System") consists of a 117 million gallon per day rapid sand type treatment plant which was placed in service in 1969, 930 miles of mains and service lines, more than 25,900 valves, more than 7,300 fire hydrants, twelve pumping stations, one membrane filtration plant, five reservoirs, and eleven storage tanks. The total storage capacity of the reservoirs and tanks is approximately 455 million gallons. With consideration given to the pressure requirements of the distribution system, and storage capacities in each of the 15 pressure zones, the Authority stores enough finished water to provide a 2 to 3 day uninterrupted supply to all customers should it temporarily be unable to treat additional water from the Allegheny River. In the opinion of the Authority's Consulting Engineer, Chester Engineers, Inc. (the "Consulting Engineer"), the Water System's treated water quality exceeds all the current standards and levels of the federal Safe Drinking Water Act and the Pennsylvania Department of Environmental Protection (PADEP).

The sole source of water for the Water System is the Allegheny River for which the Authority and its predecessors have held withdrawal permits since 1943. In March 1989, the then Pennsylvania Department of Environmental Resources (now the "PADEP") issued the Authority a Water Allocation Permit under the 1939 Water Rights Act. This permit

authorizes the withdrawal of up to 100 million gallons per day and the PADEP determined that this would cause no major impact on navigation. The current average withdrawal of water from the Allegheny River is approximately 70.5 million gallons per day. The Authority's Consulting Engineer is of the opinion that the Allegheny River's water is of good quality, and that there is ample quantity to meet foreseeable demands given current allocation permit conditions and foreseeable river flow conditions.

The Water System currently provides approximately 81,000 residential, commercial, industrial and public customers with potable water and water for fire protection within the geographic boundaries of the City. This represents approximately 84 percent of the total population within the City with the balance served by three independent water purveyors.

The Authority's water treatment plant is capable of providing more water than is currently being used by its existing customers. The Authority has undertaken a marketing effort to sell potable water to municipalities and municipal authorities within the region. It is also investigating the opportunity to purchase existing water systems located in municipalities adjacent to its current service area. Sale of this available water to additional regional communities would be a source of new revenue to the Authority. To realize this potential revenue the Authority would be required to construct water lines or improve pumping facilities to serve some regional communities; and those communities would need to obtain subsidiary water allocation permits from PADEP.

The Authority's Consulting Engineer is of the opinion that the Water System is in adequate operating condition and has adequate capacity to meet demands in the foreseeable future, provided the Authority continues the rehabilitation and replacement program provided for in its ongoing Capital Improvement Program.

Drinking Water Quality Regulatory Requirements

The Authority monitors water drinking quality on a continuous basis, 365 days a year. Tests are conducted for contaminants that may be present in source water prior to treatment, during treatment and on finished water. The Authority meets or exceeds all current Federal and State water quality requirements and anticipates compliance with future proposed regulations, including the pending Stage 2 Disinfection Byproducts Rule and the Long-term Enhanced Surface Water Treatment Rule. Results of water quality measurements and regulatory compliance are reported annually in the Authority's Consumer Confidence Report.

The Authority operates an on site water quality laboratory capable of conducting analysis and detection on numerous contaminants. The PADEP has certified the laboratory to conduct and certify results for a number of these contaminants. On July 27, 2012, the Authority and PADEP entered into a Consent Order and Agreement relating to alleged regulatory violations in certain procedures at the water quality laboratory. Pursuant to the Consent Order, the Authority is required, within 30 days, to pay a $10,000 penalty, complete a corrective action report, and retain a consultant to assist with regulatory compliance. The Authority routinely provides analysis for other water providers and the Allegheny County Health Department. The Federal Safe Drinking Act requires each state to prepare a comprehensive Source Water Protection Plan to identify potential sources of contaminants. The Authority, working with the PADEP, has prepared the plan for the Allegheny River.

The Pilot Plant

The pilot plant, located at the Pittsburgh Water Treatment Facility, was designed to simulate treatment and hydraulic conditions in the Authority's main plant. Constructed in 2000, the pilot plant enables the Authority to determine process control parameters and chemical applications and to conduct stress testing of the plant to achieve the most effective and efficient plant operations to meet current and future regulatory compliance issues. The Authority has addressed the new regulations for Stage 1 of the disinfection byproduct rule and the interim enhanced surface water treatment rule. The Authority has met the requirements for both rules. This was accomplished through studies utilizing the pilot plant. The Authority is confident it will meet requirements for the pending long-term enhanced surface water treatment rule and Stage 2 disinfection byproducts rule, again through studies utilizing the pilot plant.

The Microfiltration Facility

Pennsylvania's Department of Environmental Protection Regulations based on the Federal Safe Drinking Water Act of 1984 required all finished drinking water reservoirs to be covered by December 31, 1995. In order that Highland #1 reservoir could remain uncovered for environmental and limited recreational considerations, a 20 million gallon a day Microfiltration Facility was designed to provide further treatment before water is put into distribution. Microfiltration is a pressure-driven membrane process and consists of (0.1 micron pore size) membrane series for removal of suspended matter, turbidity, algae, fungi, protozoa, some microorganisms and cysts (including Cryptosporidum and Giardia). The membrane filtration plant is currently being expanded to produce 26 million gallons per day.

The Sewer System

The wastewater collection and transmission system (the "Sewer System") is part of a regional system that provides service to about 550,000 people, of whom nearly 325,000 live within the City. The total drainage area served by the regional system is approximately 80 square miles, of which the City comprises about 55 square miles, or nearly 70 percent of the total. The Sewer System is primarily a combined system designed to carry both storm and sanitary flows. The Sewer System is comprised of an extensive network of approximately 1,200 miles of sewer lines and four wastewater-pumping stations. The average age of the sewer lines is between 60 and 70 years old, with some portions reaching nearly 150 years in age.

The Sewer System conveys wastewater generated within the City boundaries to Allegheny County Sanitary Authority ("ALCOSAN") interceptors along the rivers of the City for conveyance to ALCOSAN's wastewater treatment facility for processing prior to discharge into the Ohio River. The ALCOSAN treatment facility, which is not part of the Water and Sewer System, is operated by ALCOSAN pursuant to the National Pollutant Discharge Elimination System ("NPDES").

The Sewer System also is utilized by 24 suburban municipalities pursuant to agreements with the City and/or the Authority to convey their wastewater to the ALCOSAN treatment facility. Many of the agreements with the suburban municipalities provide for the sharing of maintenance or reconstruction costs of the Sewer System. Typically, the sharing of maintenance costs applies only to the trunk sewer lines through which the wastewater flows to the ALCOSAN interceptor.

The Sewer System is designed so that during wet weather, a portion of the collected storm water and diluted wastewater is discharged to natural water courses by diversion chambers located throughout the Sewer System and at connections to the ALCOSAN interceptors. The Sewer System is in satisfactory operating condition and has adequate capacity for the dry weather wastewater flows; however, in the past during wet weather, the Sewer System has often been taxed beyond its capacity and has resulted in overflow, bypassing and flooding. Some of these conditions have been or will be eliminated through the implementation of the Authority's ongoing Capital Improvement Program. Federal and State Combined Sewer Overflow requirements are expected to have some future impact on the Authority and, so far as possible at this stage, this has been taken into account in the Authority's 5 year Business Plan. The Authority's Consulting Engineer is of the opinion that the Sewer System is in adequate operating condition but is in need of the ongoing Capital Improvement Program in order to correct existing deficiencies and maintain and upgrade the system to meet regulatory requirements (see discussion below under the heading "Government Regulation"). With the continuation of the Capital Improvement Program, it is anticipated that the Sewer System will be sufficient to meet foreseeable future demands and provide uninterrupted service to its users. See "CERTAIN BONDHOLDERS' RISKS, Certain Environmental Matters" above.

Description of Service Area

A description of the area served by the Water and Sewer System and selected demographics of the service area are set forth in APPENDIX D.

2011 Water Consumption by Customer Classification (1)

Classification	Customers	Percentage of usage
Residential	74,237	53.37%
Commercial (2)	6,803	31.31%
Industrial	126	7.66%
Other	17	7.66%
TOTAL	81,183	100.0%

(1) Excludes customers of other water purveyors.
(2) The "Commercial" category includes water usage by health and education sector, as well as various units of government.

Water and Sewer Rates

The following tables present the Authority's Water and Sewer Rates and certain data with respect thereto and have been prepared by the Authority.

Historical Rates (2000–2012)

YEAR	Residential[1] Rate	Residential[1] Increase[3]	Commercial[1] Rate	Commercial[1] Increase[3]	Industrial[1] Rate	Industrial[1] Increase[3]	Wholesale[2] Rate	Wholesale[2] Increase[3]	Health & Education[1] Rate	Health & Education[1] Increase[4]	DISC Rate
	$	%	$	%	$	%	$	%	$	%	%
2000	3.95	0	3.88	0	3.63	0	2.65	0	5.31	0	
2001	3.95	0	3.88	0	3.63	0	2.65	0	5.31	0	
2002	4.34	9.8	4.26	9.8	3.99	9.8	2.91	9.8	5.83	9.8	
2003	4.64	7.0	4.56	7.0	4.26	7.0	3.11	7.0	6.24	7.0	
2004	5.52	19.0	5.43	19.0	5.07	19.0	3.70	19.0	7.43	19.0	
2005	6.46	17.0	6.35	17.0	5.93	17.0	4.33	17.0	8.69	17.0	
2006	6.99	6.7	6.79	6.7	6.30	6.7	3.69	6.7	9.25	6.7	
2007	7.50	5.4	7.19	5.4	6.74	5.4	3.69	--	9.83	5.4	
2008	7.50	0	7.19	0	6.74	0	3.69	0	9.83	0	
2009	7.50	0	7.19	0	6.74	0	3.69	0	9.83	0	
2010	7.50	0	7.19	0	6.74	0	3.69	0	9.83	0	5%
2011	8.08	7.7	7.74	7.7	7.26	7.7	3.97	7.7	10.59	7.7	7%
2012	8.48	5.0	8.13	5.0	7.62	5.0	4.17	5.0	11.12	5.0	7%

(1) Rate per 1,000 gallons over minimum use per month.
(2) Up to 500,000 gallons
(3) Represents percentage increase over prior year
(4) New Rate Classification, rate per 1,000 gallons over minimum use per month.

10 Largest Users

	User	% of Total Usage for 2011
1.	Bay Valley Foods*	3.89%
2.	University of Pittsburgh	1.92
3.	Allegheny Co Sanitary Authority	1.66
4.	Allegheny County	1.36
5.	SCI Pittsburgh	1.18
6.	UPMC Health Systems	1.08
7.	Carnegie Mellon University	1.02
8.	West Penn Hospital	0.62
9.	NRG Energy Center Pittsburgh*	0.55
10.	HACP	0.51

Source: Pittsburgh Water and Sewer Authority

*In January 2012, the water consumption of Bay Valley Foods, the number one water consumption user for 2011 as set forth in the above table, materially declined due to the company using water from its own water wells and processing their water through its own treatment facilities. This cessation of water consumption has resulted in a decrease in Authority water revenue of approximately $350,000 per month. The Authority continues to provide stand-by water availability to this customer in the event it is either unable in the future to use water from its water wells or desires to resume usage of Authority water. The Authority is investigating possible alternatives to its billing arrangement with this customer.

The Authority is also aware of the possibility of NRG Energy Center Pittsburgh, also listed in the above table, using its own water wells to supply water for its water consummation needs. The effect and timing of any such usage by that company on Authority water revenues is uncertain.

PWSA Water Rate Comparison (2012 Survey)

	Rate 1,000 Gal.	Minimum Monthly Charge	Minimum Gallons Per Month
Aspinwall Borough	$6.86		
Fox Chapel Authority	7.41		
Monroeville Authority	5.15	$10.30	2,000
Pittsburgh Water and Sewer Authority (1)	**5.66**	**14.05**	**1,000**
Plum Borough Municipal authority	3.25	12.83	1,870
Richland Township Municipal Authority	5.57	9.00	
Shaler Township	3.77	7.50	
Penn Hills (Oakmont Residents)	3.92	7.71	
Pennsylvania American Water Company	9.10	13.75	
Westmoreland County Municipal Authority	4.79	11.51	1,000

(1) Excluding $2.82 for Sewer Use Rate

Relations with Other Municipalities

In addition to the Authority's sales to residential, commercial and industrial customers, the Authority has entered into agreements with seven adjacent municipalities and one wholesale customer for the sale of water. The Authority is the primary source of water for three municipalities, pursuant to long-term agreements expiring in 2016 through 2025, which establish pricing structures with each municipality. Four municipalities and one wholesale customer each have entered into agreements with the Authority for peak capacity needs. Three of these contracts require monthly minimum charges to be received by the Authority, and two are on an emergency basis only. The Authority purchased the neighboring borough's (Millvale) water and sewer system in 2010, adding nearly an additional two thousand customers to our customer base. This purchase has been a major success and will be used to pilot future expansion efforts to other outlying areas.

Prospective Water Sales and Sewer Services

The Authority is capable of producing up to 100 million gallons of potable water each day. With current demand (including the requirements (and reserves) of other municipalities) at 70.5 million gallons per day the Authority has available surplus capacity. Also, in order to comply with current regulatory requirements the Authority will be making enhancements to the Sewer System through the Capital Improvement Program. These Sewer System enhancements will involve interaction with other municipalities (See "The Sewer System" for additional detail) and in connection therewith the Authority is continuing an initiative to market its surplus water capacity and extend its sewer services to other municipalities and water authorities in the region.

Outstanding Bonds

First Lien Debt

Upon issuance of the Reoffered Bonds, the Authority will have $630,725,000 aggregate principal amount of First Lien Bonds Outstanding (of which $331,360,000 is Fixed Rate and $299,365,000 is Variable Rate) as follows:

- $68,970,000 (Fixed Rate) Water and Sewer System First Lien Revenue Refunding Bonds, Series A of 2008 Taxable (the "Taxable 2008A Bonds");
- $145,495,000 (Variable Rate Demand) Water and Sewer System First Lien Revenue Refunding Bonds, Series B1 of 2008 and Series B2 of 2008
- $24,665,000 (Fixed Rate) Water and Sewer System First Lien Revenue Bonds, Series D-1 of 2008 (the "2008D-1 Bonds");
- $71,225,000 (Variable Rate Demand) Water and Sewer System First Lien Revenue Bonds, Series D-2 of 2008 (the "2008D-2 Bonds");

- $111,740,000 Water and Sewer System First Lien Revenue Refunding Bonds, Series of 2007 (the "2007 Bonds");
- $44,945,000 Water and Sewer System Revenue Refunding Bonds, Series of 2003 (the "2003 Bonds");
- $146,805,000 Water and Sewer System First Lien Revenue Bonds, Series B of 1998 (the "1998B Bonds"); and
- $16,880,000 Water and Sewer System Revenue Refunding Bonds, Series A of 1993 (the "1993A Bonds").

Subordinate Debt

The Authority has $103,795,000 Subordinate Debt outstanding as follows:

- $10,000,000 (Term Mode) Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1A of 2008 (the "Subordinate 2008 C-1A Bonds"), the Reoffered Bonds;
- $10,000,000 (Term Mode) Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1B of 2008 (the "Subordinate 2008 C-1B Bonds"), the Reoffered Bonds;
- $5,000,000 (Term Mode) Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1C of 2008 (the "Subordinate 2008 C-1C Bonds"), the Reoffered Bonds;
- $26,910,000 (Term Mode) Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1D of 2008 (the "Subordinate 2008 C-1D Bonds");
- $51,885,000 (Variable Rate) Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-2 of 2008 (the "Subordinate 2008 C-2 Bonds");

Other Obligations

In addition to its First Lien and Subordinate Bonds, the Authority has outstanding loans with the Pennsylvania Infrastructure Investment Authority ("PENNVEST") which loans mature on various dates during 2025-2031 and are subordinate to the First Lien and Subordinate Bonds. As of August 1, 2012, the Authority owed PENNVEST $34.4 million on PENNVEST loans ("PENNVEST Loans") with approval to draw down an additional $6.1 million as needed from the PENNVEST Loans authorized in 2009 and 2010.

Debt Service Requirements

The schedule on the following page sets forth the amount required during each Fiscal Year (ending December 31) shown below for the payment of the principal of and the interest on Outstanding First Lien Revenue Bonds and Outstanding Subordinate Revenue Refunding Bonds assuming all variable rate bonds bear interest at applicable bank bond rate and swap rate through maturity.

Debt Service Requirements on First Lien and Subordinate Bonds

Date	First Lien Debt Service [1, 2, 3]	Subordinate Debt Service[4, 5]	Total Debt Service[6, 7]
2013	$35,610,137	$5,024,563	$40,634,700
2014	35,927,837	4,961,377	40,889,214
2015	35,992,487	4,961,377	40,953,864
2016	36,038,512	4,961,377	40,999,889
2017	35,721,112	4,961,377	40,682,489
2018	35,706,275	4,961,377	40,667,652
2019	35,721,292	4,961,377	40,682,668
2020	35,745,926	4,961,377	40,707,303
2021	35,759,073	4,961,377	40,720,449
2022	35,795,014	4,961,377	40,756,390
2023	35,959,095	4,961,377	40,920,472
2024	36,163,446	4,961,377	41,124,823
2025	36,646,373	4,961,377	41,607,750
2026	37,134,452	4,961,377	42,095,828
2027	37,153,442	4,961,377	42,114,819
2028	37,126,253	4,961,377	42,087,630
2029	37,139,653	4,961,377	42,101,030
2030	33,857,071	7,901,377	41,758,448
2031	21,555,609	20,165,799	41,721,408
2032	12,083,736	29,591,313	41,675,049
2033	12,233,007	29,340,566	41,573,573
2034	12,246,396	29,243,420	41,489,815
2035	35,498,817	6,025,230	41,524,047
2036	41,563,806		41,563,806
2037	41,690,078		41,690,078
2038	41,820,781		41,820,781
2039	41,913,288		41,913,288
2040	42,099,253		42,099,253
Total	$951,902,221	$206,674,297	$1,158,576,517

Notes: Totals may not add due to rounding:

(1) Interest on 2008D-2 First Lien Bonds are calculated at the associated swap rate of 4.103%

(2) Interest on Series 1993A, 1998B, 2003, 2007A, 2008A taxable and 2008D1 First Lien (Fixed Rate) Bonds are calculated at fixed rate

(3) Interest on Series 2007B-1, 2007B-2, 2008B-1and 2008B-2 First Lien Bonds are calculated at the associated swap rate of 3.932% for Series 2007B-1 and 2007B-2, and 4.038% for the Series 2008B-1 and Series 2008B-2

(4) Interest on the Series 2008C-1ABC bonds are calculated at the associated swap rate (3.998%) plus the assumed term rate of 2.00%. Pursuant to future remarketings, the Series 2008C-1ABC bonds would be reoffered at a rate that may be higher or lower than the initial term mode rate.

(5) Interest on the Series 2008C-1D bonds is calculated at the associated swap rate (3.998%) plus an assumed rate equal to the initial term mode rate from 2009 of 2.625%. Pursuant to future remarketings, the Series 2008C-1ABC bonds would be reoffered at a rate that may be higher or lower than the assumed term mode rate

(6) Interest on 2008C-2 Subordinate Lien Bonds are calculated at the associated swap rate of 3.998%

(7) Does not include loans with PENNVEST

Letter of Credit and Liquidity Agreements

The Authority has entered into various letter of credit and standby agreements relating to the outstanding bonds of the Authority as provided in the following table:

Variable Rate Bond Series	Provider	Agreement	Term
2007 Series B-1 and B-2	JPMorgan Chase Bank*	Standby Bond Purchase Agreement	August 10, 2014
2008 Series B-1	Bank of America, N.A.	Direct Pay Letter of Credit	October 22, 2013
2008 Series B-2	PNC Bank, National Association	Direct Pay Letter of Credit	October 22, 2013
2008 Series C-1A	Northwest Bancorp, Inc. with Federal Home Loan Bank of Pittsburgh confirming LOC*	Direct Pay Letter of Credit	November 9, 2012**
2008 Series C-1B	ESB Bank with Federal Home Loan Bank of Pittsburgh confirming LOC*	Direct Pay Letter of Credit	November 9, 2012**
2008 Series C-1C	Washington Financial Bank with Federal Home Loan Bank of Pittsburgh confirming LOC*	Direct Pay Letter of Credit	November 9, 2012**
2008 Series C-2	JPMorgan Chase Bank*	Standby Bond Purchase Agreement	August 9, 2014
2008 Series D-2	PNC Bank, National Association*	Standby Bond Purchase Agreement	August 4, 2014

* The scheduled payment of the principal of and interest on the 2007 Series B-1 and B-2, the 2008 Series C-2, the 2008 Series C-1A, C-1B and C-1B and the 2008 Series D-2 when due is insured by a municipal insurance policy issued at the time of original issuance of these bonds by Assured Guaranty Municipal Corp. (formerly known as Financial Security Assurance Inc.).

** The Authority is currently engaged in negotiations for the extension of these Agreements.

Interest Rate Swap Agreements

The Authority has entered into other Qualified Interest Rate Swap Agreements relating to other outstanding bonds of the Authority. The following table sets forth the terms of all of the Swap Agreements as of August 1, 2012:

Pittsburgh Water and Sewer Authority
Interest Rate Swap Agreement Summary
(as of August 1, 2012)

Variable to Fixed Rate Swaps	Counterparty	Outstanding Notional Amount	Effective Date	Termination Date	Fixed Rate	Floating Index
2007 B1 & B2	JPMorgan Chase Bank & Merrill Lynch Capital Services, Inc.	$ 82,645,000	3/9/2007	9/1/2033	3.932%	SIFMA
2008 B	JPMorgan Chase Bank & Merrill Lynch Capital Services, Inc.	$145,495,000	6/12/2008	9/1/2039	4.038%	SIFMA
2008 C	JPMorgan Chase Bank & Merrill Lynch Capital Services, Inc.	$103,795,000	6/12/2008	9/4/2035	3.998%	SIFMA
2008 D	JPMorgan Chase Bank	$ 71,225,000	6/12/2008	9/4/2040	4.103%	SIFMA
Total		$403,160,000				

Projected Capital Borrowings

The Authority's current five (5) year capital improvement program encompasses years 2008 to 2012 (the "Capital Improvement Program"). The primary objectives of the Authority's Capital Improvement Program are to assure uninterrupted service to the Authority's customers and to enhance the Water and Sewer System's capabilities. The Capital Improvement Program was designed to maintain a satisfactory level of service to Water and Sewer System users, to improve operating efficiency, to address future requirements and to assure a safe supply of water to its users.

The Authority is developing a 40 Year Capital Plan that will estimate the financial resources needed for capital improvements. The Capital program Improvements recommendations will be presented as a staged program of eight 5-year capital plans. Prioritization of projects will be based on need and financial capabilities to design and construct the recommended improvements. The eight 5-year plans will provide the Authority with a plan of action to meet the meet the business objectives of the Authority, maintain regulatory compliance and address operational needs within the framework of practical capital funding capabilities. Completion of the plan is expected by the third quarter of 2012.

As more fully discussed under "CERTAIN BONDHOLDERS' RISKS — Certain Environmental Matters", the Authority is subject to a U.S. Environmental Protection Agency Combined Sewer Overflow Policy ("CSO Policy") regarding overflows from combined sewers during events that result in the discharge to receiving water of untreated sanitary sewage. Pursuant to the January 2004 Consent Order and Agreement (the "Order"), the Authority is currently developing a feasibility study in conjunction with the Allegheny County Sanitary Authority ("ALCOSAN') which entered into a Consent Decree with the United States Environmental Protection Agency ("USEPA"), the Pennsylvania Department of Environmental Protection ("DEP") and the Allegheny County Health Department ("ACHD"), to address combined sewer overflows and achieve compliance with water quality standards and the Clean Water Act. The Authority expects to submit its feasibility study to DEP, the Allegheny County Health Department and USEPA by July 31, 2013. The cost of the studies and construction activities that will be required to reach target goals that are to be established through the CSO Policy is currently preliminarily estimated by the Authority at between $150,000,0000 and $300,000,000, varying based on CSO reduction assumptions The amount is dependent, in part, on coordination with other regional providers and ALCOSAN. Funding of a portion of the amount needed to address the combined sewer overflow issue and achieve compliance with the Clean Water Act was provided with proceeds of the Authority's Water and Sewer System First Lien Revenue Bonds, Series of 2002 and the Authority's Water and Sewer System First Lien Revenue Bonds, Series of 2005 (both refinanced with Series of 2007 Bonds previously issued by the Authority).

The final years of the current Capital Improvement Program (2008-2012) contemplate additional expenditures for sewer compliance issues and infrastructure improvements. It is anticipated that funding for these expenditures, as well as completion of the feasibility study necessary for the ALCOSAN Regional Long Term Control Plan was provided, in whole or in part, through the original issuance of the Authority's First Lien Bonds, Subordinate Lien Bonds, including the Reoffered Bonds, and the Pennvest Loans. In total, the new money bonds issued as a component of the Authority's First Lien Bonds and Subordinate Lien Bonds issued in 2008 funded approximately $100 million out of the Authority's $125 million current Capital Improvement Program. The Authority also received approval in late 2009 for $36 million in Pennvest Loans, which are subordinate to payments due on the Authority's Bonds, the proceeds of which have been or will be used to fund infrastructure improvements.

Financial Operation

The Authority's income statement and annual debt service requirements are set forth in the following Financial History table. The table was prepared by the Authority using information contained in the audited financial statements for the years ended December 31, 2008 through December 31, 2011. The audited financial statements and management discussion and analysis for the years ended December 31, 2011 and 2010 are included as APPENDIX C.

In January of 2010, the Authority began assessing a 5% Distribution Infrastructure System Charge (DISC) on all bills, which increased to 7% in 2011. This charge is applied to the water and sewer conveyance components of the invoice and is dedicated to system improvements and capital needs. The DISC collection total in 2010 was $4.16 million, with no expenditures. It was decided to allow funds to accumulate the first year, and then budget expenditures for 2011 from the funds received in 2010. The 2011 budget for DISC expenditures was $6.38 million, of which $5.114 million was spent. This leaves a reserve of $5.104 million in DISC fund revenues at year-end. The expenditures for 2011 included water and sewer relays, new vehicles, flocculation equipment, and computer switching.

Financial Results in 2011

In 2011, operating income increased by 12.3% or $3.85 million and non-operating income decreased by $22.56 million resulting in a net loss of $13.34 million, down from a $5.31 million net gain in 2010. Below are the 2011 financial highlights:

Total operating revenues in 2011 were up $.799 million or .6% to $140.55 million when compared to 2010. For 2011, the Board of ALCOSAN did not change its rate structure and wastewater treatment revenues dropped $5.68 million due to a significant credit adjustment to a major industrial user and reduced consumption. Water and sewer conveyance revenues increased $6.46 million from 2010, due to a rate increase of 7.7% and an increase to 7% from 5% in the Distribution Infrastructure System Charge (DISC) on total water and sewer conveyance bills.

Total non-operating revenues (expenses) decreased by $22.56 million, mostly driven by a $12.38 million reduction in the fair market value of the 2008C2 swap contract as contrasted to a $.309 million decrease in 2010. Donated property revenue was $2.277 million, a decrease of $12.823 million when compared to 2010, a year in which $7.75 million in assets finished in prior years were recognized. Non-operating revenues for grants declined to zero and interest revenue increased by $.159 million to $.709 million due to higher market rates.

Total operating expenses decreased in 2011 to $105.53 million compared to $108.58 million in 2010. Significant operating expenses included the following factors:

Salary and employee benefit expenses were up $.431 million or 2.6%. The increase is attributed to an average overall salary increase of 2.9%, and a 1.7% increase in benefit costs.

Overall direct operating expenses, excluding salaries and benefits, decreased by $3.75 million to $56.15 million in 2011 or 6.3% from $59.90 million in 2010. Wastewater treatment expense decreased by $5.32 million or 11% to $43.47 million when compared to $48.79 million in 2010 due to adjustments and reduced consumption. Chemicals expense increased by $.125 million. Equipment increased by $.905 million. Sewer repairs increased to $.586 million in 2011, from $.55 million in 2010. Vactor debris removal expense increased slightly to $.314 million. Emergency water line repairs decreased by $.224 million to $.325 million, or 41% from $.548 million in 2010. Catch basin cleaning increased by $.91 million to $.203 million or 81.6% from 2010. Building repairs increased by $.139 million due primarily to work done at the main warehouse and several pumping stations. Annual software support decreased $.355 million as support needs for SAP declined in preparation for a new ERP implementation of Microsoft's Dynamics GP Systems developed by Cogsdale.

Overall G&A expenses increased 13.2%, to $9.58 million from $8.46 million in 2010. Significant expense reductions were a $.286 million drop in legal expenses and $.170 million reduction in consultants. Significant expense increases were $.114 million in postage, $.100 million in Miscellaneous Services, and $1.33 million in claims and deductibles.

Overall other expenses decreased 2.4% or $1.54 million to $63.05 million in 2011 from $64.59 million in 2010. Non-city water subsidy to Pennsylvania American Water Company (PAWC) decreased 29.7% or $.693 million to $1.63 million in 2011 compared to $2.33 million in 2010 due to the 2011 PWSA rate increase. Interest expense on bond debt decreased 5.4% or $2.23 million to $38.99 million in 2011 compared to $41.2 million in 2010. Expenses related to the cooperation agreement with the City of Pittsburgh increased by $.500 million in 2011.

In 2011, cash collections increased by $2.39 million or 1.7%. Increases in the Authority's DISC charge by 2% and a 7.7% on water and sewer conveyance provided most of the increase, while a decrease in water usage, as is occurring at water systems nationwide, precluded a larger net increase. This was the third year in a row that the Authority collected more than 100% of its billings. These continuing improvements in collections resulted in a drop in bad debt reserve of $.493 million from 2010.

Financial History Table
Statement of Revenues, Expenses and Changes in Net Assets
(Dollars expressed in thousands)
(Years Ended December 31, 2011, 2010, 2009 and 2008)

	2011	2010	2009*	2008
Operating revenues:				
Residential, commercial and industrial water sales	$ 95,290	$ 88,829	$ 86,271	$ 86,627
Wastewater treatment	43,548	49,223	45,514	39,439
Other	1,714	1,701	2,390	3,668
Total operating revenues	$ 140,552	$ 139,753	$ 134,175	$ 129,734
Operating Expenses:				
Direct operating expenses	$ 37,976	$ 36,393	$ 38,770	$ 38,346
Cooperation agreement operating expenses:				
Wastewater direct expenses	43,468	48,788	44,795	40,096
Indirect cost allocation - wastewater	4,400	4,500	4,500	4,415
Indirect cost allocation - water	4,750	4,150	4,131	5,235
Transfer costs, net				
Expense of water provided by other entities:				
Subsidy of customers located in the City	$ 1,633	$ 2,326	$ 1,603	$ 1,070
Depreciation	11,810	10,929	10,317	13,914
Amortization of capitalized lease assets	1,490	1,491	1,491	2,557
Total operating expenses	105,527	108,577	105,607	105,633
Operating income	$ 35,025	$ 31,176	$ 28,568	$ 24,101
Other revenues (expenses):				
Federal Grants	--	52	248	986
Donated Property	2,277	15,100	14,819	204
Interest revenue	709	550	690	5,032
Inv. Inc. Change Fr. Mkt. Swap Value	(12,380)	(309)	7,187	--
Interest expense - bonds	(36,747)	(39,202)	(37,984)	(29,362)
Interest Expense - other	(422)	(185)	(149)	(153)
Amortization of bond issue costs	(1,800)	(1,811)	(1,633)	(1,202)
Total other revenue (expense)	(48,363)	(25,805)	(16,822)	(24,495)
Increase/(Decrease) in Net Assets	$ (13,338)	$ 5,371	$ 11,746	$ (394)
Net Asset Surplus/(Deficit):				
Beginning of year	(30,167)	(35,538)	(47,284)	(34,603)
End of year	$ (43,505)	$ (30,167)	$ (35,538)	$ (34,997)
Annual debt service requirement				
Principal	$16,748	$16,435	$14,625	$ 15,531
Interest	27,721	30,190	30,435	24,223
Total annual debt service	$44,469	$46,625	$45,060	$ 39,754

- 2009 was restated in accordance with GASB 53 (derivatives) as part of the 2010 Audit. The 2009 numbers also include an adjustment for 2008.

The Financial History table reflects the results of past operations and is not necessarily indicative of results of future operations. Future operations will be affected by various factors, including, but not limited to, regulatory mandates, rate

changes, weather, labor contracts, population changes, business environment and other matters, the nature and effect of which cannot now be determined. See "CERTAIN BONDHOLDERS' RISKS".

Planned 2012 Expenses of Operation

Salaries and related expenses account for 18.64% of total operating expenses in the 2012 budget. In 2012 the Authority's budget provides for 276 positions as follows: 39 in billing and collections; 24 in administrative and accounting positions; 193 in water and sewer operations and 20 in engineering. Payments to the City of Pittsburgh for services to be provided to the Authority under the Cooperation Agreement are 7.2% of the 2012 total operating expenses. In addition, utility fees and the cost of chemicals account for 10.8% of the 2012 total operating expenses.

Unaudited Financial Results through June 30, 2012

Based on the Authority's unaudited results for the first six months ending June 30, 2012, total operating revenues were approximately $44.6 million, or 0.8% below total operating revenues of $44.9 million for the same six-month period ended June 30, 2011. The variance was due primarily to a decrease in consumption. (See description regarding Bay Valley Foods after 10 largest users table on Page A-6). Operating expenses for the six months ended June 30, 2012, are approximately $41.9 million, or 3.5%, above operating expenses of $40.5 million for the same six-month period ended June 30, 2011, with the variance due primarily to increases in operating contracts and professional services. Non-operating expenses declined by 2.9% or $.935 million from the same period in 2011.

Historical Debt Service Coverage

The Authority is required to satisfy one of the two debt service coverage tests under Indenture. Under Test 1 receipts, revenues and unrestricted revenue fund cash must be sufficient to provide for payment of (a) current expenses of PWSA and (b) 120% of debt service on the first and subordinate lien bonds. Under Test 2, receipts and revenues, including construction fund earnings with certain limitation, together with debt service reserve fund earnings must be sufficient to provide for payment of (a) current expenses of PWSA and (b) 100% of debt service on the first and subordinate lien bonds. Below is the historical debt service coverage from 2007 to 2011 for Test 1.

Debt Service Coverage Calculations	2007	2008	2009	2010	2011
Receipts and Revenues	$ 129,907	$ 129,734	$ 134,175	$ 139,753	$ 140,552
Unrestricted Cash	31,907	35,024	41,914	42,937	37,403
Total	$ 161,814	$ 164,758	$ 176,089	$ 182,690	$ 177,855
Operating Expenses	$ 83,756	$ 89,162	$ 93,799	$ 96,157	$ 92,227
120% Debt Service	47,573	47,576	54,072	52,412	51,026
Total	$131,329	$ 136,738	$ 147,871	$ 148,569	$ 143,253
Funds in Excess of Test	$ 30,485	$ 28,020	$ 28,218	$ 34,121	$ 34,702
Test 1 Debt Service Coverage	164%	159%	152%	165%	168%

Billings, Collections and Enforcement

All bills are due 20 days after the billing date, and interest is applied on the next invoicing date. Dunning notices are generated and mailed to customers with any past due balances, and all unpaid balances, including interest, are reflected on the next regularly scheduled monthly statement. In addition, accounts with past due balances in excess of 90 days are also submitted to a collection agency as part of the overall collections process. Collection calls are made to customers of any accounts that are eligible to be terminated. If the customer is unable to be reached via telephone, their property is posted for non-payment. Water services are terminated when necessary.

Effective May 2004, the Authority began direct-billing City residents for current wastewater treatment charges. The intent of this operational change (from purchasing delinquent wastewater receivables and billing) is to reduce delinquencies by providing for more timely billing and collection activities. In order to effect this billing change, the Authority entered into a tentative agreement with ALCOSAN, relating to direct billing by the Authority of ALCOSAN wastewater treatment charges. Under that agreement, the Authority is obligated to create and fund an escrow account covering a two-month billing period.

In October 2008, the Authority partnered with Paymentus Corporation to bring a one-time telephone and internet payment solution to its customers. A full Electronic Billing Payment and Presentment (EBPP) solution was installed and was made available to customers in the fourth quarter of 2009, via the Authority's mailing services vendor, Pittsburgh Mailing Services, Inc. The mailing services contract was awarded to Level One, LLC in the fourth quarter of 2010, making Level One the EBPP provider for the Authority.

Employee Relations

The majority of employees of the Authority are represented by a labor organization under Act 195 of 1970 of the Commonwealth of Pennsylvania. The Pittsburgh Joint Collective Bargaining Committee (PJCBC) represents blue-collar employees, and the American Federation of State, County and Municipal Employees (AFSCME), Local 2719 represents white-collar employees while, Local 2037 represents the foremen. Act 195 requires that bargaining start at least six months prior to the date on which the Authority's budget is adopted and that mediation be used if an impasse is reached. Since the time they were certified, the Authority has concluded numerous negotiations with these bargaining units without any labor stoppages. A five year agreement was recently reached with the AFSCME which provides for a salary increase effective January 1, 2009, 2010, 2011, 2012, and 2013. The Pittsburgh Joint Collective Bargaining Committee reached a five year agreement which provides for a salary increase effective January 1, 2008, 2009, 2010, 2011, and 2012. Contract negotiations are scheduled to begin shortly with PJCBC.

Pension

Employees of the Authority participate in the City's Municipal Pension Fund Plan (the "Plan"). Employees who became members of the Plan prior to January 1, 1988 are required to contribute 5% of pre-tax pay. Those joining thereafter are required to contribute 4%. Substantially all of the Authority's 2011 payroll of $12,796,000 was covered by the Plan. Employee contributions for the year amounted to approximately $497,000. For more information, please refer to Authority's Financial Statements as of December 31, 2011 provided under "Appendix C" herein.

City Pension Funding and Act 44*

The assets of the Plan are administered by the Comprehensive Municipal Pension Trust Fund (the "Fund") together with two other pension plans maintained by the City, the Policemen's Relief and Pension Plan of the City of Pittsburgh, and the Firemen's Relief and Pension Plan of the City of Pittsburgh (collectively with the Municipal Pension Plan, the "Pension Plans").

The Commonwealth of Pennsylvania enacted pension legislation ("Act 44") that mandated that the City reach a funding level of at least 50% by December 31, 2010. In the event that the City was not able to reach such mandated level of funding, the Pension Plans would be merged into the Pennsylvania Municipal Retirement System ("PMRS") per the provisions of Act 44. The City developed a plan to address the problem, which was adopted on December 31, 2010. This plan required the deposit of $45 million from the City's reserves to the Fund and of dedicated parking taxes of $13.4 million annually from 2012 through 2017, and $26.8 million from 2018 through 2041. The dedication of the parking taxes is irrevocable per legislative action. The deposit of the $45 million was completed prior to the end of 2010.

The City's most recent actuarial report, dated September 12, 2011, reflecting valuations as of January 1, 2011 reflect the Fund carrying an actuarial liability of $1,012,072,241. The Fund's assets of the same date were valued at $631,991,453. This corresponds to a funding level of approximately 62%, which is in excess of the minimum mandated 50% funding level.

On September 19, 2011, the Pennsylvania Public Employees Retirement Commission accepted this plan and declared that the Fund was 62% funded, which avoided a state takeover of the Pension Plans.

* Source: City of Pittsburgh

Government Regulation

The Authority is subject to Federal, State and County regulations in connection with water treatment, water distribution, wastewater collection, construction activities, and storage tank use and air emissions. At the Federal level, regulatory oversight is provided by the United States Environmental Protection Agency ("USEPA"); at the State level, oversight is provided by the PADEP; and at the local level, oversight is provided by the Allegheny County Health Department ("ACHD"). The system meets or is in the process of planning and implementing improvements to meet all applicable regulations, permits and licenses. The major regulatory programs governing the Authority's operations are discussed below, grouped by subject matter: Drinking Water, Water Quality, Storage Tanks, Water Treatment Plant and Air Quality.

Drinking Water

Large municipal water suppliers, such as the Authority, provide drinking water in accordance with the Federal Safe Drinking Water Act, which was passed in 1974 and was amended in 1986 and 1996, regulating all systems which provide

water for human consumption through at least 15 service connections, or regularly serve at least 25 individuals. The Federal Act gave USEPA the authority to establish drinking water standards to control the level of contaminants in drinking water, rules prescribing minimum methods of drinking water treatment, and requirements for monitoring and reporting of drinking water quality. Pennsylvania adopted a corresponding Pennsylvania Safe Drinking Water Act in 1984, and the state regulatory program has received USEPA primary approval, meaning that PADEP primarily administers the permitting and regulatory program in Pennsylvania.

The Authority holds permits issued by PADEP for the operation of a public water supply system, and is required to comply with federal and state requirements for treatment, monitoring of water quality, reporting of monitoring results and notification of exceeding events, and issuance of consumer confidence reports to its customers.

Water Quality

Federal regulations adopted under the Federal Clean Water Act, and State rules enacted under the Pennsylvania Clean Streams Law, govern discharges of wastewater and storm water. Any facility which discharges sewage, process wastewater, non-contact cooling water, storm water from municipal separate storm sewer systems or storm water associated with an industrial activity must obtain a National Pollutant Discharge Elimination System ("NPDES") Permit. Under program approval from USEPA, PADEP administers the NPDES Permit program in Pennsylvania.

The Authority and the City of Pittsburgh have been issued an NPDES Permit for discharge from the municipal separate storm sewer systems within the City.

The PWSA Water Treatment Plant recently received an NPDES Permit to allow treated process water discharges to the Allegheny River.

An NPDES permit is also required for discharges from sewage treatment facilities and combined sewer overflows ("CSO"). Such a permit establishes discharge limitations, monitoring, and reporting requirements and compliance schedules. The PWSA has been issued its NPDES CSO Permit for its combined sewer overflows.

On January 29, 2004, the Authority entered into a Consent Order and Agreement which contains detailed requirements for addressing wet weather sewer overflows (see "CERTAIN BONDHOLDERS' RISKS, *Certain Environmental Matters*").

The City of Pittsburgh, ACHD and the Authority have rules and regulations prohibiting the introduction of hazardous chemicals or materials, including industrial byproducts, into the sewer collection and conveyance system. Enforcement is through the Allegheny County Health Department, the City of Pittsburgh Department of Public Safety, and the PADEP. Under USEPA requirements governing pre-treatment of industrial wastewaters discharged to publicly owned treatment works, pretreatment regulations and monitoring of those regulations are the responsibility of ALCOSAN and the ACHD.

Section 303(d) of the federal Clean Water Act requires Pennsylvania to identify all impaired waters within the Commonwealth where technology-based treatment requirements for point and non point sources of pollution are not stringent enough to attain and or maintain applicable water quality standards. This is an ongoing evaluation program being conducted by the PADEP. At this time, the PWSA has not been notified of any identified problems.

Storage Tanks

The Pennsylvania Storage Tank and Spill Prevention Act established a comprehensive regulatory program for both aboveground and underground storage tanks and facilities. The Act allows the PADEP to develop environmental protection programs to prevent and clean up storage tank product releases and spills. The Act includes both enforcement provisions and a strong reliance on the private sector to implement the major program elements. PADEP has received approval to administer the state storage tank program in lieu of most corresponding provisions of the Federal Resource Conservation and Recovery Act underground storage tank program.

The Authority currently has 12 tanks requiring frequent inspections under the regulatory provisions.

All Authority storage tanks have been upgraded to meet current regulatory requirements for protection, monitoring and containment.

Water Treatment Plant

In 2009, the Authority completed a $3 million upgrade to the chemical treatment facility at the water treatment plant. This upgrade addresses storage, handling and distribution, containment and monitoring. These improvements will ensure compliance with current and proposed water quality and environmental regulations. A major aspect of the upgrade has been the conversion of the chlorination system from one utilizing gaseous chlorine to one utilizing liquid chlorine. Chlorine in a liquid form is safer to handle and store.

Air Quality

ACHD administers the air quality permitting program under the provisions of the Federal Clean Air Act and the Pennsylvania Air Pollution Control Act. Under Article XXI of the ACHD Air Pollution Control Regulations, pollution prevention is recognized as the preferred strategy (over pollution control) for reducing risk to air resources. Stack emission standards are set for specific air quality parameters and enforced by permit. On January 29, 1996 the Allegheny Health Department, Air Quality Program, issued the Authority an Annual Air Quality Operating Permit, # 96-0117. This permit covers emissions generated at the Water Treatment Plant and is reviewed and renewed annually. PWSA is required to periodically sample and meet stack air emission standards at the treatment plant from its boilers.

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APPENDIX B

SUMMARY OF THE INDENTURES

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SUMMARY OF FIRST LIEN INDENTURE

This summary of the First Lien Indenture is qualified in all respects by specific reference to the First Lien Indenture. A copy of the First Lien Indenture may be reviewed at the offices of the Authority or the Trustee. Capitalized terms and phrases, not otherwise defined herein, shall have the meanings ascribed to them in the First Lien Indenture.

Defined Terms

Authority Bonds. Means Bonds owned by the Authority.

Authorized Investments. The funds of the First Lien Indenture may be invested in the following:

(a) Direct obligations of the United States of America and securities fully and unconditionally guaranteed as to the timely payment of principal and interest by the United States of America, provided, that the full faith and credit of the United States of America must be pledged to any such direct obligation or guarantee ("Direct Obligations").

(b) Direct obligations and fully guaranteed certificates of beneficial interest of the Export-Import Bank of the United States; consolidated debt obligations and letter of credit-backed issues of the Federal Home Loan Banks; participation certificates and senior debt obligations of the Federal Home Loan Mortgage Corporation ("FHLMCs"); debentures of the Federal Housing Administration; mortgage-backed securities (except stripped mortgage securities which are valued greater than par on the portion of unpaid principal) and senior debt obligations of the Federal National Mortgage Association ("FNMAs"); participation certificates of the General Services Administration; guaranteed mortgage-backed securities and guaranteed participation certificates of the Government National Mortgage Association ("GNMAs"); guaranteed participation certificates and guaranteed pool certificates of the Small Business Administration; debt obligations and letter of credit-backed issues of the Student Loan Marketing Association; local authority bonds of the U.S. Department of Housing and Urban Development; guaranteed Title XI financings of the U.S. Maritime Administration; guaranteed transit bonds of the Washington Metropolitan Area Transit Authority; Resolution Funding Corporation securities.

(c) Direct obligations of any state of the United States of America or any subdivision or agency thereof whose unsecured, uninsured and unguaranteed general obligation debt is rated, at the time of purchase, "A" or better by Moody's and "A" or better by S&P, or any obligation fully and unconditionally guaranteed by any state, subdivision or agency whose unsecured, uninsured and unguaranteed general obligation debt is rated, at the time of purchase, "A" or better by Moody's and "A" or better by S&P.

(d) Commercial paper (having original maturities of not more than 270 days) rated, at the time of purchase, "P-1" by Moody's and "A-l" or better by S&P.

(e) Federal funds, unsecured certificates of deposit, time deposits or bankers acceptances (in each case having maturities of not more than 365 days) of any domestic bank including a branch office of a foreign bank which branch office is located in the United States, provided legal opinions are received to the effect that full and timely payment of such deposit or similar obligation is enforceable against the principal office or any branch of such bank, which, at the time of purchase, has a short-term "Bank Deposit" rating of "P-l" by Moody's and a "Short-Term CD" rating of "A-l" or better by S&P.

(f) Deposits of any bank or savings and loan association which has combined capital, surplus and undivided profits of not less than $3 million, provided such deposits are continuously and fully insured by the Bank Insurance Fund or the Saving Association Insurance Fund of the Federal Deposit Insurance Corporation ("FDIC").

(g) Investments in money-market funds rated "AAAm" or "AAAm-G" by S&P.

(h) Repurchase agreements collateralized by Direct Obligations, GNMAs, FNMAs or FFILMCs with any registered broker/dealer subject to the Securities Investors' Protection Corporation jurisdiction or any commercial

bank insured by the FDIC, if such broker/dealer or bank has an uninsured, unsecured and unguaranteed obligation rated "P-l" or "A3" or better by Moody's and "A-l" or "A-" or better by S&P, provided:

(i) a master repurchase agreement or specific written repurchase agreement governs the transactions; and

(ii) the securities are held free and clear of any lien by the Trustee or an independent third party acting solely as agent ("Agent') for the Trustee, and such third party is (i) a Federal Reserve Bank, (ii) a bank which is a member of the Federal Deposit Insurance Corporation and which has combined capital, surplus and undivided profits of not less than $50 million, or (iii) a bank approved in writing for such purpose by the Bond Insurers, and the Trustee shall have received written confirmation from such third party that it holds such securities, free and clear of any lien, as agent for the Trustee; and

(iii) a perfected first security interest under the Uniform Commercial Code, or book entry procedures prescribed at 31 C.F.R. 306.1 et seq. or 31 C.F.R. 350.0 et seq. in such securities is created for the benefit of the Trustee; and

(iv) the repurchase agreement has a term of 180 days or less, and the Trustee or the agent will value the collateral securities no less frequently than weekly and will liquidate the collateral securities if any deficiency in the required collateral percentage is not restored within two Business Days of such valuation; and

(v) the fair market value of the securities in relation to the amount of the repurchase obligation, including principal and interest, is equal to at least 103%.

(i) Investment agreements approved by the Bond Insurers.

Current Expenses. The term "Current Expenses" shall mean the reasonable, proper and necessary costs of operation, maintenance and repair of the Water and Sewer System and Capital Additions and shall include, but without limiting the generality of the foregoing, administrative, engineering, legal, auditing and insurance expenses, liquidity facility fees and expenses, fees and expenses of the Trustee, any paying agent, and authorized depositaries, an allowance for depreciation, any payments to pension or retirement funds and taxes, and payments payable by the Authority to the City under the Cooperation Agreement.

Debt Service Requirements. The term "Debt Service Requirements" shall mean, in respect of any Fiscal Year, the sum of the amount required to be paid in such Fiscal Year by the Authority in respect of the interest on and the principal of the Bonds outstanding or to be outstanding, as the case may be, and the amounts required to be paid to any sinking, purchase or analogous fund established for such Bonds and any Periodic Payments to be paid in connection with any Qualified Interest Rate Swap Agreement to the extent not taken into account in calculating the Debt Service Requirements on Bonds bearing interest at a variable rate pursuant to the immediately following sentence; provided, however, that the Debt Service Requirements in respect of any Fiscal Year for a series of Bonds for which there shall have been established a sinking, purchase or analogous fund shall be determined after projecting the operation of such fund to the retirement of Bonds by redemption and giving effect to the reduction in the payments to be made in such Fiscal Year in respect of the principal of and interest on such Bonds by reason of such redemption. To the extent any Bonds under consideration bear interest at a variable rate, and a Qualified Interest Rate Swap Agreement is in place with respect to such Bonds, the Debt Service Requirements on those Bonds shall be calculated by substituting the fixed rate used to determine amounts payable by the Authority under the Qualified Interest Rate Swap Agreement in lieu of the variable rate on the Bonds (except as such calculation relates to amounts to be deposited into the Debt Service Reserve Fund); provided, the Counterparty to such Qualified Interest Rate Swap Agreement maintains a rating by Standard & Poor's of at least "AA-" and by Moody's of at least "Aa3", otherwise the Debt Service Requirements for such Bonds shall be assumed to bear interest at the highest of: (i) the actual rate on the date of calculation, or if the indebtedness is not yet outstanding, the initial rate (if established and binding); (ii) if the indebtedness has been outstanding for at least twelve (12) months, the average rate over the twelve (12) months immediately preceding the date of calculation; and (iii) (1) if the interest on the indebtedness is excludable from gross income under the applicable provisions of the Internal Revenue Code of 1986,

as amended, the most recently published Bond Buyer 25 Bond Revenue Index (or comparable index if no longer published) plus fifty (50) basis points, or (2) if interest is not so excludable, the interest rate on direct U.S. Treasury Obligations with comparable maturities plus fifty (50) basis points.

Letter of Credit. The term "Letter of Credit" shall mean an irrevocable transferable direct-pay letter of credit issued for a series or subseries of Bonds by a Letter of Credit Bank for the account of the Authority in favor of the Trustee supporting a series or subseries of Bonds as set forth in a Reimbursement Agreement between the Letter of Credit Bank and the Authority.

Letter of Credit Bank. The term "Letter of Credit Bank" shall mean the issuer of an irrevocable transferable direct-pay Letter of Credit pursuant to a Reimbursement Agreement.

Periodic Payment Date. The term "Periodic Payment Date" shall mean the date on which a Fixed Swap Payment is required under any Qualified Swap Agreement until the termination or maturity of the Qualified Interest Rate Swap Agreement.

Periodic Payments. The term "Periodic Payments" shall mean any regularly scheduled payment payable by the Authority to the Counterparty pursuant to the terms of any Qualified Interest Rate Swap Agreement(s); however, Periodic Payments shall not include any termination payments, costs and fees or any other sums payable under the Qualified Swap Agreement that are not regularly scheduled payments payable by the Authority.

Pledged Bonds. The term "Pledged Bonds" shall mean Bonds purchased with proceeds of a draw on a Letter of Credit and not remarketed and held in pledge by the Letter of Credit Bank or its designee.

Qualified Interest Rate Swap Agreement. The term "Qualified Interest Rate Swap Agreement" or "Qualified Swap Agreement" shall mean any agreement relating to any Bonds issued or to be issued under the Indenture with a Counterparty whereby the Authority will pay to the Counterparty periodic fixed amounts based upon a fixed percentage of a notional amount specified in such agreement and such Counterparty will pay to the Authority certain periodic floating amounts based upon a variable percent of the same notional amount; provided, that (i) the underwriter or the Authority's financial advisor shall certify to the Authority and the Trustee that (based upon then current market conditions) such Qualified Swap Agreement creates an overall lower Debt Service Requirement than would be attained through the issuance of Additional Bonds in an amount equal to such notional amounts at a Fixed Rate without such Qualified Interest Rate Swap Agreement and (ii) there is in place a municipal bond insurance policy, letter of credit or other credit enhancement instrument with respect to the Bonds to which the agreement relates guaranteeing payments of amounts owed on the Bonds and a swap insurance policy guaranteeing the payment of Periodic Payments due pursuant to such agreement respectively. Periodic Payments under a Qualified Interest Rate Swap Agreement may be on parity with the Bonds to which the Qualified Interest Rate Swap Agreement relates.

Receipts and Revenues. The term "Receipts and Revenues" shall mean any and all rates, fees, payments received by the Authority from a counterparty pursuant to the terms of a Qualified Interest Rate Swap Agreement, rents and charges established or to be established, levied and collected in connection with, and all other payments, receipts and revenues of whatever kind or character arising from, the operation or ownership of any property of the Authority or any part thereof (except tap or connection fees and charges to the extent such fees or charges are pledged in accordance with the Act as a refund to such person who has paid for the construction of any extension of the Water and Sewer System or assessment revenues which are subject to the lien of assessment bonds then outstanding), any income earned on the moneys or investments on deposit in the Debt Service Fund, Debt Service Reserve Fund, Construction Fund, Revenue Fund, Operation and Maintenance Fund and any sinking, purchase or analogous fund created under the First Lien Indenture.

Reimbursement Agreement. The term "Reimbursement Agreement" shall mean a Reimbursement Agreement between the Authority and the respective Letter of Credit Bank, which may be amended from time to time in accordance with the terms thereof.

Reimbursement Obligations. The term "Reimbursement Obligations" shall mean the obligations of the Authority to reimburse the Letter of Credit Bank for draws on such Letter of Credit Bank's Letter of Credit and to pay all other amounts due or to become due under the Reimbursement Agreement.

Pledge and Security

Pursuant to the First Lien Indenture, the Receipts and Revenues after payment of the Authority's Current Expenses, together with all cash and investments from time to time held in any fund (other than the Rebate Fund) by the Trustee, is pledged by the Authority to the Trustee, its successors and assigns, to secure the payment of principal of and interest on all Bonds issued under the First Lien Indenture, the observance and performance of all the terms, provisions and conditions of the First Lien Indenture, and for the equal and ratable benefit and security of all and singular the present and future holders of the Bonds, Letter of Credit Banks and Qualified Interest Rate Swap Agreement without preference, priority or distinction as to lien or otherwise, except as otherwise provided in the First Lien Indenture, of any one Bond, Reimbursement Agreement or Qualified Interest Rate Swap Agreement over any other Bond Reimbursement Agreement or Qualified Interest Rate Swap Agreement by reason of priority in the issue, sale or authentication thereof or otherwise. The municipal bond insurance policy issued with respect to a particular series of the Bonds is for the sole benefit and security of the holders of the particular series of Bonds to which such policy relates. Holders of Bonds of another series shall have no rights or protection under a bond insurance policy issued with respect to another series of the Bonds.

Additional Bonds

The Authority may issue Additional Bonds, on parity with the 2008 Bonds, 2007 Bonds, the 2003 Bonds, the 1998 Bonds and the 1993 Bonds, for the purpose of financing the cost of acquiring or constructing capital additions or improvements, or for the purpose of refunding outstanding Bonds upon the conditions and terms set forth in the First Lien Indenture. In addition to the foregoing, the Authority may incur or assume additional debt provided that the security for such debt is subordinate to the lien of and security interests granted by the First Lien Indenture.

Funds Established Under the Indenture

Revenue Fund. All Receipts and Revenues and all other amounts received by the Authority from any source (except as otherwise provided in the First Lien Indenture) shall be deposited in the Revenue Fund established by the Authority with one or more Authorized Depositaries.

Operation and Maintenance Fund. On or before the first day of each month, the Authority shall transfer from the Revenue Fund to the Operation and Maintenance Fund an amount equal to the amount budgeted by the Authority for that month for payment of the Current Expenses as the same become due. The Authority shall pay out of the Operation and Maintenance Fund its Current Expenses as the same shall become due. There is a special account within the Operation and Maintenance Fund called the "Operating Reserve Account." There shall be maintained in the Operating Reserve Account one-sixth of the amount equal to the Authority's budgeted Current Expenses for the current Fiscal Year. Amounts in the Operating Reserve Account shall be applied to pay the Current Expenses of the Authority to the extent that the amounts on deposit in the Operation and Maintenance Fund are insufficient.

Debt Service Fund. On or before each interest payment date, the Authority will transfer from the Revenue Fund for deposit in the Debt Service Fund an amount equal to the amount of interest accrued and payable to date and an amount equal to the Reimbursement Obligations and pursuant to the Reimbursement Agreement and an amount equal to the Periodic Payments for that Periodic Payment Date, and on or before the first day of each month, the Authority shall transfer from the Revenue Fund to the Trustee for deposit in the Debt Service Fund an amount equal to 1/12th of the principal due on the Bonds or 1/12th of the amount representing draws to be paid by the applicable Letter of Credit Bank for payment of principal on the next following principal payment date.

Debt Service Reserve Fund. There shall be maintained in the Debt Service Reserve Fund an amount equal to the maximum annual debt service requirements on the Bonds, subject to restrictions of federal tax laws.

The amount required to be maintained in the Debt Service Reserve Fund may be in the form of cash, a letter of credit or other credit instrument, a surety bond, or a combination thereof.

Redemption Fund. The Authority may transfer to the Trustee for deposit to the credit of the Redemption Fund such amounts as it may elect for the purchase or redemption of Bonds at the option of the Authority, and the Trustee shall apply such moneys to the purchase or redemption of Bonds in the amounts directed by the Authority. Upon any such purchase or redemption, the Trustee shall transfer from the Debt Service Fund to the Redemption Fund any amount deposited to the Debt Service Fund with respect to interest on the Bonds being redeemed and shall pay the interest due on the redemption date out of such moneys.

Renewal and Replacement Fund. On the dates and in the amounts set forth in the consulting engineer's report, money is transferred to the Renewal and Replacement Fund. The moneys at any time on deposit to the credit of the Renewal and Replacement Fund may be used by the Authority for extraordinary maintenance and repair of the Water and Sewer System or to pay the cost of capital additions or construction, or, to the extent of any insufficiency therein, to the Debt Service Fund or to any sinking, purchase or analogous fund.

Rebate Fund. Separate and apart from the pledge of the First Lien Indenture is a Rebate Fund. Within the Rebate Fund there is a separate account for each series of Outstanding Bonds. Deposits, transfers and payments from the particular rebate accounts shall be made in accordance with tax regulatory agreements entered into with respect to the respective series of Bonds.

Rate Covenant

The Authority covenants that it will comply with (1) or (2) below in any fiscal year:

1) The Authority will maintain, charge and collect, so long as any Bonds are outstanding, reasonable rates, rentals and other charges for the use of the facilities of the Water and Sewer System which (after making due and reasonable allowances for contingencies and a margin of error in the estimates) together with other Receipts and Revenues, including any unrestricted cash and investments accumulated in the Revenue Fund at the beginning of each Fiscal Year, shall be at all times at least sufficient to provide annually:

(a) Amounts sufficient to pay all of the Current Expenses of the Authority; and

(b) An amount equal to 120% of the debt service requirements with respect to the Authority Bonds (i.e., the Bonds and any bonds issued under the Subordinate Indenture) and other Authority Long Term Indebtedness during the then current fiscal year of the Authority.

2) The Authority will maintain, charge and collect, so long as any Bonds are outstanding, reasonable rates, rentals and other charges for the use of the facilities of the Water and Sewer System which (after making due and reasonable allowances for contingencies and a margin of error in the estimates), together with other Receipts and Revenues, for the then current fiscal year (exclusive of interest income earned by the Authority on funds other than the Debt Service Reserve Fund; provided, however, that earnings on the construction/acquisition funds may also be included during any construction period, but only to the extent such earnings are expressly required to be either retained in the construction/acquisition funds and may be used to pay debt service on the Authority Bonds or other Authority Long Term Indebtedness or are applied directly to payment of debt service on the Authority Bonds or other Authority Long Term Indebtedness), shall be at all times at least sufficient to provide annually:

(a) Funds to pay all of the Current Expenses of the Authority; and

(b) An amount equal to 100% of the debt service requirements with respect to the Authority Bonds and other Authority Long Term Indebtedness during the then current fiscal year of the Authority.

Calculation of compliance with the covenant shall be made on the following basis: (a) operating revenue, construction/acquisition fund income, earnings on the Debt Service Reserve Fund, expenses, required deposits to replenish any withdrawals from the Debt Service Reserve Fund and the Renewal and Replacement Fund which have

not been capitalized shall be accounted for on the accrual basis; (b) costs of issuance of the Authority Bonds and other Authority Long Term Indebtedness may be treated as if such amounts are amortized over the life of the Authority Bonds and other Authority Long Term Indebtedness irrespective of any shorter period over which such costs are actually amortized; and (c) depreciation is specifically excluded from the calculation. In the event that any Policy Costs are due and owing at the time of the calculation of the rate covenant, Gross Revenues of the Authority shall be reduced by the amount of any Policy Costs then due and owing.

The Authority also covenants with the holders of the Bonds that if at any time the revenues collected shall not be sufficient to enable the Authority to comply with the provisions set forth above, it will promptly revise its water or sewer rates, rents and other charges so that the Authority will be in compliance and so that any deficiencies in transfers of funds required to be made pursuant to the First Lien Indenture will be remedied before the end of the next ensuing fiscal year. In addition, with respect to the 2003 Bonds, (a) failure by the Authority to meet at least one of the requirements set forth in (1) and (2) above will constitute a breach requiring the Authority to engage a consultant within 60 days of the determination that such breach has occurred, and failure to engage and follow the recommendations of the consultant in a prompt manner will constitute an Event of Default as to the 2003 Bonds, and (b) failure to meet the test contained in (1) above when substituting "100%" for "120%" in (1)(b) will constitute an Event of Default as to the 2003 Bonds.

Insurance of Water and Sewer System. The Authority will at all times cause all the property of the Water and Sewer System which is of a character usually insured by persons operating properties of a similar nature to be properly insured and kept insured by a reputable insurance company or companies against loss or damage by fire or other hazards to the extent that such properties are usually insured by persons operating properties of a similar nature in the same or similar localities. Such policies of insurance shall be for the benefit of the Trustee and the Authority, as their respective interests may appear. All claims in excess of $500,000 shall be made payable to the Trustee and shall be held by the Trustee as additional security until paid out by it as provided therein. All claims of $500,000 or less shall be paid to the Authority.

Employment of Independent Accountant; Annual Financial Report. The Authority covenants to employ an independent auditor to perform such duties as are imposed on the independent auditor by the First Lien Indenture, including preparation of an audit report for the preceding fiscal year.

Events of Default. Each of the following events is hereby declared an "Event of Default" for any Bond issued under the First Lien Indenture:

(a) failure by the Authority to pay the principal of, or the premium (if any) payable upon the redemption of, any Bond when due and payable either at maturity, declaration, or by proceedings for redemption, or otherwise (no effect being given to payments made under the Bond insurance policies); or

(b) failure by the Authority to pay any installment of interest on any Bond when due and payable (no effect being given to payments made under the Bond insurance policies); or

(c) the entry of an order or decree appointing a receiver or receivers of the Water and Sewer System or of the Receipts and Revenues with the consent or acquiescence of the Authority, or, if such order or decree shall have been entered without the acquiescence or consent of the Authority, the failure of the Authority to cause such order or decree to be vacated or discharged or stayed on appeal within 90 days after entry; or

(d) the institution of any proceeding with the consent or acquiescence of the Authority for the purpose of effecting a composition between the Authority and its creditors, or for the purpose of adjusting the claims of such creditors pursuant to any Federal or State statute now or hereafter enacted, if the claims of such creditors are under any circumstances payable out of the Receipts and Revenues, or if such proceeding shall have been instituted without the consent or acquiescence of the Authority, the failure of the Authority to have such proceeding withdrawn, or any order entered therein vacated or discharged, within 90 days after the institution of such proceeding or the entry of such order; or

(e) the entry of a final judgment against the Authority, which judgment constitutes or could result in a lien or charge upon the Water and Sewer System or the Receipts and Revenues, or which materially and adversely affects the ownership, control or operation of the Water and Sewer System, if such judgment shall not be discharged within 90 days from the entry thereof, or if an appeal shall not be taken therefrom, or from the order, decree or process upon which or pursuant to which such judgment was granted or entered, in such manner as to conclusively set aside the execution or levy under such judgment, order, decree or process, or the enforcement thereof; or

(f) the failure of the Authority to repair or replace, with reasonable dispatch, any part of the Water and Sewer System necessary for its efficient operation which shall have been destroyed or damaged (whether such failure promptly to repair or replace the same be due to the impracticability of such repair or replacement or the lack of funds therefor or for any other reason); or

(g) the failure or refusal of the Authority to comply with any provisions of the Municipality Authorities Act, as amended and supplemented, or the rendering of the Authority, for any reason, incapable of fulfilling its obligations thereunder or under the First Lien Indenture; or

(h) the failure of the Authority to observe any other covenant, condition or agreement of the Authority contained in the Bonds or in the First Lien Indenture and the continuation of such failure for a period of 60 days after written notice of such failure from the Trustee, which may give such notice in its discretion and shall give such notice at the written request of the holders of not less than 25% in aggregate principal amount of the Bonds then outstanding, provided that (except as summarized under "Rate Covenant") the failure of the Authority to meet the rate covenant set forth in the First Lien Indenture shall not constitute an event of default thereunder, and provided further that if such failure is not capable of being remedied within 60 days after such notice, no Event of Default shall exist if the Authority commences the actions necessary for the cure of such failure within such 60 day period and diligently pursues such actions thereafter; or

(i) failure by the Authority to pay principal of, or premium (if any) payable upon the redemption of any Subordinate Bond when due and payable either at maturity or otherwise or to pay any installment of interest on any such Subordinate Bond when due and payable (no effect being given to payments made under a bond insurance policy) or any default under the Subordinate Indenture; or

(j) the Trustee shall have received written notice from a Letter of Credit Bank that an Event of Default shall have occurred under the Reimbursement Agreement, with a direction from the Letter of Credit Bank to the Trustee to accelerate the principal and interest on the respective series or subseries of Bonds secured by such Letter of Credit Bank's Letter of Credit; or

(k) any acceleration of the payment of principal of any series or subseries of Bonds or the payment of Reimbursement Obligations shall have occurred; or

(l) failure by the Authority to pay the principal of any Reimbursement Obligation when due or within any applicable grace period, if any, set forth in the applicable Reimbursement Agreement; or

(m) failure by the Authority to pay any installment of interest on any Reimbursement Obligation when due or under any applicable grace period, if any, set forth in the applicable Reimbursement Agreement.

Acceleration of Principal. Upon the occurrence and continuance of any Event of Default, the Trustee may, and at the written request of Bondholders of not less than 25% in principal amount of the Bonds then outstanding shall, by written notice to the Authority, declare the Bonds to be immediately due and payable, whereupon they shall, without further action, become and be immediately due and payable. Upon the occurrence and continuance of an Event of Default as described in Section 8.01(j) or Section 8.01(k), at the written direction of the applicable Letter of Credit Bank, the Trustee shall, by written notice to the Authority, declare the series or subseries of Bonds secured by such Letter of Credit Bank's Letter of Credit to be due and payable five (5) Business Days after delivery of such written notice by the Trustee to the Authority, whereupon such series or subseries of Bonds shall, without further action, become and be due and payable five (5) Business Days after the provision of such notice by the Trustee to the Authority. The Trustee shall give written notice thereof to the Authority and shall

give notice thereof by first class mail to all holders of such series or subseries of Outstanding Bonds and to all other holders of Outstanding Bonds and to any Letter of Credit Bank, Insurer or other provider of credit or credit enhancement to any series or subseries of Bonds (each a "Provider). No later than one (1) Business Day of receiving written direction of acceleration from the applicable Letter of Credit Bank, the Trustee shall give written notice to each Provider of the Trustee's receipt of such written direction of acceleration. Such written notice may be electronic. In the case of electronic notice provided pursuant hereto to Bank of America, N.A., such electronic notice shall be sent to any address or addresses as directed by Bank of America, N.A., in the case of electronic notice provided pursuant hereto to PNC Bank, National Association, such electronic notice shall be sent to such other address or addresses as directed by PNC Bank, National Association, and in the case of electronic notice provided pursuant hereto to the Insurer, such electronic notice shall be sent to such address or addresses as directed by the Insurer. Upon the occurrence and continuance of an Event of Default as described in Section 8.01(l) or Section 8.01(m), at the written direction of the applicable Letter of Credit Bank, the Trustee shall, by written notice of the Authority, declare the principal and accrued interest and all other Reimbursement Obligations owed to the applicable Letter of Credit Bank to be immediately due and payable whereupon such Reimbursement Obligations shall, without further action, be immediately due and payable. The Trustee shall give notice thereof by first class mail to all holders of Outstanding Bonds and to each Provider, no later than one (1) Business Day of receiving written direction of acceleration from the applicable Letter of Credit Bank, in the same manner as provided in the previous paragraph. The above provision, however, is subject to the condition that if, after the principal of said Bonds shall have been so declared to be due and payable, all arrears of interest, if any, upon the Bonds and interest on overdue installments of interest at the rate of interest specified therein, and the principal of all Bonds which have matured other than by reason of such declaration, shall have been paid by the Authority, and the Authority shall also have performed all other things in respect to which it may have been in default hereunder, and shall have paid the reasonable charges of the Trustee and its counsel and of the holders of said Bonds, including reasonable attorneys' fees paid or incurred, then, and in every such case, the holders of not less than a majority in aggregate principal amount of the Bonds then outstanding, by written notice to the Authority and to the Trustee, may waive such default and its consequences and such waiver shall be binding upon the Trustee and upon all holders of Bonds; but no such waiver shall extend to or affect any subsequent default or impair any rights or remedy consequent thereon. In no event, so long as a Bond insurance policy is in effect and the Bond Insurer is not in default thereunder, shall the Trustee waive a default without the prior written consent of the Bond Insurer with respect to the series of Bonds it insures. In no event, so long as a Letter of Credit is in effect and the applicable Letter of Credit Bank is not in default of its obligations pursuant to the applicable Letter of Credit, shall the Trustee waive a default or an Event of Default without prior written consent of the applicable Letter of Credit Bank. Prior to waiving a default or an Event of Default pertaining to an applicable series or subseries of Bonds, the Trustee must receive from the applicable Letter of Credit Bank written notice that the applicable Letter of Credit is still in effect if not drawn upon pursuant to a default or an Event of Default hereunder, or if drawn upon pursuant to a default or an Event of Default hereunder, that the applicable Letter of Credit has been fully reinstated. In the event that the principal and interest on any series or subseries of Bonds is declared due and payable, when such Bonds are then supported by a Letter of Credit, the interest on those Bonds shall cease to accrue on the date to which the principal and interest on such Bonds has been accelerated.

Remedies of Trustee and Bondholders; Right of Entry. Subject to the acceleration of principal provision above, upon the happening and during the continuance of any Event of Default, the Trustee may and, upon written request of the holders of not less than 25% in aggregate principal amount of the Bonds then outstanding, shall enter into and upon and take possession of the Water and Sewer System and each and every part thereof as for a condition broken and may exclude the Authority, its agents and employees and all persons claiming under them wholly therefrom and have, hold, use, operate, manage and control the same and each and every part thereof, and in the name of the Authority or otherwise as the Trustee shall deem best, conduct the business thereof and exercise all the rights and powers of the Authority with respect to the Water and Sewer System and use all its then existing property, assets and franchises for that purpose and out of the Receipts and Revenues, maintain, restore, insure and keep insured, the Water and Sewer System against such hazards as are ordinarily insured against by a person operating a water and sewer system similar to the Water and Sewer System and from time to time may make all such necessary or proper repairs as to it may seem expedient, and establish, levy, maintain and collect such rates, rents and charges in connection with the Water and Sewer System as it may deem necessary, proper, desirable and reasonable, and collect and receive Receipts and Revenues, and after deducting therefrom the expenses of operation, maintenance and repair and all expenses incurred thereunder and all other proper outlays herein authorized and all such payments which may be made for insurance and other proper charges, including just and reasonable

compensation for its own services, and for the services of such attorneys, agents and employees as it may, in the exercise of its discretion, employ for any of the purposes aforesaid, the Trustee shall apply the rest and residue of the moneys received by it, as well as all cash and investments held by the Trustee in any fund under the First Lien Indenture subject to the provisions thereof with respect to claims for principal and interest, to the payment of the principal of and interest on the Bonds. Whenever all that is due upon such Bonds and installments of interest and under any of the terms of the First Lien Indenture have been paid or deposited with the Trustee and all defaults made good, the Trustee in possession shall surrender possession to the Authority, its successors or assigns. However, the same right of entry shall exist upon any subsequent default or defaults. For purposes of this section, the Bond Insurer shall, so long as no default has occurred under its respective insurance policy, be deemed to be the owner of the series of Bonds which it insures.

Judicial Action. So long as any series or subseries of Bonds are supported by a Letter of Credit, and the Letter of Credit Bank issuing such Letter of Credit is not in default of its obligations pursuant to the applicable Letter of Credit, the applicable Letter of Credit Bank shall be deemed to be the Bondholder of the series or subseries of Bonds secured by such Letter of Credit with respect to the taking of each remedy provided in this Section and the Trustee shall not take any action directed by the registered owners of the Bonds of the series or subseries of Bonds supported by such Letter of Credit Bank's Letter of Credit. If a Letter of Credit has been drawn to pay principal and interest or purchase price and there are unpaid Reimbursement Obligations, the respective Letter of Credit Bank shall be deemed to be a Bondholder in the amount of the unpaid Reimbursement Obligations, provided that nothing herein shall be interpreted as providing for the double-counting of principal.

So long as the Bond insurance policy is in effect and the Bond Insurer is not in default thereunder, the Bond Insurer may direct the Trustee with respect to the taking of each remedy and the Trustee may not take any action directed by the respective series of the Bondholders without the prior written consent of the Bond Insurer. So long as any series or subseries of Bonds are supported by a Letter of Credit, and the Letter of Credit Bank issuing such Letter of Credit is not in default of its obligations pursuant to the applicable Letter of Credit, the applicable Letter of Credit Bank shall be deemed to be the Bondholder of the series or subseries of Bonds secured by such Letter of Credit with respect to the taking of each remedy provided in this Section and the Trustee shall not take any action directed by the Bondholders of the series or subseries of Bonds supported by such Letter of Credit Bank's Letter of Credit without the prior written consent of the applicable Letter of Credit Bank. If a Letter of Credit has been drawn to pay principal and interest or purchase price and there are unpaid Reimbursement Obligations, the respective Bank shall be deemed to be a Bondholder in the amount of the unpaid Reimbursement Obligations.

Limitations on Bondholders. No holder of any Bonds shall have any right to institute any suit, action, or proceeding in equity or at law for the enforcement of the First Lien Indenture or for the execution of any trust thereof or for the appointment of a receiver or to exercise any other remedy thereunder, unless such holder shall have previously given to the Trustee written notice of an Event of Default and of the continuance thereof nor unless also the holders of at least 25% in aggregate principal amount of the Bonds shall have made written request of the Trustee and shall have offered it reasonable opportunity either to proceed to exercise the powers hereinbefore granted or to institute such action, suit or proceeding in its own name nor unless also they shall have offered to the Trustee adequate security and indemnity against the costs, expenses and liability to be incurred therein or thereby; and such notification, request and offer of indemnity are, at the option of the Trustee, conditions precedent to the execution of the powers and trusts of the First Lien Indenture or for the appointment of a receiver or for any other remedy thereunder; no one or more holders or registered owners of Bonds, however, have any right to affect, disturb or prejudice the lien of the First Lien Indenture by their action or to enforce any right thereunder except in the manner therein provided. Subject to the following paragraph, nothing shall affect or impair the right of any Bondholder, which is absolute and unconditional, to enforce the payment of the principal of and interest on its Bonds, or the obligation of the Authority, which is also absolute and unconditional, to pay the principal of and interest on the Bonds to the respective holders or registered owners thereof at the time and place said Bonds expressed.

So long as any series or subseries of the Bonds are supported by a Letter of Credit, and the Letter of Credit Bank issuing such Letter of Credit is not in default of its obligations pursuant to the applicable Letter of Credit, the applicable Letter of Credit Bank shall be deemed to be the holder of the series or subseries of Bonds supported by such Letter of Credit Bank's Letter of Credit with respect to any direction to the Trustee with respect to the taking of each remedy provided in this Section with respect to such series or subseries of the Bonds and the Trustee shall not

take any direction by the registered owners of the Bonds of the series or subseries of Bonds supported by such Letter of Credit Bank's Letter of Credit.

Waivers and Supplemental Indentures Not Requiring Consent of Bondholders. In addition to any supplemental indenture otherwise authorized by the First Lien Indenture, the Authority (with the prior written consent of the Bond Insurer), and the Trustee may, from time to time and at any time, enter into such indentures or agreements supplemental to the First Lien Indenture as shall not be inconsistent with the terms and provisions thereof and which shall not adversely affect the rights of the holders of the Bonds (which supplemental indentures or agreements shall thereafter form a part thereof) for the following purposes:

(a) to cure any ambiguity, formal defect or omission in the First Lien Indenture or any supplemental indenture;

(b) to grant or confer upon the Trustee for the benefit of the Bondholders any additional rights, remedies, powers, authority or security that may lawfully be granted to or conferred upon the Bondholders or the Trustee;

(c) to add to the covenants and agreements of the Authority in the First Lien Indenture other covenants and agreements thereafter to be observed, or to surrender any right or power therein reserved to or conferred upon the Authority;

(d) to modify any of the provisions of the First Lien Indenture or to relieve the Authority of any of the obligations, conditions or restrictions contained in the First Lien Indenture, provided that such modification or relief shall not, by the express terms of the particular supplemental indenture, become effective until all Bonds outstanding on the date of the execution and delivery of such supplemental indenture shall no longer be outstanding;

(e) to make such provision in regard to matters or questions arising under the First Lien Indenture as may be necessary or desirable and not inconsistent with the First Lien Indenture; or

(f) to close the First Lien Indenture against, or to restrict, in addition to the limitations and restrictions therein contained, the issue of additional bonds thereunder, by imposing additional conditions and restrictions to be thereafter observed, whether applicable in respect of all Bonds issued and to be issued thereunder or in respect of one or more series of Bonds, or otherwise.

Supplemental Indentures Requiring Consent of Bondholders. With the consent of the holders of not less than 66-2/3% in aggregate principal amount of the Bonds then outstanding or, in the case one or more but less than all of the series of the Bonds then outstanding are affected, then, in addition, with the consent of the holders of not less than 66-2/3% of the principal amount of the Bonds of each series so affected then outstanding, and with the consent of any guarantor of principal of and interest on any series of Bonds, the Authority and the Trustee may from time to time and at any time enter into an indenture or indentures supplemental to the First Lien Indenture for the purpose of eliminating any of the provisions of the First Lien Indenture or of any supplemental indenture or of modifying in any manner the rights of the holders of the Bonds so affected; provided, however, that no such supplemental indenture shall (i) extend the fixed maturity date of any Bond, or reduce the principal amount thereof, or reduce the rate or extend the time of payment of interest thereon, or reduce any premium payable upon the redemption thereof, without the consent of the holder of each Bond so affected, or (ii) permit the creation by the Authority of any lien prior to the lien of the First Lien Indenture upon any part of the Receipts and Revenues, or reduce the aforesaid percentage of Bonds, the holders of which are required to consent to any such supplemental indenture, without the consent of the holders of all Bonds then outstanding; provided, however, that in no event shall the provisions on Authorized Investments be amended. No supplemental indenture shall be effective unless it has been consented to in writing by the Bond Insurers.

Discharge of First Lien Indenture. If the Authority, its successors or assigns, shall pay or cause to be paid unto the holders of all Bonds outstanding the principal and interest to become due thereon and the premium thereon, if any, then the First Lien Indenture and the estate and rights therein granted shall cease, determine and be void, and the Trustee shall, upon the request of the Authority, deliver to the Authority such instruments as shall be requisite to satisfy the lien thereof, and reconvey to the Authority the estate and title thereby conveyed, and assign

and deliver to the Authority any property at the time subject to the lien of the First Lien Indenture which may then be in the possession of the Trustee.

Bonds for the payment or redemption of which there shall have been deposited with the Trustee cash or direct non-callable obligations of the United States of America and securities fully and unconditionally guaranteed as to the timely payment of principal and interest by the United States of America, to which direct obligation or guarantee the full faith and credit of the United States of America has been pledged, Refcorp interest strips, CATS, TIGRS, STRPS, or defeased municipal bonds rated "AAA" by S&P or "Aaa" by Moody's, any combination thereof or any other security approved by the Bond Insurer), the principal of and interest on which when due will, without reinvestment of principal or interest, provide sufficient moneys to pay the Bonds in full at maturity or the date fixed for redemption, shall be deemed to be paid. In the event of an advance refunding, the Authority shall cause to be delivered a verification report of an independent nationally recognized certified public accountant.

Removal of Trustee. The Trustee may be removed at any time by an instrument in writing signed by the holders of not less than a majority in aggregate principal amount of Bonds outstanding and filed with the Authority. No such removal shall become effective until a successor trustee is appointed and has accepted the duties of Trustee.

SUMMARY OF SUBORDINATE INDENTURE

The Water and Sewer System Subordinate Revenue Bonds, were issued and secured under the Trust Indenture dated as of July 15, 1995 (the "Initial Subordinate Indenture"), as amended and supplemented by the First Supplemental Subordinate Indenture, dated as of March 1, 1998 (the "First Supplemental Subordinate Indenture") and the Second Supplemental Subordinate Indenture dated as of June 1, 2008 (the "Second Supplemental Subordinate Indenture"), as amended by the Amending Supplement to the Initial Subordinate Indenture and the Second Supplemental Subordinate Indenture dated as of November 1, 2009, (the "First Amending Supplement") and as amended by a Second Amending Supplement to the Second Supplemental Subordinate Indenture (the "Second Amending Supplement" and with the Initial Subordinate Indenture, the First Supplemental Subordinate Indenture, the Second Supplemental Subordinate Indenture and the First Amending Supplement, the "Subordinate Indenture"). The Bonds are being reoffered in connection with the termination of the Term Mode, as that term is defined in the Second Supplemental Subordinate Indenture.

A summary of the Subordinate Indenture follows. Such summary is qualified in all respects by specific reference to the Subordinate Indenture. A copy of the Subordinate Indenture may be reviewed at the offices of the Authority or the Trustee. Capitalized terms and phrases, not otherwise defined herein, shall have the meaning ascribed to them in the Subordinate Indenture.

Defined Terms

Acquisition Fund. Proceeds deposited in the Acquisition Fund shall be disbursed by the Trustee to pay the costs of the acquisition by the Authority of the capital assets of the Water and Sewer System from the City of Pittsburgh pursuant to a Capital Lease Agreement (the "Acquisition"). Funds may be withdrawn from the Acquisition Fund to pay the costs of Acquisition as provided in the Capital Lease Agreement. Investment earnings on the amounts on deposit in the Acquisition Fund shall be retained in the Acquisition Fund unless the Authority directs the Trustee otherwise. Any monies remaining in the Acquisition Fund after all amounts due in respect of the Acquisition are paid shall be transferred by the Trustee to the Debt Service Fund.

Additional Bonds. The Authority may issue additional Bonds from time to time under the Subordinate Indenture for any lawful purpose including refunding. Any such additional Bonds will not be secured by or afforded the benefits of the Bond insurance policy issued in connection with the Subordinate Bonds. In addition to the foregoing, the Authority may incur or assume additional debt provided that the security for such debt is subordinate to the lien of and security interests granted by the Subordinate Indenture.

Authority Bonds. The term "Authority Bonds" shall mean Bonds owned by the Authority.

Confirming Bank. The term "Confirming Bank" shall mean the bank or financial institution issuing a Confirming Letter of Credit and, as of November 10, 2009, means the Federal Home Loan Bank of Pittsburgh.

Confirming Letter of Credit. The term "Confirming Letter of Credit" shall mean any confirming letter of credit, advice of confirmation or similar instrument issued in connection with a Liquidity Facility, and initially means the Advice of Confirmation dated as of November 10, 2009 issued by the Federal Home Loan Bank of Pittsburgh.

Debt Service Requirements. The term "Debt Service Requirements" shall mean, in respect of any Fiscal Year, the sum of the amount required to be paid in such Fiscal Year by the Authority in respect of the interest on and the principal of the Bonds outstanding or to be outstanding, as the case may be, and the amounts required to be paid to any sinking, purchase or analogous fund established for such Bonds and any Periodic Payments to be paid in connection with any Qualified Interest Rate Swap Agreement to the extent not taken into account in calculating the Debt Service Requirements on Bonds bearing interest at a variable rate pursuant to the immediately following sentence; provided, however, that the Debt Service Requirements in respect of any Fiscal Year for a series of Bonds for which there shall have been established a sinking, purchase or analogous fund shall be determined after projecting the operation of such fund to the retirement of Bonds by redemption and giving effect to the reduction in the payments to be made in such Fiscal Year in respect of the principal of and interest on such Bonds by reason of such redemption. To the extent any Bonds under consideration bear interest at a variable rate, and a Qualified Interest Rate Swap Agreement is in place with respect to such Bonds, the Debt Service Requirements on those Bonds shall be calculated by substituting the fixed rate used to determine amounts payable by the Authority under the Qualified Interest Rate Swap Agreement in lieu of the variable rate on the Bonds (except as such calculation relates to amounts to be deposited into the Debt Service Reserve Fund); provided, the Counterparty to such Qualified Interest Rate Swap Agreement maintains a rating by Standard & Poor's of at least "AA-" and by Moody's of at least "Aa3", otherwise the Debt Service Requirements for such Bonds shall be assumed to bear interest at the highest of: (i) the actual rate on the date of calculation, or if the indebtedness is not yet outstanding, the initial rate (if established and binding); (ii) if the indebtedness has been outstanding for at least twelve (12) months, the average rate over the twelve (12) months immediately preceding the date of calculation; and (iii) (1) if the interest on the indebtedness is excludable from gross income under the applicable provisions of the Internal Revenue Code of 1986, as amended, the most recently published Bond Buyer 25 Bond Revenue Index (or comparable index if no longer published) plus fifty (50) basis points, or (2) if interest is not so excludable, the interest rate on direct U.S. Treasury Obligations with comparable maturities plus fifty (50) basis points.

Debt Service Fund. The Trustee of the First Lien Indenture will transfer to the Trustee, under the Subordinate Indenture, moneys sufficient to pay the debt service on the Subordinate Bonds.

Debt Service Reserve Fund. There shall be maintained in the Debt Service Reserve Fund an amount which when added to the amounts on hand in the Debt Service Reserve Fund of the First Lien Indenture is equal to the maximum annual debt service on all Authority Bonds. The amount required to be maintained in the Debt Service Reserve Fund may be in the form of cash, a letter of credit or other credit instrument, a surety bond, or a combination thereof.

Failed Remarketing Period. The term "Failed Remarketing Period" means, with respect to any subseries of the 2008C-1 Bonds that are not then supported by a Letter of Credit, Confirming Letter of Credit or other Liquidity Facility, a Term Rate Period commencing on the day following the end of a preceding Term Rate Period in which any one of the events specified in the Second Supplemental Subordinate Indenture or (ii) of the Second Supplemental Subordinate Indenture exists and ending on the first to occur of (i) the end of the thirtieth (30th) following the commencement of such Term Rate Period, (ii) the Purchase Date on which all of such 2008C-1 Bonds are successfully remarketed, and (iii) the date of redemption of all such 2008C-1 Bonds. If as of the end of any Failed Remarketing Period any one of the events specified in the Second Supplemental Subordinate Indenture or (ii) of the Second Supplemental Subordinate Indenture exists, then a new Failed Remarketing Period will commence on immediately upon the expiration of such expiring Failed Remarketing Period.

Letter of Credit. The term "Letter of Credit" shall mean an irrevocable transferable direct-pay letter of credit or standby letter of credit issued for a series or subseries of Bonds by a Letter of Credit Bank for the account of the Authority in favor of the Trustee supporting a series or subseries of Bonds as set forth in a Reimbursement

Agreement and, during any period in which a Confirming Letter of Credit is in effect, shall also include such Confirming Letter of Credit to the extent provided in the Subordinate Indenture.

Letter of Credit Bank. The Term "Letter of Credit Bank" shall mean the issuer of Letter of Credit pursuant to a Reimbursement Agreement and during any period in which a Confirming Letter of Credit is in effect, shall also include the Confirming Bank to the extent provided in the Subordinate Indenture.

Periodic Payment Date. The term "Periodic Payment Date" means the date on which a Fixed Swap Payment is required under any Qualified Swap Agreement until the termination or maturity of the Qualified Interest Rate Swap Agreement.

Periodic Payments. The term "Periodic Payments" means any regularly scheduled payment payable by the Authority to the Counterparty pursuant to the terms of any Qualified Interest Rate Swap Agreement(s); however, Periodic Payments shall not include any termination payments, costs and fees or any other sums payable under the Qualified Swap Agreement that are not regularly scheduled payments payable by the Authority.

Pledge and Security. The Subordinate Indenture creates a lien on Receipts and Revenues after the payment of (1) the Authority's Current Expenses; (2) the debt service on bonds issued from time to time under the First Lien Indenture; (3) the funding of the Debt Service Reserve Fund, the Operating Reserve Fund and the Renewal and Replacement Fund held pursuant to and as required by the First Lien Indenture; and (4) policy costs under the First Lien Indenture, together with all cash and investments held in any fund other than the Rebate Fund by the Trustee.

Pledged Bonds. The term "Pledged Bonds" shall mean Bonds purchased with proceeds of a draw on a Letter of Credit and not remarketed and held in pledge by the Letter of Credit Bank or its designee.

Qualified Interest Rate Swap Agreement. The term "Qualified Interest Rate Swap Agreement" or "Qualified Swap Agreement" means any agreement relating to any Bonds issued or to be issued under the Subordinate Indenture with a Counterparty whereby the Authority will pay to the Counterparty periodic fixed amounts based upon a fixed percentage of a notional amount specified in such agreement and such Counterparty will pay to the Authority certain periodic floating amounts based upon a variable percent of the same notional amount; provided, that (i) the underwriter for the applicable Bonds or the Authority's financial advisor shall certify to the Authority and the Trustee that (based upon then current market conditions) such Qualified Swap Agreement creates an overall lower Debt Service Requirement than would be attained through the issuance of Additional Bonds in an amount equal to such notional amounts at a fixed rate without such Qualified Interest Rate Swap Agreement and (ii) there is in place a municipal bond insurance policy, letter of credit or other credit enhancement with respect to the Bonds to which the agreement relates guaranteeing payments of amounts owed on the Bonds and a swap insurance policy guaranteeing the payment of Periodic Payments due pursuant to such agreement respectively. Periodic Payments under a Qualified Interest Rate Swap Agreement may be on parity with the Bonds to which the Qualified Interest Rate Swap Agreement relates.

Rebate Fund. Separate and apart from the pledge of the Subordinate Indenture is a Rebate Fund. Deposits, transfers and payments from the Rebate Fund shall be made in accordance with a tax regulatory agreement entered into in connection with the Subordinate Bonds.

Redemption Fund. The Authority may transfer to the Trustee for deposit to the credit of the Redemption Fund such amounts as it may elect for the purchase or redemption of Subordinate Bonds at the option of the Authority and the Trustee shall apply such monies placed in the Redemption Fund to the purchase or redemption of the Subordinate Bonds in the amounts directed by the Authority. Upon any such purchase or redemption, the Trustee shall transfer from the Debt Service Fund to the Redemption Fund any amount deposited in the Debt Service Fund with respect to interest on the Subordinate Bonds being redeemed and shall pay the interest due on the redemption date out of such moneys.

Reimbursement Agreement. The term "Reimbursement Agreement" shall mean a reimbursement agreement between the Authority and a Letter of Credit Bank, which may be amended from time to time in accordance with the terms hereof and thereof.

Reimbursement Obligations. The term "Reimbursement Agreement" shall mean the obligations to reimburse the Letter of Credit Bank for draws on such Letter of Credit Bank's Letter of Credit or to reimburse the Confirming Bank for draws on the Confirmation, and to pay all other amounts due or to become due under the applicable Reimbursement Agreement.

Term Mode. The "Term Mode" means the Rate Mode during which any Bonds bear interest at the Term Rate.

Term Rate. The "Term Rate" means the per annum interest rate with respect to Bonds in the Term Mode.

Term Rate Period. The"Term Rate Period" means the period commencing, as it relates to a subseries of the 2008C-1 Bonds, on the Initial Conversion Date and ending on but not including March 1 or September 1 of the following year or another year, as determined by the Authority, and thereafter each period commencing on March 1 or September 1 of such year and ending on but not including March 1 or September 1 of the following year or another year.

Investment of Funds

The funds of the Subordinate Indenture may be invested in the following:

(a) Direct obligations (other than an obligation subject to variation in principal repayment) of the United States of America ("United States Treasury Obligations"), (2) obligations fully and unconditionally guaranteed as to timely payment of principal and interest by the United States of America, (3) obligations fully and unconditionally guaranteed as to timely payment of principal and interest by any agency or instrumentality of the United States of America when such obligations are backed by the full faith and credit of the United States of America, or (4) evidences of ownership of proportionate interests in future interest and principal payments on obligations described above held by a bank or trust company as custodian, under which the owner of the investment is the real party in interest and has the right to proceed directly and individually against the obligor and the underlying government obligations are not available to any person claiming through the custodian or to whom the custodian may be obligated.

(b) Federal Housing Administration debentures.

(c) The listed obligations of government-sponsored agencies which are not backed by the full faith and credit of the United States of America: (1) Federal Home Loan Mortgage Corporation (FHLMC) participation certificates (excluded are stripped mortgage securities which are purchased at prices exceeding their principal amounts) and senior debt obligations; (2) Farm Credit Banks (formerly: Federal Land Banks, Federal Intermediate Credit Banks and Banks for Cooperatives) consolidated system-wide bonds and notes; (3) Federal Home Loan Banks (FHL Banks) consolidated debt obligations; (4) Federal National Mortgage Association (FNMA) senior debt obligations and mortgage-backed securities (excluded are stripped mortgage securities which are purchased at prices exceeding their principal amounts); (5) Student Loan Marketing Association (SLMA) senior debt obligations (excluded are securities that do not have a fixed par value and/or whose terms do not promise a fixed dollar amount at maturity or call date); (6) Financing Corporation (FICO) debt obligations; and (7) Resolution Funding Corporation (REFCORP) debt obligations.

(d) Unsecured certificates of deposit, time deposits, and bankers* acceptance (having maturity of not more than 30 days) of any bank the short-term obligations of which are rated "A-l" or better by S&P.

(e) Deposits the aggregate amount of which are fully insured by the Federal Deposit Insurance Corporation (FDIC), in banks which have capital and surplus of at least $5 million.

(f) Commercial paper (having original maturities of not more than 270 days) rated "A-l +" by S&P and "Prime-1" by Moody's.

(g) Money market funds rated "AAm" or "AAm-G" by S&P, or better.

(h) "State Obligations", which mean: (1) Direct general obligations of any state of the United States of America or any subdivision or agency thereof to which is pledged the full faith and credit of a state the unsecured general obligation debt of which is rated "A3" by Moody's and by S&P, or better, or any obligation fully and unconditionally guaranteed by any state, subdivision or agency whose unsecured general obligation debt is so rated; (2) Direct general short-term obligations of any state agency or subdivision or agency thereof described in (1) above and rated "A-1 + " by S&P and "Prime-l" by Moody's; and (3) Special Revenue Bonds (as defined in the United States Bankruptcy Code) of any state, state agency or subdivision described in (1) above and rated " AA" or better by S&P and "Aa" or better by Moody's.

(i) Pre-refunded municipal obligations rated "AAA" by Standard & Poor's Ratings Group and "Aaa" by Moody's Investors Service meeting the following requirements: (1) the municipal obligations are (i) not subject to redemption prior to maturity or (ii) the trustee for the municipal obligations has been given irrevocable instructions concerning their call and redemption and the issuer of the municipal obligations has covenanted not to redeem such municipal obligations other than as set forth in such instructions; (2) the municipal obligations are secured by cash or United States Treasury Obligations which may be applied only to payment of the principal of, interest and premium on such municipal obligations; (3) the principal of and interest on the United States Treasury Obligations (plus any cash in the escrow) has been verified by the report of independent certified public accountants to be sufficient to pay in full all principal of, interest, and premium, if any, due and to become due on the municipal obligations; (4) the cash or United States Treasury Obligations serving as security for the municipal obligations are held by an escrow agent or trustee in trust for owners of the municipal obligations; (5) no substitution of a United States Treasury Obligation shall be permitted except with another United States Treasury Obligation and upon delivery of a new Verification; and (6) the cash or United States Treasury Obligations are not available to satisfy any other claims, including those by or against the trustee or escrow agent.

(j) Repurchase agreements: with (1) any domestic bank the long term debt of which is rated at least "AA" by S&P and "Aa" by Moody's; (2) any foreign bank the long term debt of which is rated at least "AA" by S&P and "Aa" by Moody's; (3) any broker-dealer with "retail customers" which has, or the parent company (which guarantees the broker dealer) of which has, long-term debt rated at least "AA" by S&P and "Aa" by Moody's, which broker-dealer falls under the jurisdiction of the Securities Investors Protection Corporation (SIPC); or (4) any other entity described above rated "A" or better and acceptable to the Bond Insurer, provided that: (A) The market value of the collateral is maintained at levels and upon such conditions as would be acceptable to S&P and Moody's in an "A" rated structured financing (with a market value approach); (B) Failure to maintain the requisite collateral percentage will require the Authority or the Trustee to liquidate the collateral (C) The Trustee or a third party acting solely as agent therefor (the "Holder of the Collateral") has possession of the collateral or the collateral has been transferred to the Holder of the Collateral in accordance with applicable state and federal laws (other than by means of entries on the transferor's books); (D) The repurchase agreement shall state and an opinion of counsel shall be rendered that the Holder of the Collateral has a perfected first priority security interest in the collateral, any substituted collateral and all proceeds thereof (in the case of bearer securities, this means the Holder of the Collateral is in possession); (£) The transferor represents that the collateral is free and clear of any third-party Liens or claims; (F) The repurchase agreement is a "repurchase agreement" as defined in the United States Bankruptcy Code and, if the provider is a domestic bank, a "qualified financial contract" as defined in the Financial Institutions Reform Recovery and Enforcement Act of 1989 ("FIRREA") and such bank is subject to FIRREA; (G) There is or will be a written agreement governing every repurchase transaction; (H) The Authority and the Trustee each represents that it has no knowledge of any fraud involved in the repurchase transaction; (I) The Authority and the Trustee receive the opinion of counsel (which opinion shall be addressed to the Authority and the Bond Insurer) that such repurchase agreement is legal, valid, binding and enforceable upon the provider in accordance with its terms; (J) The repurchase agreement shall provide that if during its term (i) the provider's rating by either S&P or Moody's falls below "AA-" or "Aa3", respectively, the provider must, at the direction of the Authority or the Trustee (who shall give such direction if so directed by the Bond Insurer), within 10 days of receipt of such direction, either (a) maintain collateral at levels and of the type as shall be reasonably acceptable to the Bond Insurer; or (b) repurchase all collateral and terminate the agreement, and (ii) the provider's rating by either Moody's or S&P is withdrawn or suspended or falls below "A" by S&P or *A2" Moody's, as appropriate, the provider must, at the direction of the Authority or the Trustee (who shall give such

direction if so directed by the Bond Insurer), within 10 days of receipt of such direction, repurchase all collateral and terminate the agreement, in either case with no penalty or premium to the Authority or Trustee. Notwithstanding the above, if a repurchase agreement has a term of 270 days of less (with no evergreen provision), collateral levels need not be as specified in (a) above, so long as such collateral levels are 103% or better and the provider is rated at least "AA" and "Aa" by S&P and Moody's, respectively.

(k) Investment agreements with a domestic or foreign bank the long-term debt of which is rated at least "AA" by S&P and " Aa" by Moody's; provided that, by the terms of the investment agreement: (1) interest payments are to be made to the Trustee at times and in amounts as necessary to pay debt service (or, if the investment agreement is for the construction fund, construction draws) on the Bonds; (2) the invested funds are available for withdrawal without penalty or premium, at any time upon not more than seven days* prior notice (which notice may be amended or withdrawn at any time prior to the specified withdrawal date); provided that the Subordinated Indenture specifically requires the Authority or the Trustee to give notice in accordance with the terms of the investment agreement so as to receive funds thereunder with no penalty or premium paid; (3) the investment agreement shall state that it is the unconditional general obligation of, and is not subordinated to any other obligation of, the provider thereof; (4) a fixed guarantee rate of interest is to be paid on invested funds and all future deposits, if any required to be made to restore the amount of such funds to the level specified under the Subordinate Indenture: (5) the Authority or the Trustee receives the opinion of domestic counsel (which opinion shall be addressed to the Authority and the Bond Insurer) that such investment agreement is legal, valid, binding and enforceable upon the provider in accordance with its terms and of foreign counsel (if applicable) in form and substance acceptable, and addressed to, the Bond Insurer; (6) the investment agreement shall provide that if during its term (a) the provider's rating by either S&P or Moody's falls below "AA" of "Aa", respectively, the provider must, at the direction of the Authority or the Trustee (who shall give such direction if so directed by the Bond Insurer), within 10 days of receipt of such direction, either (i) collateralize the investment agreement by delivering or transferring in accordance with applicable state and federal laws (other than by means of entries on the provider's books) to the Authority, the Trustee or a third party acting solely as agent therefor (the "Holder of the Collateral") collateral free and clear of any third-party liens or claims the market value of which collateral is maintained at levels and upon such conditions as would be acceptable to S&P and Moody's in an "A" rated structured financing (with a market value approach); or (ii) repay the principal of and accrued but unpaid interest on the investment, (b) the provider's rating by either S&P or Moody's is withdrawn or suspended or falls below "A" or "A2", respectively, the provider must, at the direction of the Authority or the Trustee (who shall give such direction if so directed by the Bond Insurer), within 10 days of receipt of such direction, repay the principal of an accrued but unpaid interest on the investment, in either case with no penalty or premium to the Authority or Trustee; (7) The investment agreement shall state and an opinion of counsel shall be rendered that the Holder of the Collateral has a perfected first priority security interest in the collateral, any substituted collateral and all proceeds thereof (in the case of bearer securities, this means the Holder of the Collateral is in possession); and (8) the investment agreement must provide that if during its term (a) the provider shall default in its payment obligations, the provider's obligations under the investment agreement shall, at the direction of the Authority or the Trustee (who shall give such direction if so directed by the Bond Insurer), be accelerated and amounts invested and accrued but unpaid interest thereon shall be repaid to the Authority or Trustee, as appropriate, and (b) the provider shall become insolvent, not pay its debts as they become due, be declared or petition to be declared bankrupt, etc. ("event of insolvency"), the provider's obligations shall automatically be accelerated and amounts invested and accrued but unpaid interest thereon shall be repaid to the Authority or Trustee, as appropriate.

Rate Covenant

The Authority covenants that it will comply with one of the following in any fiscal year:

1) The Authority will maintain, charge and collect, so long as any of the Bonds shall remain outstanding, reasonable rates, rentals and other charges for the use of the facilities of the Water and Sewer System which (after making due and reasonable allowances for contingencies and a margin of error in the estimates) together with other Receipts and Revenues, including any unrestricted cash and investments accumulated in the Revenue Fund at the beginning of each Fiscal Year, shall be at all times at least sufficient to provide annually:

(a) Funds to pay all of the Current Expenses of the Authority; and

(b) An amount equal to 120% of the debt service requirements with respect to the Authority Bonds during the then current fiscal year of the Authority.

(c) The Authority will maintain, charge and collect, so long as any of the Subordinate Bonds shall remain outstanding, reasonable rates, rentals and other charges for the use of the facilities of the Water and Sewer System which (after making due and reasonable allowances for contingencies and a margin of error in the estimates), together with other Receipts and Revenues, for the then current fiscal year (exclusive of interest income earned by the Authority on funds other than the Debt Service Reserve Fund; provided, however, that earnings on the construction funds may also be included during any construction period, but only to the extent such earnings are expressly required to be either retained in the construction funds and may be used to pay debt service on Authority Bonds or are applied directly to payment of debt service on Authority Bonds), shall be at all times at least sufficient to provide annually:

(d) Funds to pay all of the Current Expenses of the Authority; and

(e) An amount equal to 100% of the debt service requirements with respect to Authority Bonds during the then current fiscal year of the Authority,

The Authority also covenants with the holders of the Subordinate Bonds that if at any time the revenues collected shall not be sufficient to enable the Authority to comply with the provisions as set forth above, it will promptly revise its water or sewer rates, rents and other charges so that the Authority will be in compliance and so that any deficiencies in transfers of funds required to be made pursuant to the Subordinate Indenture will be remedied before the end of the next ensuing fiscal year.

Insurance Covenant

The Authority will at all times cause all of the property of the Water and Sewer System which is of a character usually insured by persons operating properties of a similar nature to be properly insured and kept insured by a reputable insurance company or companies against loss or damage by fire or other hazards to the extent such properties are usually insured by persons operating properties of similar nature in the same or similar localities.

Annual Audit

The Authority covenants to employ an independent auditor to perform such duties as are imposed on the independent auditors by the Subordinate Indenture, including preparation of an audit report for the preceding fiscal year.

Events of Default

Each of the following events is hereby declared an "Event of Default" for any Subordinate Bond issued under the Subordinate Indenture:

(a) failure by the Authority to pay the principal of, or the premium (if any) payable upon the redemption of, any Subordinate Bond when due and payable either at maturity, declaration, or by proceedings for redemption, or otherwise (no effect being given to payments made under the Bond insurance policy); or

(b) failure by the Authority to pay any installment of interest on any Subordinate Bond when due and payable (no effect being given to payments made under the Bond insurance policy); or

(c) the entry of an order or decree appointing a receiver or receivers of the Water and Sewer System, the Receipts and Revenues or the Pledged Revenues with the consent or acquiescence of the Authority, or, if such order or decree shall have been entered without the acquiescence or consent of the Authority, the failure of the Authority to cause such order or decree to be vacated or discharged or stayed on appeal within 90 days after entry; or

(d) the institution of any proceeding with the consent or acquiescence of the Authority for the purpose of effecting a composition between the Authority and its creditors, or for the purpose of adjusting the claims of such creditors pursuant to any Federal or State statute now or hereafter enacted, if the claims of such creditors are under any circumstances payable out of the Receipts and Revenues, or the Pledged Revenues or if such proceeding shall have

been instituted without the consent or acquiescence of the Authority, the failure of the Authority to have such proceeding withdrawn, or any order entered therein vacated or discharged, within 90 days after the institution of such proceeding or the entry of such order; or

(e) the entry of a final judgment against the Authority, which judgment constitutes or could result in a lien or charge upon the Water and Sewer System, the Receipts and Revenues, or the Pledged Revenues or which materially and adversely affects the ownership, control or operation of the Water and Sewer System, if such judgment shall not be discharged within 90 days from the entry thereof, or if an appeal shall not be taken therefrom, or from the order, decree or process upon which or pursuant to which such judgment was granted or entered, in such manner as to conclusively set aside the execution or levy under such judgment, order, decree or process, or the enforcement thereof; or

(f) the failure of the Authority to repair or replace, with reasonable dispatch, any part of the Water and Sewer System necessary for its efficient operation which shall have been destroyed or damaged (whether such failure promptly to repair or replace the same may be due to the impracticability of such repair or replacement or the lack of funds therefor or for any other reason); or

(g) the failure or refusal of the Authority to comply with any provisions of the Municipality Authorities Act, as amended and supplemented, or the rendering of the Authority, for any reason, incapable of fulfilling its obligations under the Subordinate Indenture or the Municipality Authorities Act; or

(h) the failure of the Authority to observe any other covenant, condition or agreement of the Authority contained in the Subordinate Bonds or in the Subordinate Indenture and the continuation of such failure for a period of 60 days after written notice of such failure from the Trustee, which may give such notice in its discretion and shall give such notice at the written request of the holders of not less than 25% in aggregate principal amount of the Subordinate Bonds then outstanding or the Bond Insurer, provided that, the failure of the Authority to meet the rate covenant in the Subordinate Indenture shall not constitute such an event of default thereunder and provided further that if such failure is not capable of being remedied within 60 days after such notice, no Event of Default shall exist if the Authority commences the actions necessary for the cure of such failure within such 60 day period and diligently pursues such actions thereafter; or

(i) there has been declared a default with respect to bonds issued pursuant to the First Lien Indenture.

Remedies Subject to First Lien Indenture

Upon the occurrence or continuance of an Event of Default, the Trustee may judicially seek specific performance with respect to the rate covenant. Notwithstanding any other provision hereto, however, for so long as the First Lien Indenture is operative, the Trustee may not exercise rights or remedies hereunder with respect to the Receipts and Revenues until and unless the trustee of the First Lien Indenture shall have instituted proceedings to exercise its rights under the First Lien Indenture.

Remedies

Acceleration of Principal. Subject to the Section entitled "Remedies Subject to First Lien Indenture," upon the occurrence and continuance of any Event of Default, the Trustee may, and at the written request of Bondholders of not less than 25% in principal amount of the Subordinate Bonds then Outstanding shall by written notice to the Authority, declare the Subordinate Bonds to be immediately due and payable, whereupon they shall, without further action, become and be immediately due and payable, anything in the Subordinate Indenture or in the Subordinate Bonds to the contrary notwithstanding, and the Trustee shall give notice thereof to the Authority and shall give notice thereof by certified mail to all holders of outstanding Subordinate Bonds. In addition, the Trustee shall be entitled to exercise any or all of the remedies granted to a trustee or under the insurance policy or the Municipality Authorities Act. In no event, so long as the insurance policy is in effect and the Bond Insurer is not in payment default thereunder, shall the Trustee accelerate the payment of the Subordinate Bonds without the written consent of the Bond Insurer.

The above provision, however, is subject to the condition that if, after the principal of said Subordinate Bonds shall have been so declared to be due and payable, all arrears of interest, if any, upon the Subordinate Bonds and interest on overdue installments of interest at the rate of interest specified therein, and the principal of all Subordinate Bonds which have matured other than by reason of such declaration, shall have been paid by the Authority, and the Authority shall also have performed all other things in respect to which it may have been in default hereunder, and shall have paid the reasonable charges of the Trustee and its counsel and of the holders of said Subordinate Bonds, including reasonable attorneys' fees paid or incurred, then, and in every such case, the holders of not less than a majority in an aggregate principal amount of the Subordinate Bonds then outstanding, by written notice to the Authority and to the Trustee, may waive such default and its consequences and such waiver shall be binding upon the Trustee and upon all holders of Subordinate Bonds issued hereunder; but no such waiver shall extend to or affect any subsequent default or impair any rights or remedy consequent thereon. In no event, so long as the insurance policy is in effect and the Bond Insurer is not in default thereunder, shall the Trustee waive a default without the prior written consent of the Bond Insurer.

Remedies of Trustee and Bondholders; Rights of Entry

Subject to the Sections entitled "Remedies Subject to First Lien Indentures" and "Acceleration of Principal," upon the happening and during the continuance of any event of default, the Trustee may and, upon written request of the holders of not less than 25 % in aggregate principal amount of the Subordinate Bonds then outstanding, shall enter into and upon and take possession of the Water and Sewer System and each and every part thereof as for a condition broken and may exclude the Authority, its agents and employees and all persons claiming under them wholly therefrom and have, hold, use, operate, manage and control the same and each and every part thereof, and in the name of the Authority or otherwise as the Trustee shall deem best, conduct the business thereof and exercise all the rights and powers of the Authority with respect to the Water and Sewer System and use all its then existing property, assets and franchises for that purpose and out of the Receipts and Revenues, maintain, restore, insure and keep insured, the Water and Sewer System against such hazards as are ordinarily insured against by a person operating a water and sewer system similar to the Water and Sewer System and from time to time may make all such necessary or proper repairs as to it may seem expedient, and establish, levy, maintain and collect such rates, rents and charges in connection with the Water and Sewer System as it may deem necessary, proper, desirable and reasonable, and collect and receive all Receipts and venues, and after deducting therefrom the expenses of operation, maintenance and repair and all expenses incurred hereunder and all other proper outlays hereto authorized and all such payments which may be made for insurance and other proper charges, including just and reasonable compensation for its own services, and for the services of such attorneys, agents and employees as it may, in the exercise of its discretion, employ for any of the purposes aforesaid, the Trustee shall apply the rest and residue of the moneys received by it, as well as all cash and investments held by the Trustee in any fund hereunder, subject to the provisions hereof with respect to claims for principal and interest, to the payment of the principal of and interest on the Subordinate Bonds. Whenever all that is due upon such Subordinate Bonds and installments of interest and under any of the terms of the Subordinate Indenture have been paid or deposited with the Trustee and all defaults made good, the Trustee in possession shall surrender possession to the Authority, its successors or assigns. However, the same right of entry shall exist upon any subsequent default or defaults. For purposes of Article VIII of the Subordinate Indenture entitled "Remedies," the Bond Insurer shall, so long as no payment default has occurred under its insurance policy, be deemed to be the sole owner of the Subordinate Bonds.

Judicial Action

In case of the breach of any of the covenants or conditions of the Subordinate Indenture, the Trustee shall have the right and power to take appropriate judicial proceedings for the enforcement of its rights and the right of the Bondholders thereunder. Upon the happening of an event of default under the Subordinate Indenture, the Trustee may either after entry, or without entry, proceed by suit or suits, actions or special proceedings at laws or in equity to enforce its rights and the rights of the Bondholders hereunder, and it will be obligatory upon the Trustee to take action to that end, either by such proceedings or by the exercise of its powers with respect to entry or otherwise, as it may determine, upon being requested to do so by the holders of 25% in aggregate principal amount of the Subordinate Bonds then outstanding and upon being indemnified. For purposes of Article VIII of the Subordinate Indenture entitled Remedies, the Bond Insurer shall, so long as no event of payment default has occurred under its insurance policy, be deemed to be the sole owner of the Subordinate Bonds.

Anything in the Subordinate Indenture to the contrary notwithstanding, so long as the insurance policy is in effect and the bond is not in payment default, the Bond Insurer may direct the Trustee with respect to the taking of each remedy provided in Article VIII of the Subordinate Indenture entitled "Remedies," and the Trustee shall not take any action directed by the Bondholders without the prior written consent of the Bond Insurer.

Waivers and Supplemental Indentures Not Requiring Consent of Bondholders

In addition to any supplemental subordinate indenture otherwise authorized by the Subordinate Indenture, the Authority (with prior written consent of the Bond Insurer), and the Trustee may, from time to time and at any time, enter into such indentures or agreements supplemental hereto as shall not be inconsistent with the terms and provisions hereof and which shall not adversely affect the rights of the holders of the Subordinate Bonds hereunder (which supplemental indentures or agreements shall thereafter form a part thereof) for the following purposes:

(a) to cure any ambiguity, formal defect or omission in the Subordinate Indenture or any supplemental subordinate indenture;

(b) to grant or confer upon the Trustee for the benefit of the Bondholders any additional rights, remedies, powers, Authority or security that may lawfully be granted to or conferred upon the Bondholders, or the Trustee;

(c) to add to the covenants and agreements of the Authority in the Subordinate Indenture, other covenants and agreements thereafter to be observed, or to surrender any right or power herein reserved to or conferred upon the Authority;

(d) to modify any of the provisions of the Subordinate Indenture or to relieve the Authority of any of the obligations, conditions or restrictions contained in the Subordinate Indenture, provided that such modification or relief shall not, by the express terms of the particular supplemental subordinate indenture, become effective until all Subordinate Bonds outstanding on the date of the execution and delivery of such supplemental subordinate indenture shall no longer be outstanding;

(e) to make such provision in regard to matters or questions arising under the Subordinate Indenture as may be necessary or desirable and not inconsistent with the Subordinate Indenture; or

(f) to close the Subordinate Indenture against, or to restrict, in addition to the limitations and restrictions therein contained, the issue of additional bonds thereunder, by imposing additional conditions and restrictions to be thereafter observed, whether applicable in respect to all Subordinate Bonds issued and to be issued thereunder or in respect of one or more series of Subordinate Bonds, or otherwise.

Supplemental Subordinate Indentures Requiring Consent of Bondholders

With the consent of the holders of not less than 66-2/3 % in aggregate principal amount of the Subordinate Bonds then outstanding or, in the case one or more but less than all of the series of the Subordinate Bonds then outstanding are affected, then, in addition, with the consent of the holders of not less than 66-2/3 % of the principal amount of the Subordinate Bonds of each series so affected then outstanding, and with the consent of any guarantor of principal and interest of any series of Subordinate Bonds, the Authority and the Trustee may from time to time and at any time enter into an indenture or indentures supplemental to the Subordinate Indenture for the purpose of eliminating any of the provisions of the Subordinate Indenture or of any supplemental subordinate indenture or of modifying in any manner the rights of the holders of the Subordinate Bonds so affected; provided, however, that no such supplemental indenture shall (i) extend the fixed maturity date of any Bond, or reduce the principal amount thereof, or reduce the rate or extend the time of payment of interest thereon, or reduce any premium payable upon the redemption thereof, without the consent of the holder of each Bond so affected, or (ii) permit the creation by the Authority of any lien prior to the lien of the Subordinate Indenture upon any part of the Pledged Revenues, or reduce the aforesaid percentage of Subordinate Bonds, the holders of which are required to consent to any such supplemental subordinate indenture, without the consent of the holders of all Subordinate Bonds then outstanding. No supplemental subordinate indenture shall be effective unless it has been consented to in writing by the Bond Insurer.

Discharge of Subordinate Indenture

If the Authority, its successors or assigns, shall pay or cause to be paid unto the holders of all Subordinate Bonds outstanding the principal and interest to become due thereon and the premium thereon, if any, and to the Bond Insurer any and all amounts due and owing under the Subordinate Indenture, then the Subordinate Indenture and the estate and rights therein granted shall cease, determine and be void, and the Trustee shall, upon the request of the Authority, deliver to the Authority such instruments as shall be requisite to satisfy the lien thereof, and reconvey to the Authority the estate and title thereby conveyed, and assign and deliver to the Authority any property at the time subject to the lien of the Subordinate Indenture which may then be in the possession of the Trustee.

Subordinate Bonds for the payment or redemption of which there shall have been deposited with the Trustee cash or direct non-callable obligations of the United States of America and securities fully and unconditionally guaranteed as to the timely payment of principal and interest by the United States of America, to which direct obligation or guarantee the full faith and credit of the United States of America has been pledged, Refcorp interest strips, CATS, TIGRS, STRPS, or defeased municipal bonds rated "AAA" by S&P or "Aaa" by Moody's, any combination thereof or any other security approved by the Bond Insurer), the principal of and interest on which when due, will, without reinvestment of principal or interest, provide sufficient moneys to pay the Subordinate Bonds in full at maturity or the date fixed for redemption, shall be deemed to be paid. In the event of an advance refunding, the Authority shall cause to be delivered: (i) a verification report of an independent nationally recognized certified public accountant verifying the sufficiency of the escrow established to pay the Subordinate Bonds in full on the maturity date in form and substance satisfactory to the Bond Insurer; (ii) an escrow agreement in form and substance satisfactory to the Bond Insurer; and (iii) an opinion of bond counsel that the Subordinate Bonds are no longer outstanding under the Subordinate Indenture.

Removal of Trustee

The Trustee may be removed at any time by an instrument in writing signed by the Authority, without cause, so long as no Event of Default has occurred and is continuing, or by the holders of not less than a majority in aggregate principal amount of Subordinate Bonds outstanding if an Event of Default has occurred and is continuing, or by the Bond Insurer, without cause, so long as no Event of Default has occurred and is continuing. No such removal shall become effective until a successor (or temporary) trustee is appointed and has accepted the duties of Trustee.

Claims Upon the Bond Insurance Policy

The Trustee shall receive any amount paid under the bond insurance policy in trust on behalf of holders of the Subordinate Bonds and shall deposit any such amount in a Policy Payments Account established by the Trustee and distribute such amount only for purposes of making the payments for which a claim was made. Such amounts shall be disbursed by the Trustee to holders of the Subordinate Bonds in the same manner as principal and interest payments are to be made with respect to the Subordinate Bonds.

Subject to and conditioned upon payment of any interest or principal with respect to the Subordinate Bonds by or on behalf of the Bond Insurer, each Subordinate Bondholder, by its purchase of Subordinate Bonds, assigns to the Bond Insurer, all rights to the payment of interest or principal on the Subordinate Bonds, including, without limitation, any amounts due to the Subordinate Bondholders in respect of securities law violations arising from the offer and sale of the bonds, which are then due for payment. The Bond Insurer may exercise any option, vote, right, power or the like with respect to the Subordinate Bonds to the extent it has made a principal payment pursuant to the bond insurance policy. The foregoing assignment is in addition to, and not in limitation of, rights of subrogation otherwise available to the Bond Insurer to respect of such payments.

Each Subordinate Bondholder, by its purchase of bonds, and the Trustee hereby agrees that the Bond Insurer may at any time during the continuation of an insolvency proceeding direct all matters relating to such insolvency proceeding, including, without limitation, (i) all matters relating to any preference claim, (ii) the direction of any appeal of any order relating to any preference claim, and (iii) the posting of any surety, supersedeas or performance bond pending any such appeal. In addition, and without limitation of the foregoing, the Bond Insurer shall be subrogated to the rights of the Trustee and each Subordinate Bondholder in any insolvency proceeding to the extent it is subrogated pursuant to the bond insurance policy, including, without

limitation, any rights of any party to an adversary proceeding action with respect to any court order issued in connection with any such insolvency proceeding.

APPENDIX C

AUTHORITY FINANCIAL STATEMENTS AS OF

DECEMBER 31, 2011 AND DECEMBER 31, 2010

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Pittsburgh Water and Sewer Authority

Single Audit

2011

MaherDuessel
Certified Public Accountants

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PITTSBURGH WATER AND SEWER AUTHORITY

YEARS ENDED DECEMBER 31, 2011 AND 2010

TABLE OF CONTENTS

Independent Auditor's Report

Management's Discussion and Analysis i

Financial Statements:

Statements of Net Assets 1

Statements of Revenues, Expenses, and Changes in Net Assets 3

Statements of Cash Flows 4

Notes to Financial Statements 5

Supplementary Information:

Schedule of Restricted Assets Composition – Schedule I 38

Schedule of Restricted Assets Activity – Schedule II 40

Schedule of Expenditures of Federal Awards 42

Notes to Schedule of Expenditures of Federal Awards 43

Independent Auditor's Reports in Accordance with OMB Circular A-133:

Independent Auditor's Report on Internal Control over Financial Reporting and on Compliance and Other Matters Based on an Audit of Financial Statements Performed in Accordance with *Government Auditing Standards* 44

Independent Auditor's Report on Compliance with Requirements that Could Have a Direct and Material Effect on its Major Program and on Internal Control over Compliance in Accordance with OMB Circular A-133 46

PITTSBURGH WATER AND SEWER AUTHORITY

YEARS ENDED DECEMBER 31, 2011 AND 2010

TABLE OF CONTENTS
(Continued)

Schedule of Findings and Questioned Costs	48
Summary Schedule of Prior Audit Findings	49

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Independent Auditor's Report

Board of Directors
Pittsburgh Water and Sewer Authority

We have audited the financial statements of the Pittsburgh Water and Sewer Authority (Authority), a component unit of the City of Pittsburgh (City), Pennsylvania, as of and for the years ended December 31, 2011 and 2010, which collectively comprise the Authority's basic financial statements as listed in the table of contents. These financial statements are the responsibility of the Authority's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the audits to obtain reasonable assurance about whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting principles used and the significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the financial statements referred to above present fairly, in all material respects, the financial position of the Authority as of December 31, 2011 and 2010, and the changes in financial position, and cash flows, where applicable, thereof for the years then ended in conformity with accounting principles generally accepted in the United States of America.

In accordance with *Government Auditing Standards*, we have also issued our report dated April 24, 2012 on our consideration of the Authority's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts, and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* and should be considered in assessing the results of our audit.

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

Our audits were conducted for the purpose of forming an opinion on the financial statements that collectively comprise the Authority's financial statements as a whole. The supplementary information listed in the table of contents is presented for purposes of additional analysis and is not a required part of the basic financial statements. The accompanying schedule of expenditures of federal awards is presented for purposes of additional analysis as required by U.S. Office of Management and Budget Circular A-133, *Audits of States, Local Governments, and Non-Profit Organizations*, and is also not a required part of the financial statements. Such information is the responsibility of management and was derived from and relates directly to the underlying accounting and other records used to prepare the financial statements. The information has been subjected to the auditing procedures applied in the audit of the financial statements and certain additional procedures, including comparing and reconciling such information directly to the underlying accounting and other records used to prepare the financial statements or to the financial statements themselves, and other additional procedures in accordance with auditing standards generally accepted in the United States of America. In our opinion, the information is fairly stated in all material respects in relation to the financial statements as a whole.

Maher Duessel

Pittsburgh, Pennsylvania
April 24, 2012

THE PITTSBURGH WATER AND SEWER AUTHORITY

2011 Financial Statements
Management's Discussion and Analysis

The Pittsburgh Water and Sewer Authority (Authority) comparative 2011 and 2010 fiscal year financial statements enclosed have been conformed to meet the requirements of Governmental Accounting Standards Board (GASB) Statement No. 34, *"Basic Financial Statements – and Management's Discussion and Analysis – for State and Local Governments."* The financial statements incorporate three basic statements: the Statements of Net Assets, the Statements of Revenues, Expenses, and Changes in Net Assets, and Statements of Cash Flows.

This Management's Discussion and Analysis (MD&A) is based upon facts, decisions, and conditions known as of the date of the audit report. Please note that the historical information provided in the financial statements and MD&A reflect the results of past operations and is not necessarily indicative of results of future operations. Future operations will be affected by various factors, including, but not limited to, regulatory mandates, rate changes, weather, labor contracts, population changes, business environment and other matters, the nature and effect of which cannot now be determined.

Using This Financial Report – Overview of Reporting Changes

The Statements of Net Assets present information about the resources which are available to the Authority and claims against these resources. Both assets and liabilities are classified in a format which segregates current from long-term. In addition, assets available for special purposes – labeled "restricted assets" are segregated from those assets available for operations. The Authority's restricted assets represent money on deposit with the bond trustee to meet indenture, debt service, and construction program requirements. Liabilities have a similar classification segregating claims on restricted assets from claims on assets available for operations. The net asset section of the balance sheet classifies the total net asset (deficit), as invested in capital assets, restricted for capital activity, and unrestricted.

The Statements of Revenues, Expenses, and Changes in Net Assets summarize operating and non-operating activity for the fiscal year and the resulting impact on the Authority's net assets.

The Statements of Revenues, Expenses, and Changes in Net Assets include wastewater treatment revenues and expenses for services provided by the Allegheny County Sanitary Authority (ALCOSAN). There are no outstanding bond issues associated directly or indirectly with wastewater revenue streams.

The Statements of Cash Flows have been prepared using the direct method. The statements provide an analysis of the Authority's cash by operating, investing and capital and related financing activities over the respective fiscal year.

Financial Highlights

In 2011, operating income increased by 12.3% or $3.85 million and non-operating income decreased by $22.56 million resulting in a net loss of $13.34 million, down from a $5.31 million net gain in 2010. Below are the 2011 financial highlights:

Total operating revenues in 2011 were up $.799 million or .6% to $140.55 million when compared to 2010. For 2011, the Board of ALCOSAN did not change its rate structure and wastewater treatment revenues dropped $5.68 million due to a significant credit adjustment to a major industrial user and reduced consumption. Water and sewer conveyance revenues increased $6.46 million from 2010, due to a rate increase of 7.7% and an increase to 7% from 5% in the Distribution Infrastructure System Charge (DISC) on total water and sewer conveyance bills.

Total non-operating revenues (expenses) decreased by $22.56 million, mostly driven by a $12.38 million reduction in the fair market value of the 2008C2 swap contract as contrasted to a $.309 million decrease in 2010. Donated property revenue was $2.277 million, a decrease of $12.823 million when compared to 2010, a year in which $7.75 million in assets finished in prior years were recognized. Non-operating

revenues for grants declined to zero and interest revenue increased by $.159 million to $.709 million due to higher market rates.

Total operating expenses decreased in 2011 to $105.53 million compared to $108.58 million in 2010. Significant operating expenses included the following factors:

- Salary and employee benefit expenses were up $.431 million or 2.6%. The increase is attributed to an average overall salary increase of 2.9% and a 1.7% increase in benefit costs.

  The majority of Authority employees are represented by one of three labor unions. The Pittsburgh Joint Collective Bargaining Committee (PJCBC) represents blue-collar employees. The American Federation of State, County, and Municipal Employees (AFSCME) represent Local 2719 [white-collar] employees and Local 2037 [foremen]. A new five-year agreement with AFSCME became effective January 1, 2009 and will expire December 31, 2013. A five-year agreement with the PJCBC became effective January 1, 2008 and expires December 31, 2012.

- Overall direct operating expenses, excluding salaries and benefits, decreased by $3.75 million to $56.15 million in 2011 or 6.3% from $59.90 million in 2010. Wastewater treatment expense decreased by $5.32 million or 11% to $43.47 million when compared to $48.79 million in 2010 due to adjustments and reduced consumption. Chemicals expense increased by $.125 million. Equipment increased by $.905 million. Sewer repairs increased to $.586 million in 2011, from $.55 million in 2010. Vactor debris removal expense increased slightly to $.314 million. Emergency water line repairs decreased by $.224 million to $.325 million or 41% from $.548 million in 2010. Catch basin cleaning increased by $.91 million to $.203 million or 81.6% from 2010. Building repairs increased by $.139 million due primarily to work done at the main warehouse and several pumping stations. Annual software support decreased $.355 million as support needs for SAP declined in preparation for a new ERP implementation of Microsoft's Dynamics GP Systems developed by Cogsdale.

- Overall G&A expenses increased 13.2%, to $9.58 million from $8.46 million in 2010. Significant expense reductions were a $.286 million drop in legal expenses and $.170 million reduction in consultants. Significant expense increases were $.114 million in postage, $.100 million in Miscellaneous Services, and $1.33 million in claims and deductibles.

- Overall other expenses decreased 2.4% or $1.54 million to $63.05 million in 2011 from $64.59 million in 2010. Non-city water subsidy to Pennsylvania American Water Company (PAWC) decreased 29.7% or $.693 million to $1.63 million in 2011 compared to $2.33 million in 2010 due to the 2011 PWSA rate increase. Interest expense on bond debt decreased 5.4% or $2.23 million to $38.99 million in 2011 compared to $41.2 million in 2010. Expenses related to the cooperation agreement with the City of Pittsburgh increased by $.500 million in 2011.

- In 2011, cash collections increased by $2.39 million or 1.7%. Increases in the Authority's DISC charge by 2% and a 7.7% on water and sewer conveyance provided most of the increase, while a decrease in water usage, as is occurring at water systems nationwide, precluded a larger net increase. This was the third year in a row that the Authority collected more than 100% of its billings. These continuing improvements in collections resulted in a drop in bad debt reserve of $.493 million from 2010.

Other 2011 highlights include:

- After an extensive review process lasting over a year, the Authority committed in 2010 to the purchase of a new Enterprise Resource Program (ERP) to serve its business computing needs. From a list of three strong final candidates, it was decided to award the contract to Cogsdale Corporation, a Microsoft Dynamics Gold partner. The implementation proceeded in 2011, with finance scheduled to go live in January 2012 and other departments to phase in shortly after. The Authority is projected to save significant programming costs and achieve numerous operating efficiencies with this new system.

- The Authority continued its relationship with Jordan Tax Service, Inc. (JTS) as its Collector and the law firm of Goehring, Rutter & Boehm, P.C. as Special Legal Counsel for the collection of delinquent water, sewer, and sewage treatment charges. The agreement calls for a collection commission, plus other administrative and legal proceeding costs to be added to all Authority delinquent claims not paid within 90 days of the initial billing date. If fully collected, the Authority stands to collect 100% of delinquent balances without incurring a collection agency fee. The Authority is reimbursing JTS for commissions lost and expenses for certain accounts that have been recalled from collections. Said reimbursements totaled $.035 million in 2011, but the Authority and JTS are in negotiation on this sum. The JTS collected $2.789 million, of which the Authority received $2.425 million during 2011.

- In January of 2010, the Authority began assessing a 5% Distribution Infrastructure System Charge (DISC) on all bills, which increased to 7% in 2011. This charge is applied to the water and sewer conveyance components of the invoice and is dedicated to system improvements and capital needs. The DISC collection total in 2010 was $4.16 million, with no expenditures. It was decided to allow funds to accumulate the first year, and then budget expenditures for 2011 from the funds received in 2010. The 2011 budget for DISC expenditures was $6.38 million, of which $5.114 million was spent. This leaves a reserve of $5.104 million in DISC fund revenues at year-end. The expenditures for 2011 included water and sewer relays, new vehicles, flocculation equipment, and computer switching.

- Also in 2010, the Authority implemented a change in its water and sewer line warranty program, engaging a new provider, Utility Line Security, LLC, and changing from an opt-in to an opt-out program. In March of 2011, it was determined in the Court of Common Pleas of Allegheny County that this program unfairly competed with those offered by private line warranty vendors and the program was ordered to be shut down. In final settlement with ULS, which declared bankruptcy in 2011, $.350 million was paid to ULS by PWSA in January of 2012 in settlement of outstanding issues.

- The Authority in June of 2010 entered into an agreement with Iron City Brewing to settle the outstanding account receivable balance from operations at its former Lawrenceville plant. The Authority received $.45 million in January of 2011 pursuant to said agreement and received the payment of a remaining $.20 million balance in January 2012, settling the account in full.

- In July of 2010, the Authority approved development of a 40-year Capital Plan and Water & Sewer Master Plan (plan). The plan will be developed in order to assist the Authority in assessing its long range infrastructure and financing needs. Such planning should enable the Authority over time to mitigate CSO issues, rehabilitate its aging infrastructure and clearwell, reduce non-revenue water, and comply with new THM regulations. Plan development continued in 2011 with a final version to be issued in 2012.

- The Authority, in an attempt to reduce water system material costs related to its operating and DISC repairs contracts decided in 2010 to directly purchase pipe, valves, and fittings to be used in said contracts. It is felt that the discounts achieved through bulk purchase of these items and the elimination of contractor markup from these items if purchased by the contracting firms could generate substantial savings. This process started in early 2011.

- In July of 2010, the Authority contracted with Wachs Valve & Hydrant, LLC to test and map all valves 12" and above for defects and to make needed repairs. The contract was completed in September of 2011. This project generated direct savings of roughly $.250 million in repair of valves that had been targeted for replacement and generated vital valve location and condition data for future capital planning.

- Debt service coverage in 2011 and 2010 was 1.87 for both years. These coverage factors exceed the 1.2 coverage factor required under the bond covenant.

- The Authority expended $35.56 million on capital projects in 2011, a decrease of $6.21 million over the $41.77 million expended in 2010. In December of 2011, $36.34 million remained in the 2008 construction fund. Of $36.80 million budgeted in PennVest loans, $12.87 million was spent in 2011, with $7.73 million remaining. It should be noted that the DISC program is now funding some larger projects that would have historically been paid for with capital dollars. These projects totaled $1.461 million in 2011.

- There was a limited amount of bond related activity for the Authority in 2011. The only occurrences of note were the renewal of two standby purchase agreements and the renewal of three securitizing letters of credit. These agreement renewals were on bond series totaling $293.61 million. The Authority renewed the standby purchase agreements on the Series 2008 C2 (face $51.89 million) and 2008 D2 (face $71.23 million) bonds for two years, expiring August of 2014 with JP Morgan Chase and PNC Bank, respectively. The Authority renewed lines of credit on the Series 2008 B1 (face $72.75 million) with Bank of America, Series 2008 B2 (face $72.75 million) with PNC Bank, and Series 2008 C1 (A, B, & C) bonds with FHLB. It should be noted that these credit facilities were all renewed at better rates than in recent years, reflecting a return to relative stability in the bond financing markets

- The City of Pittsburgh is the largest of the 83 municipalities that convey raw sewage to ALCOSAN for treatment. In January 2004, the Authority and the City of Pittsburgh executed a Consent Order and Agreement (Order) regarding sanitary and combined sewer overflows within the City of Pittsburgh. The other signatories to the Order are the Pennsylvania Department of Environmental Protection and Allegheny County Health Department which executed the Order on April 21, 2004. The intent of the Order is to develop a regional Long-Term Control Plan to address combined and sanitary sewer overflows and ultimately improve water quality.

  The Order does not contain fines or penalties for past non-compliance, but does propose binding obligations for work on a going forward basis. The Authority continues to meet the requirements of the Order. See Note 12 - Commitments and Contingencies for additional details.

- The City of Pittsburgh remained under financial stress in 2011. The Authority has three agreements with the City of Pittsburgh. The Authority leases the water and sewer system under the Capital Lease, which was fully funded in 1995. The Authority makes payment to the City of Pittsburgh for direct and indirect services under the Cooperation

Agreement. Under this Agreement, the Authority also funds, on behalf of the City of Pittsburgh, a rate equalization subsidy to other City of Pittsburgh water companies. Under a separate agreement the Authority also, on behalf of the City of Pittsburgh, is required to purchase delinquent wastewater treatment receivables. The Authority is financially self-sufficient and should not be adversely affected by any bankruptcy filing by the City of Pittsburgh. Any other actions by the City of Pittsburgh to increase Authority funding would require Board approval.

CONDENSED FINANCIAL STATEMENTS

CONDENSED STATEMENTS OF NET ASSETS

(Dollars expressed in thousands)

	December 31,		Variance	
	2011	2010	Dollars	%
Capital assets:			Increase (Decrease)	
Producing assets	**$ 481,142**	**$ 475,701**	$ 5,441	1.1%
Construction in progress	**62,461**	**41,328**	21,133	51.1%
Restricted assets	**50,208**	**78,070**	(27,862)	-35.7%
Current assets and bond costs	**192,071**	**123,613**	68,458	55.4%
Total Assets	**$ 785,882**	**$ 718,712**	$ 67,170	9.3%
Liabilities:				
Current liabilities	**$ 58,654**	**$ 63,585**	$ (4,931)	-7.8%
Long-term liabilities	**770,733**	**685,294**	85,439	12.5%
Total Liabilities	**829,387**	**748,879**	80,508	10.8%
Net Assets (Deficit):				
Invested in capital assets, net of related liabilities	**(52,350)**	**(35,080)**	(17,270)	49.2%
Restricted for capital activity and debt service	**9,112**	**11,053**	(1,941)	-17.6%
Unrestricted	**(267)**	**(6,140)**	5,873	-95.7%
Total Net Assets (Deficit)	**(43,505)**	**(30,167)**	(13,338)	44.2%
Total Liabilities and Net Assets (Deficit)	**$ 785,882**	**$ 718,712**	$ 67,170	9.3%

CONDENSED STATEMENTS OF REVENUES, EXPENSES, AND CHANGES IN NET ASSETS

(Dollars expressed in thousands)

	Year Ended December 31,		Variance	
	2011	2010	Dollars	%
			Increase (Decrease)	
Operating Revenues	**$ 140,552**	**$ 139,753**	$ 799	0.6%
Operating Expenses:				
Direct operating	**37,976**	**36,393**	1,583	4.3%
Wastewater treatment	**43,468**	**48,788**	(5,320)	-10.9%
Cooperation Agreement	**9,150**	**8,650**	500	5.8%
Subsidy of non-customer City residents	**1,633**	**2,326**	(693)	-29.8%
Depreciation and amortization	**13,300**	**12,420**	880	7.1%
Total Operating Expenses	**105,527**	**108,577**	(3,050)	-2.8%
Operating Income	**35,025**	**31,176**	3,849	12.3%
Non-operating revenues (expenses):				
Federal grants	**-**	**52**	(52)	-100.0%
Donated property	**2,277**	**15,100**	(12,823)	-84.9%
Interest revenue	**(11,671)**	**241**	(11,912)	-4942.7%
Interest expense and other	**(38,969)**	**(41,198)**	2,229	-5.4%
Total Non-operating Revenues (Expenses)	**(48,363)**	**(25,805)**	(22,558)	87.4%
Net Gain/(Loss)	**$ (13,338)**	**$ 5,371**	$ (18,709)	-348.3%

Financial Condition

The Authority's financial condition in 2011 remained stable for an eighth consecutive year despite the continuing issues in the national economy. Water utility revenues increased significantly to $95.29 million from $88.83 million. The 7.7% rate increase passed for 2011, receipt of cash payments for funds advanced related to PennVest projects, and continuing improvement in the financial markets remedied the 2010 cash reduction, resulting in an increase in cash reserves of $4.214 million to $45.155 million.

The Authority's strategic plan continues to focus on improving its financial condition, customer service, improving internal efficiencies, maintaining regulatory compliance and security, while providing an environment that encourages employee development.

Requests for Information

This financial report is designed to provide a general overview of the Authority's finances for all those with an interest in the government's finances. Questions concerning any of the information provided in this report or requests for additional financial information should be addressed to the Executive Director, Penn Liberty Plaza I, 1200 Penn Avenue, Pittsburgh, PA 15222.

PITTSBURGH WATER AND SEWER AUTHORITY

STATEMENTS OF NET ASSETS

(Dollars expressed in thousands)

DECEMBER 31, 2011 AND 2010

Assets	2011	2010
Current assets:		
Cash and cash equivalents	$ 41,676	$ 37,129
Accounts receivable, net:		
Water:		
Billed	8,557	9,581
Unbilled	5,414	4,115
Total water	13,971	13,696
Wastewater treatment:		
Billed	2,679	4,194
Unbilled	2,800	2,201
Total wastewater treatment	5,479	6,395
Other receivables	4,722	7,853
Total accounts receivable, net	24,172	27,944
Prepaid expenses	211	433
Inventory	1,718	1,649
Total current assets	67,777	67,155
Noncurrent assets:		
Restricted assets:		
Accrued interest receivable	-	78
Cash and cash equivalents	3,479	3,812
Investments	46,729	74,180
Total restricted assets	50,208	78,070
Capital assets, not being depreciated	62,461	41,328
Capital assets, net of accumulated depreciation	481,142	475,701
Deferred outflow	100,118	31,447
Bond issue costs, net of accumulated amortization	24,176	25,011
Total noncurrent assets	718,105	651,557
Total Assets	$ 785,882	$ 718,712

(Continued)

The notes to financial statements are an integral part of this statement.

PITTSBURGH WATER AND SEWER AUTHORITY

STATEMENTS OF NET ASSETS

(Dollars expressed in thousands)

DECEMBER 31, 2011 AND 2010

(Continued)

	2011	2010
Liabilities and Net Assets (Net Deficits)		
Liabilities:		
Current liabilities:		
Bonds and loans payable, current portion	$ 14,888	$ 15,711
Accrued payroll and related obligations	662	672
Accounts payable wastewater treatment	16,305	17,631
Accounts payable and other accrued expenses	10,195	11,700
Accounts payable from restricted assets	5,325	6,308
Accrued interest payable from restricted assets	11,279	11,563
Total current liabilities	58,654	63,585
Noncurrent liabilities:		
Deferred revenue	292	314
Accrued payroll and related obligations	972	1,045
Swap liability	117,907	36,856
Bonds and loans payable, net of current portion	651,562	647,079
Total noncurrent liabilities	770,733	685,294
Total Liabilities	829,387	748,879
Net Assets (Deficit):		
Invested in capital assets, net of related debt	(52,350)	(40,489)
Restricted for capital activity and debt service	9,112	11,053
Unrestricted	(267)	(731)
Total Net Assets (Deficit)	(43,505)	(30,167)
Total Liabilities and Net Assets (Deficit)	$ 785,882	$ 718,712

(Concluded)

The notes to financial statements are an integral part of this statement.

PITTSBURGH WATER AND SEWER AUTHORITY

STATEMENTS OF REVENUES, EXPENSES, AND CHANGES IN NET ASSETS

(Dollars expressed in thousands)

YEARS ENDED DECEMBER 31, 2011 AND 2010

	2011	2010
Operating Revenues:		
Residential, commercial, and industrial water sales	$ 95,290	$ 88,829
Wastewater treatment	43,548	49,223
Other	1,714	1,701
Total operating revenues	140,552	139,753
Operating Expenses:		
Direct operating expenses	37,976	36,393
Wastewater treatment	43,468	48,788
Cooperation agreement operating expenses:		
Indirect cost allocation - sewer conveyance	4,400	4,500
Indirect cost allocation - water	4,750	4,150
Expense of water provided by other entities:		
Subsidy of customers located in the City	1,633	2,326
Depreciation	11,810	10,929
Amortization of capitalized lease assets	1,490	1,491
Total operating expenses	105,527	108,577
Operating Income	35,025	31,176
Non-operating Revenues (Expenses):		
Federal grants	-	52
Donated property	2,277	15,100
Interest revenue	709	550
Investment income - change in fair market value of swap	(12,380)	(309)
Interest expense - bonds	(36,747)	(39,202)
Interest expense - other	(422)	(185)
Amortization of bond issue costs	(1,800)	(1,811)
Total non-operating revenues (expenses)	(48,363)	(25,805)
Net Income (Loss)	(13,338)	5,371
Net Assets (Deficit):		
Beginning of year	(30,167)	(35,538)
End of year	$ (43,505)	$ (30,167)

The notes to financial statements are an integral part of this statement.

PITTSBURGH WATER AND SEWER AUTHORITY

STATEMENTS OF CASH FLOWS

(Dollars expressed in thousands)

YEARS ENDED DECEMBER 31, 2011 AND 2010

	2011	2010
Cash Flows From Operating Activities:		
Cash received from customers	$ 148,136	$ 140,650
Cash paid to suppliers and employees and customer refunds	(43,208)	(35,529)
Cash paid to City of Pittsburgh under the Cooperation Agreement	(9,150)	(8,650)
Cash paid to other water companies for subsidy of customers located in the City of Pittsburgh	(1,633)	(2,326)
Cash paid to ALCOSAN for wastewater treatment	(44,794)	(46,860)
Net cash provided by (used in) operating activities	49,351	47,285
Cash Flows From Investing Activities:		
Purchase of investment securities	(116,844)	(329,022)
Proceeds from sale and maturities of investment securities	122,846	355,090
Interest income	787	550
Net cash provided by (used in) investing activities	6,789	26,618
Cash Flows From Capital and Related Financing Activities:		
Purchase/construction of property, plant, and equipment	(16,766)	(43,997)
Proceeds from federal grants	-	52
Proceeds from Pennvest Loans	15,506	9,359
Payment made for bond reoffering costs	(965)	(1,062)
Principal payments on debt	(16,748)	(16,435)
SWAP receipts	801	1,057
SWAP payments	(17,016)	(18,680)
Liquidity and remarketing fees	(5,232)	(4,381)
Interest paid on borrowings	(11,506)	(12,460)
Net cash provided by (used in) capital and related financing activities	(51,926)	(86,547)
Increase (Decrease) in Cash and Cash Equivalents	4,214	(12,644)
Cash and Cash Equivalents:		
Beginning of year	40,941	53,585
End of year	$ 45,155	$ 40,941
Consists of:		
Restricted cash and cash equivalents	$ 3,479	$ 3,812
Unrestricted cash and cash equivalents	41,676	37,129
	$ 45,155	$ 40,941
Reconciliation of Operating Income to Net Cash Provided by (Used in) Operating Activities:		
Operating income	$ 35,025	$ 31,176
Adjustments to reconcile operating income to net cash provided by (used in) operating activities:		
Depreciation and amortization	13,300	12,420
Reserve for uncollectible amounts	(393)	(1,746)
Change in:		
Accounts receivable - water and wastewater	1,034	2,570
Other accounts receivable	3,131	(6,776)
Wastewater accounts payable	(1,326)	1,928
Accounts payable and other accrued expenses	(1,505)	7,599
Other	85	114
Net cash provided by (used in) operating activities	$ 49,351	$ 47,285

The notes to financial statements are an integral part of this statement.

1. ORGANIZATION

The Pittsburgh Water and Sewer Authority (Authority) provides water to approximately 80,000 residential, commercial, and industrial customers located in the City of Pittsburgh (City), Pennsylvania, and collects wastewater throughout the City.

A Board of Directors (Board) appointed by the Mayor of the City governs the Authority.

The Authority is a body politic and corporate, organized and existing under the Pennsylvania Municipalities Authorities Act. The Authority was established by the City in 1984 to assume responsibility from the City for management, operation, maintenance, and improvement of virtually the entire City water supply, distribution, and wastewater collection systems (the "Water and Wastewater System" or "System"). The Authority's term of existence is through 2045. At inception, the City contributed $5.3 million to the Authority in the form of customer accounts receivable.

The Authority has the right to establish user fees and charges without being subject to the approval of any department, board, or agency of Pennsylvania or the City. The Authority is also authorized to issue bonds and notes payable solely from the Authority's revenues.

2. SUMMARY OF SIGNIFICANT ACCOUNTING POLICIES

Reporting Entity

These financial statements present the financial position, income, changes in net assets, and cash flows of the Authority. The Authority is a component unit of the City as defined in Governmental Accounting Standards Board (GASB) Statement No. 14, *"Financial Reporting Entity."* The Authority's financial statements are not intended to present the financial position or results of operations of the City taken as a whole.

Basis of Accounting and Measurement Focus

The accompanying financial statements have been prepared using the economic resources measurement focus and the accrual basis of accounting in accordance with accounting principles generally accepted in the United States of America, as prescribed by GASB. Revenues are recorded when earned and expenses are recorded when a liability is incurred, regardless of the timing of related cash flows.

Private-sector standards of accounting and financial reporting issued prior to December 1, 1989 generally are followed in the proprietary fund financial statements to the extent that those standards do not conflict with or contradict guidance of the GASB. Governments also have the option of following subsequent private-sector guidance for their business-type activities and enterprise funds, subject to this same limitation. The Authority has elected not to follow subsequent private-sector guidance.

The Authority functions as a Business-Type Activity, as defined by GASB.

Classification of Net Assets

In accordance with the provision of GASB Statement No. 34, *"Basic Financial Statements – and Management's Discussion and Analysis – for State and Local Governments,"* net assets are classified into three components – invested in capital assets, net of related debt; restricted; and unrestricted. These classifications are defined as follows:

- Invested in capital assets, net of related debt – This component of net assets consists of capital assets net of accumulated depreciation and reduced by the outstanding balances of any bonds, mortgages, notes, or other borrowings that are attributable to the acquisition, construction, or improvement of those assets net of bond issue costs, premiums and discounts and remaining deferred refunding losses.
- Restricted – This component of net assets consists of constraints placed on net asset use through external restrictions.
- Unrestricted – This component of net assets consists of net assets that do not meet the definition of "restricted" or "invested in capital assets, net of related debt."

When an expense is incurred that can be paid using either restricted or unrestricted resources, the Authority's policy is to first apply the expense towards restricted resources and then towards unrestricted resources.

Deferred Interest

Interest expense, net of related earnings on funds restricted for the purpose of capital improvements, is deferred and allocated to the cost of capital assets. Accordingly, during 2011, the Authority's interest expense of $1,185, net of deferred interest earnings of $0, resulted in net capitalized interest expense of $1,185. During 2010, the Authority's interest expense of $1,140, net of deferred interest earnings of $24, resulted in net capitalized interest expense of $1,116.

Cash and Cash Equivalents

Cash and cash equivalents include all highly liquid investments, both restricted and unrestricted, with maturity of three months or less at date of purchase.

Bond Issue and Reoffering Costs, Premiums, and Discounts

Bond issue and reoffering costs are deferred and amortized over the life of the related bonds using the effective interest method. The unamortized balance is an asset on the statements of net assets.

Original issue bond premiums and discounts are amortized over the life of the related bonds using the effective interest method of amortization. The unamortized balance of premiums and discounts is presented net on the statements of net assets as a decrease to bonds payable.

Deferred Refunding Loss

In accordance with GASB Statement No. 23, *"Accounting and Reporting for Refunding of Debt by Proprietary Activities,"* the excess of the reacquisition price over the net carrying amount of debt refunded with proceeds from the Series 1993, 1998, 2003, 2007, and 2008 Bonds were recorded as deferred refunding losses. The deferred refunding losses are being amortized using the effective interest method over the originally scheduled life of the defeased issues which extend to 2037. The unamortized balances are reflected as a reduction of bonds payable.

Remarketing, Liquidity, and Letter of Credit Fees

Associated with the Authority's variable rate bonds, the Authority pays various fees to periodically remarket the bonds and to third parties to provide liquidity in the event that the Authority is unable to remarket the variable rate bonds and needs to repurchase the bonds on a temporary basis until they can be later remarketed. These fees are generally paid quarterly and are calculated as a percentage of the outstanding par amount of the variable rate bonds.

Capital Assets

Capital assets owned by the Authority are recorded at cost including that portion of deferred interest that is ultimately capitalized. Depreciation of fixed assets owned by the Authority is provided on the straight-line method based on the estimated useful lives of the various

classes of assets. Utility assets have estimated useful lives ranging from 30 to 70 years. Non-utility assets have estimated useful lives ranging from 5 to 10 years.

The Authority also receives donated property relating mostly to dedicated water and sewer lines. These assets are capitalized at their estimated fair market value and depreciated in accordance with the estimated useful lives noted above.

The water and sewer system represents assets leased from the City. Amortization of capital lease assets is provided on the straight-line basis applying an estimated average remaining useful life from the inception of the lease.

Maintenance and repairs are charged to expense as incurred.

Clarification of Revenues

The Authority has classified its revenues as either operating or non-operating revenues according to the following criteria:

- Operating revenues – Operating revenues include activities that have the characteristics of exchange transactions, such as residential, commercial, industrial water sales and wastewater treatment.

- Non-operating revenues – Non-operating revenues include activities that have the characteristics of non-exchange transactions, such as interest income and other revenue sources.

Compensated Absences

A liability for vacation, personal, and sick days is accrued when related benefits are attributable to services rendered and to the extent it is probable that the Authority will ultimately compensate employees.

Inventory

Inventory is stated at cost, on a moving average price basis.

Use of Estimates

The preparation of financial statements in conformity with accounting principles generally accepted in the United States of America requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities and disclosure of contingent assets and liabilities at the date of the financial statements and the reported amounts of revenues and expenses during the reporting period. Actual results could differ from those estimates.

Pending Pronouncements

GASB has issued Statement No. 61, *"The Financial Reporting Entity: Omnibus,"* effective for periods beginning after June 15, 2012. The objective of this statement is to improve financial reporting for a governmental financial reporting entity by modifying existing requirements for the assessment of potential component units. The effect of implementation of this statement has not yet been determined.

GASB has issued Statement No. 62, *"Codification of Accounting and Financial Reporting Guidance Contained in Pre-November 30, 1989 FASB and AICPA Pronouncements,"* effective for periods beginning after December 15, 2011. This statement establishes accounting and financial reporting standards for the financial reporting statements of state and local governments by bringing together reporting literature in one place with the guidance modified as necessary. The effect of implementation of this statement has not yet been determined.

GASB has issued Statement No. 63, *"Financial Reporting of Deferred Outflows of Resources, Deferred Inflows of Resources, and Net Position,"* effective for the year ending December 31, 2012. This statement establishes guidance for reporting deferred outflows of resources, deferred inflows of resources, and net position in a statement of financial position. The effect of implementation of this statement has not yet been determined.

GASB has issued Statement No. 64, *"Derivative Instruments: Application of Hedge Accounting Termination Provisions,"* effective for periods beginning after June 15, 2011. The objective of this statement is to clarify whether an effective hedging relationship continues after the replacement of a swap counterparty or a swap counterparty's credit support provider. This statement is an amendment of GASB Statement No. 53 and sets forth criteria that establish when the effective hedging relationship continues and hedge accounting should continue to be applied. The effect of implementation of this statement has not yet been determined.

3. TRANSACTIONS WITH THE CITY OF PITTSBURGH

In 1984, pursuant to a Lease and Management Agreement, the Authority leased the System from the City and assumed responsibility for establishing and collecting user fees and charges and for maintaining and improving the System. The Lease and Management Agreement provided for the City to operate and maintain the System for the Authority subject to the general supervision of the Authority.

The City and the Authority agreed to terminate the Lease and Management Agreement in July 1995 and concurrently entered into a Capital Lease Agreement and a Cooperation Agreement (collectively referred to as the "Agreements").

Cooperation Agreement

Under the terms of the Cooperation Agreement, City water department employees became employees of the Authority. As a result, the Authority assumed various personnel-related obligations from the City's water department. Other direct costs of the System's water operations are now generally paid directly by the Authority under the Cooperation Agreement, rather than paid by the City and reimbursed by the Authority. The City provides the Authority with various services in accordance with the Cooperation Agreement and the Authority reimburses the City for direct and indirect costs attributed by the City to the operation and maintenance of the System.

Under the Agreements, the Authority provides up to 600 million gallons of water annually for the City's use without charge. Also, the Authority assumes the City’s obligation for the cost of subsidizing water service to residents of the City situated beyond the Authority's service area so that those water users pay charges that mirror the rates of the Authority.

System Leases

The Capital Lease Agreement stipulates minimum lease payments of approximately $101 million, all of which were satisfied during the initial three years of the capital lease.

The Capital Lease Agreement has a term of thirty years and provides the Authority with the option to purchase the System for one dollar in 2025.

Pension

Employees of the Authority participate in the City's Municipal Pension Fund Plan (Plan). Employees who became members of the Plan prior to January 1, 1988 are required to contribute 5% of pre-tax pay. Those joining thereafter are required to contribute 4%. Substantially, all the Authority's 2011 payroll of $12,796 was covered by the Plan. Employee contributions for the year amounted to approximately $497.

The City's obligations relative to the Plan are determined in accordance with various Pennsylvania statutes. The extent of the Authority's participation in such obligations with respect to those former City employees whose membership continued upon becoming employees of the Authority is determined by the shared interpretation of the City and Authority of the intent of the Cooperation Agreement.

The 2011 Minimum Municipal Obligation calculated for the City’s Plan indicated a 2011 normal cost of $733 associated with those former City employees whose participation continued upon becoming employees of the Authority as provided by the Cooperation Agreement. The Authority estimates that the normal cost for 2011, together with other elements of expense for employee service during 2011 would not exceed the sum of the 2011 contributions made by the Authority and employees.

Uncertainty exists about the future obligation of the Authority and its employees to make contributions to the Plan. Such contributions are contingent upon the continuing eligibility of the Authority's employees to participate in the City's Plan. Eligibility for ongoing employee participation in the City's Plan could end if the Authority were to introduce another pension plan. At this time, the Authority and City have no definite plans to establish another pension plan for the Authority, other than an agreement in principle that the Authority should have its own plan in the future. Future obligations of the Authority to make contributions to the Plan may also be subject to other amendments of the existing arrangement agreed-upon by the Authority and the City.

Normal retirement benefits are available upon attainment of age sixty and completion of twenty service years. Early retirement benefits are available upon attainment of age fifty and completion of eight service years. Early retirement benefits may be deferred until age sixty or may be obtained upon retirement at a reduced level. A member who terminates employment after attaining age forty and completing eight service years can sustain eligibility for benefits by continuing contributions through age fifty. A member who terminates employment after attaining fifteen service years, but has been a member since before January 1, 1975, can be vested by continuing contributions through age fifty.

Retirement benefits for employees who were members of the Plan are based upon a percentage of either three-year or four-year average pay, depending on date of hire, subject to certain specified minimum monthly benefit amounts. Special membership and benefit rules apply to those experiencing disability.

The "pension benefit obligation," which is an actuarial present value of credited projected benefits, is a standardized measure for financial statement disclosure of the present value of pension benefits, adjusted for the effects of projected salary increases, estimated to be payable in the future by the Plan as a result of members' service to date. The measure is intended to help users assess the Plan's funding status on a going concern basis, assess progress made in accumulating sufficient assets to pay benefits when due and make comparisons among public employee retirement systems. The Plan has not reported or attributed measurements of assets or the pension benefit obligation on the basis of the group of members who are Authority employees.

Additional information about the Plan and ten-year historical trend information showing the Plan's progress in accumulating sufficient assets to pay benefits when due is presented in the City's Comprehensive Annual Financial Report.

4. REVENUE AND ACCOUNTS RECEIVABLE

Water

Water sales revenue is recognized as earned during the period when water is supplied to customers. Customers are billed on a monthly billing cycle by the Authority based on actual or estimated meter readings. The Authority recognizes unbilled accounts receivable for water service provided prior to year-end that is billed during the following year.

Water accounts receivable are presented net of a reserve for uncollectible amounts. This reserve, based upon historical experience, is recognized coincident with recognition of revenue. At December 31, 2011 and 2010, the reserve for uncollectible water accounts was approximately $13.95 million and $14.2 million, respectively. The Authority has rights to utilize collection agencies, service terminations, liens, and real property sales to protect its interests, limit further losses, and motivate payments from delinquent customers.

Wastewater Treatment

Although the Authority does not provide wastewater treatment, it assumed responsibility for certain wastewater treatment revenue and expenses beginning in 1996. Pursuant to a 1955 agreement, the City was responsible for paying the Allegheny County Sanitary Authority (ALCOSAN) face amounts for delinquent wastewater treatment receivables. Until 1996, the City undertook to bill and collect these delinquent accounts directly. In 1996, the City and the Authority entered into a memorandum of understanding (MOU) whereby the Authority received assets including rights to wastewater treatment receivables assigned by the City and assumed the City's obligation to pay ALCOSAN for delinquencies. During 2004, the Authority and ALCOSAN executed a first amendment to the 1955 agreement whereby the Authority elected to change the billing structure. Effective May 2004, the Authority began direct billing City residents for current and delinquent wastewater treatment charges and remitting to ALCOSAN the aggregate amount of service charges billed. Wastewater treatment activity and the related assets and liabilities appear on the statements of revenue, expenses and changes in net assets and the statements of net assets, respectively. At December 31, 2011 and 2010, the reserve for uncollectible wastewater accounts was approximately $6.71 million and $6.84 million, respectively.

5. CAPITAL ASSETS

Capital assets consisted of the following at December 31, 2011 and 2010:

	Balance at January 1, 2011	Additions	Transfers	Balance at December 31, 2011
Capital assets not being depreciated:				
Construction in progress	$ 41,328	$ 36,913	$ (15,780)	$ 62,461
Capital assets being depreciated:				
Water and sewer system	102,167	-	-	102,167
Utility assets	563,550	17,804	-	581,354
Non-utility assets	17,106	937	-	18,043
Total capital assets being depreciated	682,823	18,741	-	701,564
Total capital assets	724,151	55,654	(15,780)	764,025
Accumulated depreciation	(207,122)	(13,300)	-	(220,422)
Capital assets, net	$ 517,029	$ 42,354	$ (15,780)	$ 543,603

	Balance at January 1, 2010	Additions	Transfers	Balance at December 31, 2010
Capital assets not being depreciated:				
Construction in progress	$ 25,548	$ 48,700	$ (32,920)	$ 41,328
Capital assets being depreciated:				
Water and sewer system	102,167	-	-	102,167
Utility assets	520,811	43,132	(393)	563,550
Non-utility assets	16,528	578	-	17,106
Total capital assets being depreciated	639,506	43,710	(393)	682,823
Total capital assets	665,054	92,410	(33,313)	724,151
Accumulated depreciation	(194,702)	(12,420)	-	(207,122)
Capital assets, net	$ 470,352	$ 79,990	$ (33,313)	$ 517,029

During 2011 and 2010, the Authority received donated utility assets of $2,277 and $15,100, respectively, related to various development projects.

6. PAYROLL AND RELATED OBLIGATIONS

Payroll and related obligations presented on the statements of net assets are comprised of:

	Balance at December 31, 2010	Change	Balance at December 31, 2011	Current Portion
Compensated absences	$ 767	$ (10)	$ 757	$ 4
Workers' compensation	402	(61)	341	122
Payroll, withholdings, and taxes	548	(12)	536	536
	$ 1,717	$ (83)	$ 1,634	$ 662

	Balance at December 31, 2009	Change	Balance at December 31, 2010	Current Portion
Compensated absences	$ 896	$ (129)	$ 767	$ 2
Workers' compensation	486	(84)	402	122
Payroll, withholdings, and taxes	450	98	548	548
	$ 1,832	$ (115)	$ 1,717	$ 672

7. BONDS AND LOANS PAYABLE

To finance its initial capital improvement program, the Authority issued Daily Adjustable Demand Water and Wastewater System Revenue Bonds of $93,600 in 1984 ("1984 Bonds"). In 1985, the Authority issued Water and Wastewater System Adjustable Rate Tender Revenue Bonds ("1985 Bonds") that accomplished an advance refunding which defeased the 1984 Bonds. In 1986, the Authority issued $134,700 Water and Wastewater System Adjustable Rate Tender Revenue Bonds ("1986 Bonds") to finance the next phase of its capital improvement program. In July 1991, the Authority issued $248,329 Water and Wastewater System Revenue Refunding Bonds, Series A of 1991 ("1991 Bonds") which refunded the outstanding 1985 and 1986 Bonds. The principal of defeased 1986 Bonds still outstanding at December 31, 2011 and 2010 is $93,565 and $108,860, respectively.

Series 1993

In November 1993, the Authority issued $278,970, Series A Refunding Bonds, ("Series A-1993 Bonds") and $10,785 Series B Revenue Bonds, ("Series B-1993 Bonds") to finance additional capital improvements. Series A-1993 Bond proceeds of $276,613 (net of $3,402 in underwriting fees, FGIC insurance, and other issuance costs) defeased the 1991 Bonds through an advance refunding.

During 2009, the bond insurance company for the Series 1993 Bonds had their rating withdrawn by Standard & Poor's and is currently unrated. In October of 2008, the bond insurance company and a financial institution entered into a reinsurance agreement whereby the financial institution reinsured certain bond insurance risks of the bond insurance company.

The Series A-1993 Bonds bear interest at a fixed rate of 6.5%, payable semi-annually at March 1 and September 1. The outstanding 1993 Bonds are not subject to optional or mandatory redemption.

Fair value of the 1993 Bonds at December 31, 2011 and 2010, with carrying amounts of $17 million and $27 million, respectively, based on quoted market prices, is approximately $18 million and $30 million, respectively.

Series 1998

In March 1998, the Authority issued $93,355, Series A First Lien Revenue Bonds ("1998 Series A Bonds"), the proceeds of which were used to defease through an advance refunding the entire balance of 1995 Series A Bonds outstanding ($89,850); $36,440 Series B First Lien Revenue Bonds ("1998 Series B Bonds"), the proceeds of which are dedicated to a capital improvements program; and $101,970 Series C Subordinate Revenue Bonds ("1998 Series C Bonds"), the proceeds of which were used to defease through an advance refunding the entire balance of the 1995 Series B Bonds outstanding ($98,410). At December 31, 2011 and 2010, the remaining unamortized deferred refunding loss of $466 and $498, respectively, on the transaction is shown as a reduction of the long-term debt and will be amortized through 2037.

Fair value of the 1998 Bonds at December 31, 2011 and 2010, with carrying amounts of $62 million and $62 million, respectively, based on quoted market prices, is approximately $62 million and $62 million, respectively.

The 1998 Series B Bonds are capital appreciation bonds with an original issuance amount of $36,440. The 1998 Series B Bonds have maturity values of $2.3 million to $31.8 million from 2017 to 2030. The bonds were issued to yield rates from 5.18% to 5.3%. The 1998 Series B Bonds accrue and compound interest on a semi-annual basis and are carried at cost plus accrued interest. Total maturity value of the 1998 Series B Bonds is $146.8 million.

A portion of the 1998 Bonds is subject to optional redemption in various face amounts beginning March 1, 2008.

Series 2003

On September 23, 2003, the Authority issued $167,390 of Water and Sewer System Revenue Refunding Bonds ("2003 Bonds"). The proceeds of the 2003 Bonds were used to provide funds for the current refunding of a portion of the 1993 Bond Series. In connection with the 2003 debt refundings, the Authority recorded a deferred refunding loss of $3,162 which is being amortized as an adjustment to interest expense over the life of the bonds using the effective interest method. The unamortized balance of the deferred refunding adjustment is $1,203 and $1,287 at December 31, 2011 and 2010, respectively.

The 2003 Bonds were issued at a bond discount of $830, which is being amortized as an adjustment to interest expense over the life of the bonds using the effective interest method.

The 2003 Bonds bear interest at rates ranging from 1.45% to 4.75%. Interest is payable in semi-annual installments on March 1 and September 1 until maturity. Stated maturities for the 2003 Bonds are at various face amounts on September 1 of each year beginning September 1, 2004 through 2023. The 2003 Bonds which mature after September 1, 2014, are subject to redemption prior to maturity at the option of the Authority.

The fair market value of the 2003 Bonds at December 31, 2011 and 2010, with carrying amounts of $45 million and $45 million, respectively, based on quoted market prices, is approximately $47 million and $47 million, respectively.

Series 2007

During March 2007, the Authority issued $158,895 Series 2007 First Lien Water and Sewer Revenue Bonds ("2007 Bonds"): $43,720 Series A of 2007 (fixed rate), $57,585 Series B-1 of 2007 (variable rate demand), and $57,590 Series B-2 of 2007 (variable rate demand). The purpose of this bond issue was to refund the Series 2002 and Series 2005 Bonds (the refunded bonds). Proceeds of the 2007 Bonds were invested in an escrow account to pay

principal and interest on the refunded bonds from the time of refunding through the bonds' earliest optional call dates. In connection with the debt refundings, the Authority recorded a deferred refunding loss of $6,032, which is being amortized as an adjustment to interest expense over the life of the bonds using the effective interest method. At December 31, 2011 and 2010, the remaining unamortized deferred refunding loss of $4,734 and $5,060, respectively. At December 31, 2011, the principal of the defeased Series 2002 Bonds outstanding was $89,830, and the defeased 2005 Bonds outstanding was $44,355.

The 2007 Bonds were issued at a bond premium of $2,660, which is being amortized as an adjustment to interest expense over the life of the bonds using the effective interest method. Bond issuance costs of $598 are also being amortized over the life of the 2007 Bonds using the effective interest method.

The 2007 Series A Bonds bear interest at rates ranging from 4.00% to 5.00%. Interest is payable in semi-annual installments on March 1 and September 1 until maturity. The 2007 Series A Bonds are subject to extraordinary redemption prior to maturity at the option of the Authority in the event of a condemnation, damage or destruction of the water and sewer system.

The 2007 Series B Bonds bear interest at a variable rate with interest payments due on the first business day of each month. The 2007 Series B Bonds that mature on September 1 of 2018-2033 are subject to mandatory sinking fund redemption.

The fair market value of the 2007 Bonds at December 31, 2011 and 2010, with carrying amounts of $112 million and $116 million, respectively, based on quoted market prices, is approximately $115 million and $118 million, respectively.

In conjunction with the issuance of the 2007 Variable Rate Bonds, the Authority entered into various pay fixed/receive variable interest rate swaps to effectively change the Bonds' variable interest rates to synthetic fixed rates. These swap transactions are discussed in Note 8: Interest Rate Swaps.

Series 2008

During May 2008, the Authority issued $93,635 Series 2008 Water and Sewer System First Lien Revenue Bonds ("2008 Fixed Rate Bonds"): $68,970 Series A of 2008 (fixed rate, taxable) and $24,665 Series D-1 of 2008 (fixed rate). The purpose of this bond issue was to advance refund portions of certain maturities of the Series 1993A and Series 2003 Bonds, to fund the costs of certain capital additions, to fund the premium for the Bond Insurance Policy

securing payments on 2008 Fixed Rate Bonds, and to fund termination payments on certain interest rate swaps.

During June 2008, the Authority issued $320,515 Series 2008 Water and Sewer System First Lien Revenue Bonds ("2008 Variable Rate Demand Bonds"): $145,495 Series B of 2008 (variable rate demand), $51,910 Series C-1 of 2008 (variable rate demand), $51,885 Series C-2 of 2008 (variable rate demand), and $71,225 Series D-2 of 2008 (variable rate demand). The purpose of this bond issue was to currently refund the Series 1998A and Series 1998C, to currently refund certain maturities of the Series 2007 B-1 and Series 2007 B-2 Bonds, to advance refund certain maturities of the Series 1998B Bonds, to fund approximately $98 million of certain capital additions, to fund the premium for the Bond Insurance Policy securing payments on 2008 Variable Rate Demand Bonds, and to fund termination payments on certain interest rate swaps.

In connection with these advance refundings, portions of the proceeds of the 2008 Bonds were deposited into irrevocable trusts with an escrow agent to provide for certain debt service payments on the refunded bonds. The advance refunding resulted in a deferred refunding loss of $18,119 which is amortized as an adjustment to interest expense over the life of the 2008 Bonds using the effective interest method. At December 31, 2011 and 2010, the remaining unamortized deferred refunding loss was $14,305 and $15,307, respectively, and the transaction is shown as a reduction of long-term debt and will be amortized through 2037.

At December 31, 2011, the principal of the defeased Series 1993A Bonds outstanding was $16,875 and the defeased 2003 Bonds outstanding was $26,130. The maturity value of defeased 1998B compound interest bonds outstanding at December 31, 2011 was $19,300.

The Taxable 2008 Series A Bonds bear interest at rates ranging from 6.36% to 6.61%. Interest is payable in semi-annual installments on March 1 and September 1 until maturity. The Taxable 2008 Series A Bonds are subject to optional redemption, in whole or in part, on any date, at the option of the Authority. The Taxable 2008 Series A Bonds that mature in 2018 and 2024 are subject to mandatory sinking fund payments beginning in 2017 and continuing through 2024.

The 2008 Series D-1 Bonds (together with the Taxable 2008 Series A Bonds are the 2008 Fixed Rate Bonds) bear interest at rates ranging from 4.50% to 5.00%. Interest is payable in semi-annual installments on March 1 and September 1 until maturity. The 2008 Series D-1 Bonds which mature on or after September 1, 2019 are subject to optional redemption, in whole or in part, on any date, at the option of the Authority at any time on or after September 1, 2018, at 100% of the principal amount plus accrued interest.

The 2008 Series B, C, and D-2 Bonds (2008 Variable Rate Bonds) as originally offered bear interest at a variable rate with interest payments due on the first business day of each month. Interest rates are reset weekly; the fluctuating rate per annum to be determined by the respective remarketing agents. The weekly rate is subject to a cap of 12% per annum.

During the second part of 2009, the Authority reoffered the 2008 Series B Bonds and the 2008 Series C-1 variable rate bonds. The 2008 Series B Bonds had an outstanding principal amount of $145,495,000 and the 2008 C-1 bonds had an outstanding principal balance of $51,910,000 at the time of reoffering.

The Series B Bonds were reoffered on October 16, 2009. The reason for this reoffering was the replacement of expiring standby bond purchase agreements on these variable rate bonds with letters of credit. Bank of America is the letter of credit provider on the Series B-1 Bonds ($72,750,000) and PNC is the letter of credit provider on the Series B-2 Bonds ($72,745,000). The reoffering did not change the interest rate mode on these variable rate bonds. Both the Bank of America and the PNC letters of credit have been renewed and are set to expire on October 22, 2013.

The 2008 Series C-1 bonds were reoffered in two separate reofferings. On November 10, 2009, $25,000,000 was reoffered in a term interest rate mode. The interest rate on these bonds is fixed at 2% for two years. After the two-year period, the interest rate will reset. During August 2011, the 2008 Series C-1-A, B and C bonds were again reoffered. The bonds were reoffered at a term rate of .45% through September 2012. The new reoffered bonds are as follows: Series C1-A $10,000,000; Series C1-B $10,000,000, and Series C1-C $5,000,000.

During November 2009, the remaining C-1 Bonds were reoffered as the C1-D Series of $26,910,000. These bonds were also issued in a term interest rate mode, fixing the interest rate at 2.625% through September of 2012.

Credit facilities for the 2008 Series C1-A, C1-B, and C1-C bonds are provided by the Federal Home Loan Bank. Liquidity facilities provided by JP Morgan Chase on the 2007 B-1, 2007 B-2 and 2008 C-2 Series bonds have been renewed and are set to expire on June 10, 2014 for the 2007 B-1 and B-2 Series and June 9, 2014 for the 2008 C-2 Series. The Authority renewed the standby purchase agreements on the Series 2007 B-1 (face $41.32 million) and 2007 B-2 (face $41.33 million) bonds for two years, expiring June of 2012. During 2011, the Authority renewed the Series 2008 C-2 (face $51.89 million) and Series 2008 D-2 (face $71.23 million) for two years, expiring June 2014, with JP Morgan Chase and PNC Bank, respectively.

Variable Rate Bonds are subject to optional redemption, in whole or in part, on any date, at the option of the Authority. The 2008 Series B Bonds that mature on September 1 of 2039 are subject to mandatory sinking fund redemption. The 2008 Series C Bonds that mature on September 1 of 2035 are subject to mandatory sinking fund redemption. The 2008 Series D-2 Bonds that mature on September 1 of 2040 are subject to mandatory sinking fund redemption.

The 2008 Series Bonds are subject to extraordinary redemption prior to maturity at the option of the Authority in the event of a condemnation, damage or destruction of the water and sewer system.

The 2008 Fixed Rate Bonds were issued at a bond premium of $824, which is being amortized as an adjustment to interest expense over the life of the bonds using the effective interest method. Bond issuance costs of $7,459, including $5,036 of swap termination fees, are also being amortized over the life of the Bonds using the effective interest method.

The 2008 Variable Rate Bonds issuance costs of $9,337, including $594 of swap termination fees, are being amortized over the life of the Bonds using the effective interest method.

The fair market value of the 2008 Bonds at December 31, 2011 and 2010, with carrying amounts of $414 million and $414 million, respectively, based on quoted market prices, is approximately $431 million and $419 million, respectively.

Variable rate bonds require a liquidity facility and/or a letter of credit. The Authority is subject to the risk that the bank does not renew the credit facility and/or that the pricing changes throughout the life of the bonds. Additionally, the Authority purchased insurance as a credit enhancement on the variable rate bonds. Trading spreads on the bonds and the preservation of the liquidity facility may be largely linked to the credit quality of the insurance provider. Therefore, if there is an event that would adversely affect the investor's perception of the credit quality of the insurer, the Authority could be subject to paying higher credit spreads on the bonds and risk losing the liquidity facility.

In conjunction with the issuance of the 2008 Variable Rate Bonds, the Authority entered into various pay fixed/receive variable interest rate swaps to effectively change the Bonds' variable interest rates to synthetic fixed rates. These swap transactions are discussed in Note 8: Interest Rate Swaps.

Bonds and state loans payable (PENNVEST) consisted of the following at December 31, 2011 and 2010:

	Balance at December 31, 2010	Additions	Reductions	Balance at December 31, 2011
Bonds and loans payable:				
Revenue bonds	$ 664,963	$ 3,377	$ (14,885)	$ 653,455
State loans (PENNVEST)	21,104	15,506	(1,863)	34,747
	686,067	18,883	(16,748)	688,202
Less: deferred refunding loss	(25,363)	-	1,663	(23,700)
Unamortized bond (discount) premium	2,086	-	(138)	1,948
Total bonds and loans	$ 662,790	$ 18,883	$ (15,223)	$ 666,450

	Balance at December 31, 2009	Additions	Reductions	Balance at December 31, 2010
Bonds and loans payable:				
Revenue bonds	$ 677,383	$ 3,200	$ (15,620)	$ 664,963
State loans (PENNVEST)	12,560	9,359	(815)	21,104
	689,943	12,559	(16,435)	686,067
Less: deferred refunding loss	(27,106)	-	1,743	(25,363)
Unamortized bond (discount) premium	2,233	-	(147)	2,086
Total bonds and loans	$ 665,070	$ 12,559	$ (14,839)	$ 662,790

Debt service payments of the State Loans at December 31, 2011 are as follows:

	State Loans		
	Principal	Interest	Total
2012	$ 2,422	$ 714	$ 3,136
2013	2,459	677	3,136
2014	2,497	639	3,136
2015	2,535	600	3,135
2016	2,513	704	3,217
2017-2021	13,112	3,297	16,409
2022-2026	8,741	1,903	10,644
Thereafter	468	56	524
	$ 34,747	$ 8,590	$ 43,337

Debt service payments on the 1993, 1998, 2003, 2007, and 2008 Bonds at December 31, 2011 are as follows:

	Revenue Bonds		
	Principal	Interest	Total
2012	$ 12,466	$ 26,226	$ 38,692
2013	14,155	25,538	39,693
2014	15,250	24,699	39,949
2015	15,995	24,018	40,013
2016	16,755	23,304	40,059
2017-2021	86,585	111,787	198,372
2022-2026	91,341	111,924	203,265
2027-2031	59,720	154,094	213,814
2032-2036	156,130	47,433	203,563
2037-2040	151,718	14,031	165,749
	620,115	$ 563,054	$ 1,183,169
Accretion	33,340		
Total	$ 653,455		

Interest payments were calculated for the Variable Rate Bonds using the synthetic fixed rate interest rates as described in Note 8.

Interest incurred for the years ended December 31, 2011 and 2010 on bonds payable, exclusive of capitalized interest and amortization of refunding losses, was approximately $33 million and $30 million, respectively. Interest costs for 2011 and 2010 included $1.7 and $1.8 million, respectively, of amortization of the deferred refunding losses.

In accordance with the provisions of the trust indentures for the 1993, 1998, 2003, 2007, and 2008 Bonds, the Authority has created a number of funds that are restricted for specific purposes. The complement of these restricted funds, collectively referred to on the statements of net assets as “Restricted Assets” at December 31, 2011 and 2010, was:

	2011	2010
Capital project funds	$ 33,106	$ 57,097
Debt service and reserve funds	7,990	9,920
Operating reserve account	8,537	8,532
Capitalized interest fund	-	1,946
Other funds	575	575
	$ 50,208	$ 78,070

Among the Authority's debt covenants is one which requires that rates charged by the Authority will be sufficient to satisfy a formula which is intended to ensure that the Authority will be able to satisfy debt service requirements. The trust indenture also requires that revenue collections be deposited into a Revenue Fund and disbursed therefrom as provided for in the trust indenture. This Revenue Fund constitutes the vast majority of unrestricted funds cash and cash equivalents. At December 31, 2011, the Authority was in compliance with this covenant.

8. INTEREST RATE SWAPS

Interest rate swaps disclosures (not in thousands) as of December 31, 2011 and 2010 are presented below:

Interest rate swaps at December 31, 2011 and 2010:

Notional Amount	Effective Date	Maturity Date	Interest Rate Paid	Interest Rate Received	Counterparty Credit Rating	Underlying Bonds
Hedging derivatives, Cash flow hedges, Receive variable - pay fixed, Interest rate swaps:						
$ 41,325,000	3/9/2007	9/1/2033	3.932%	SIFMA	Aaa	Series 2007 B-2
41,320,000	3/9/2007	9/1/2033	3.932%	SIFMA	Aa1	Series 2007 B-1
72,747,500	6/12/2008	9/1/2039	4.038%	SIFMA	Aaa	Series 2008 B-1
41,518,000	6/12/2008	9/1/2035	3.998%	SIFMA	Aaa	Series 2008 C
72,747,500	6/12/2008	9/1/2039	4.038%	SIFMA	Aa1	Series 2008 B-2
71,225,000	6/12/2008	9/1/2040	4.103%	SIFMA	Aa1	Series 2008 D-2
Investment derivatives, Receive variable - pay fixed, Interest rate swaps:						
62,277,000	6/12/2008	9/1/2035	3.998%	SIFMA	Aa1	Series 2008 C

Interest Rate Swap – Market Value Information:

Notional Amount	12/31/2009 Market Value *	Change in Market Value	12/31/2010 Market Value *	Change in Market Value	12/31/2011 Market Value *
Hedging derivatives, Cash flow hedges, Receive variable - pay fixed, Interest rate sw aps:					
$ 41,325,000	$ (3,383,386)	$ (642,154)	$ (4,025,540)	$ (5,341,685)	$ (9,367,225)
41,320,000	(3,317,718)	(671,709)	(3,989,427)	(5,383,814)	(9,373,241)
72,747,500	(6,455,578)	(37,818)	(6,493,396)	(16,260,801)	(22,754,197)
41,518,000	(3,459,995)	(188,978)	(3,648,973)	(8,210,370)	(11,859,343)
72,747,500	(6,428,956)	13,624	(6,415,332)	(16,338,865)	(22,754,197)
71,225,000	(6,911,571)	37,173	(6,874,398)	(17,135,256)	(24,009,654)
	(29,957,204)	(1,489,862)	(31,447,066)	(68,670,791)	(100,117,857)
Investment derivatives, Receive variable - pay fixed, Interest rate swaps:					
62,277,000	(5,099,925)	(309,377)	(5,409,302)	(12,379,713)	(17,789,015)
Total	$ (35,057,129)	$ (1,799,239)	$ (36,856,368)	$ (81,050,504)	$ (117,906,872)

* The market value is an estimated net present value of the expected cash flows calculated using relevant mid-market data inputs and based on the assumption of no unusual market conditions or forced liquidation.

Description of 2008 Swaps

During fiscal year 2008, the Authority entered into five pay-fixed, receive-variable interest rate swap contracts. The interest rate swaps were effective June 12, 2008. Beginning September 1, 2008, the Authority began to make semi-annual interest payments on the 1st of each March and September through September 1, 2035 (two swaps); September 1, 2039 (two swaps); and, September 1, 2040 (for one swap), respectively. The Counterparties make monthly interest payments on the 1st of each calendar month, which began July 1, 2008 through September 1, 2035 for two of the swaps; September 1, 2039 for two of the swaps; and September 1, 2040 for one swap.

The intention of the 2008 swaps is to effectively change the Authority's variable interest rate on the $145,495 Water and Sewer System (Variable Rate Demand) First Lien Revenue Refunding Bonds Series B of 2008, on the $71,225 Water and Sewer System (Variable Rate Demand) First Lien Revenue Bonds Series D-2 of 2008, and on the $103,795 Water and Sewer System (Variable Rate Demand) Subordinate Revenue Refunding Bonds Series C of 2008 (the bonds) to synthetic fixed rates of 4.038%, 4.103%, and 3.998%, respectively.

The bonds will accrue interest at a weekly rate that is determined by a remarketing agent on each effective rate date. The interest rate on the bonds may not exceed 12%. Per the interest rate swap agreements, the Authority will receive SIFMA Municipal Swap Index while paying fixed rates of 4.038%, 4.103%, and 3.998%, respectively.

The interest payments on the interest rate swaps are calculated based on notional amounts, all of which reduce, beginning on September 1, 2012 for the 2008 C Bonds, September 1, 2032 for the 2008 D2 Bonds and September 1, 2035 for the 2008 B Bonds, so that the notional amounts approximate the principal outstanding on the respective bonds. The interest rate swaps expire consistent with the final maturity of the respective bonds.

Description of 2007 Swaps

During fiscal year 2007, the Authority entered into two pay-fixed, receive-variable interest rate swap contracts. The interest rate swaps were effective March 9, 2007. Beginning September 1, 2007, the Authority began to make semi-annual interest payments on the 1st of each March and September through September 1, 2033. The Counterparties makes monthly interest payments on the 1st of each calendar month, beginning April 1, 2007 through September 1, 2033.

The intention of the 2007 swaps is to effectively change the Authority's variable interest rate on the $41,320,000 Water and Sewer System (Variable Rate Demand) First Lien Revenue Refunding Bonds Series B-1 of 2007 and on the $41,325,000 Water and Sewer System (Variable Rate Demand) First Lien Revenue Refunding Bonds Series B-2 of 2007 (the bonds) to synthetic fixed rates of 3.932%, respectively.

The bonds will accrue interest at a weekly rate that is determined by a remarketing agent on each effective rate date. The interest rate on the bonds may not exceed 12%. Per the interest rate swap agreements, the Authority will receive SIFMA Municipal Swap Index while paying a fixed rate of 3.932%.

The interest payments on the interest rate swaps are calculated based on notional amounts, both of which reduce, beginning on September 1, 2018, so that the notional amounts approximate the principal outstanding on the respective bonds. The interest rate swaps expire on September 1, 2033 consistent with the final maturity of the bonds.

Accounting and Risk Disclosures

During the years ended December 31, 2011 and 2010, the Authority paid $17,016 and $18,680, respectively, fixed and received $801 and $1,057, respectively, variable related to their outstanding swap agreements.

As noted in the tables above, current period changes in market value for the interest rate swaps that are accounted for as hedges are recorded on the statements of net assets as an adjustment to deferred outflows. Additionally, current period changes in market value for the interest rate swap accounted for as an investment is recorded on the statements of revenues, expenses and changes in net assets as a component of investment income.

The cumulative fair market value of the outstanding interest rate swaps of December 31, 2011 and 2010 are reported on the statements of net assets as a swap liability.

The Authority has the ability to early terminate the interest rate swaps and to cash settle the transaction on any business day by providing at least two business days written notice to the counterparty. Evidence that the Authority has sufficient funds available to pay any amount payable to the counterparty must be provided at the time notice is given. At early termination, the Authority will be required to pay or receive a settlement amount which is comprised of the market value of the terminated transaction(s) based on market quotations and any amounts accrued under the contract(s).

Through the use of derivative instruments such as interest rate swaps, the Authority is exposed to a variety of risks, including credit risk, interest rate risk, termination risk, basis risk, and rollover risk.

- Credit risk is the risk that a counterparty will not fulfill its obligations. The credit ratings by Moody's Investors Service, Inc., a nationally recognized statistical rating organization for the respective counterparties are listed in the table above. If a counterparty failed to perform according to the terms of the interest rate swap agreement, there is some risk of loss to the Authority, up to the fair market value of the swaps.

  The Authority currently does not enter into master netting arrangements with its counterparties as such each derivative instrument should be evaluated on an individual basis for credit risk. As the Authority's derivative instruments currently have a negative fair market value position to the Authority at year-end, the Authority is not exposed to credit risk at December 31, 2011.

  Concentration of credit risk: The Authority currently has two counterparties, with four and three outstanding interest rate swaps respectively. The Authority's outstanding market value as of December 31, 2011 and 2010, respectively, is $(73,926,107) and $(22,688,459) with one counterparty and $(43,980,765) and $(14,167,909) with the second counterparty. Both counterparties operate in the same markets and could be similarly impacted by changes in economic or other conditions.

  It is the Authority's policy to require counterparty collateral posting provisions in its non-exchange traded derivative instruments. Their terms require collateral to be posted if the respective counterparty's credit rating falls below BBB+ by Standard & Poor's and the swap insurer becomes bankrupt. The amount of collateral to be posted is calculated based on derivatives in asset positions to the Authority. As of year-end, the counterparties had not and were not required to post collateral for these transactions.

- Termination risk is the risk that a derivative's unscheduled end will affect the Authority's asset/liability strategy or will present the Authority with potentially significant unscheduled termination payments to the counterparty. The counterparties to the interest rate swaps do not have the ability to voluntarily terminate the interest rate swap; however, the Authority is exposed to termination risk in the event that one or more of the counterparties default.

- Interest rate risk is the risk that changes in interest rates will adversely affect the fair values of a government's financial instruments or cash flows. The interest rate swap that is accounted for as an investment exposes the Authority to interest rate risk. The interest rate swap is highly sensitive to changes in interest rates; changes in the variable rate will have a material effect on the swap's fair market value. The interest rate swap will terminate on September 4, 2035.

- Basis risk is the risk that arises when variable interest rates on a derivative and an associated bond or other interest-paying financial instrument are based on different indexes. The Authority is subject to basis risk as the interest index on the variable rate arm of the swaps is based on the SIFMA Municipal Swap Index and the variable interest rate on the bonds is based on a different index, a weekly rate that is determined by a remarketing agent. Although expected to correlate, the relationships between different indexes vary and that variance could adversely affect the Authority's calculated payments, and as a result cost savings or synthetic interest rates may not be realized.

  The Authority is further subject to basis risk in the event that the underlying bonds become fixed rate Bank Bonds or that the maturity of the underlying bonds is accelerated as discussed in Note 7: Bonds and Loans Payable.

- Rollover risk is the risk that a derivative associated with the Authority's debt does not extend to the maturity of that debt. When the derivative terminates, the associated debt will no longer have the benefit of the derivative. The Authority is not exposed to rollover risk as the swap agreements terminate on the same day the last payment is due on the respective bonds.

Contingencies

All of the Authority's derivative instruments, include provisions that require the Authority to post collateral in the event that the credit ratings of its credit support provider's senior long term, unsecured debt credit rating falls below BBB+ by Standard & Poor's and FSA, the swap insurer, becomes bankrupt. The amount of collateral to be posted is calculated based on derivatives in negative market value positions to the Authority. The collateral is to be posted in the form of cash, U.S. Treasuries or other approved securities. As of year-end, the Authority had not and was not required to post collateral for these transactions.

9. INVESTMENTS AND DEPOSITS WITH FINANCIAL INSTITUTIONS

The Authority is authorized to invest in: obligations of the U.S. Government and government-sponsored agencies and instrumentalities; fully insured or collateralized certificates of deposits; commercial paper of the highest rating; repurchase agreements collateralized by government obligations or securities; highly rated bank promissory notes or investment funds or trusts; and, as to trusteed assets, as otherwise permitted by the trust indenture as supplemented and amended in 1998. Throughout the years ended December 31, 2011 and 2010, the Authority invested its funds in such authorized investments. The Authority does not have a formal investment policy which addresses custodial credit risk, interest rate risk, credit risk, or concentration of credit risk.

GASB Statement No. 40, *"Deposit and Investment Risk Disclosures,"* requires disclosures related to the following deposit and investment risks: credit risk (including custodial credit risk and concentration of credit risk), interest rate risk, and foreign currency risk. The following is a description of the Authority's deposit and investment risks.

Custodial Credit Risk – Custodial credit risk is the risk that in the event of a bank failure, the Authority's deposits may not be returned to it. As of December 31, 2011 and 2010, $32,889 and $32,289, respectively, of the Authority's bank balance of $39,115 and $33,539, respectively, was exposed to custodial credit risk. These amounts are collateralized in accordance with Act 72 of the Pennsylvania state legislature, which requires the institution to pool collateral for all governmental deposits and have the collateral held by an approved custodian in the institution's name. These deposits have carrying amounts of $41,676 and $37,129 as of December 31, 2011 and 2010, respectively, all of which is reported as current assets in the statements of net assets.

In addition to the deposits noted above, included in cash and cash equivalents as non-current restricted assets on the statements of net assets are the following short-term investments at December 31, 2011 and 2010: money market funds of $2,901 and $3,812, respectively, and repurchase agreements of $578 and $0, respectively. Of the Authority's $578 and $0 investment in repurchase agreements, at December 31, 2011 and 2010, respectively, all of the underlying securities are held by the investment's counterparty, not in the name of the Authority.

At December 31, 2011, the Authority held the following investment balances:

	Carrying value	Maturity in years Less than 1 year
Commonwealth of PA Revenue Bonds (Guaranteed Investment Contracts)	$ 8,536	$ 8,536
Money market	2,901	2,901
Repurchase agreements	578	578
Commercial paper	38,193	38,193
Total Investments	$ 50,208	$ 50,208

At December 31, 2010, the Authority held the following investment balances:

	Carrying value	Maturity in years Less than 1 year
Commonwealth of PA Revenue Bonds (Guaranteed Investment Contracts)	$ 8,531	$ 8,531
Money market	3,812	3,812
Commercial paper	65,649	65,649
Total Investments	$ 77,992	$ 77,992

With the exception of the guaranteed investment contracts, the carrying value of the Authority's investments is the same as their fair market value amount. The Guaranteed investment contracts are carried at amortized cost. Investments of $46,729 and $74,180 are included as noncurrent restricted investments on the statements of net assets at December 31, 2011 and 2010, respectively. Investments of $3,479 consisting of money market funds of $2,901 and repurchase agreements of $578 are included as noncurrent restricted cash and cash equivalents on the statements of net assets at December 31, 2011. Investments of $3,812, consisting of money market funds of $3,812 are included as noncurrent restricted cash and cash equivalents on the statements of net assets at December 31, 2010.

Interest Rate Risk – Interest rate risk is the risk that changes in the interest rates will adversely affect the fair market value of the Authority's investments. The Authority is not subject to interest rate risk as all of its investments at December 31, 2011 and 2010 had maturities of less than one year.

Credit Risk – Credit risk is the risk that an issuer or other counterparty to an investment will not fulfill its obligation. As of December 31, 2011, the Authority's investments in the guaranteed investment contracts were rated AA by Standard & Poor's. The counterparty to the Authority's guaranteed investment contracts is the Commonwealth of Pennsylvania. The Authority's investments in money markets were rated AA by Standard & Poor's. The Authority's investments in commercial paper at December 31, 2011 were rated A-1 by Standard & Poor's. Not all of the investments in commercial paper were rated. Additionally, at December 31, 2011, the Authority had various repurchase agreements. The underlying securities of these repurchase agreements consist primarily of U.S. Treasuries, and are therefore not subject to credit risk.

Concentration of Credit Risk – Concentration of credit risk is the risk of loss attributed to the magnitude of a government's investments in a single issuer. The Authority places no limit on the amount it may invest in any one issuer. More than five percent of the Authority's investments are in Fidelity Institutional Money Market, Wells Fargo/BLB Investment Agent, and Commonwealth of Pennsylvania. These investments are 5.8%, 65.2%, and 17.0%, respectively, of the Authority's total investments at December 31, 2011.

As further described in Note 8, the Authority has a derivative instrument that is accounted for as an investment. Credit and interest rate risks related to this investment are described in Note 8.

10. NET ASSETS

Net assets represent the difference between assets and liabilities. An analysis of net asset amounts is as follows:

	December 31,	
	2011	2010
Invested in capital assets, net of related liabilities:		
Net property, plant, and equipment in service	$ 543,603	$ 517,029
Debt subject to capital improvements	(613,935)	(612,818)
Swap liability net of deferred outflow	(17,789)	(5,409)
Accounts payable for capital items	(5,325)	(6,308)
Funded debt from restricted assets:		
Unspent debt proceeds:		
Capital projects	33,106	57,097
Debt service and reserve funds	7,990	9,920
	(52,350)	(40,489)
Restricted for capital activity and debt service:		
Restricted cash and cash equivalents	3,479	3,812
Restricted investments	46,729	74,180
Restricted receivables	-	78
Liabilities payable from restricted assets:		
Unspent debt proceeds:		
Capital projects	(33,106)	(57,097)
Debt service and reserve funds	(7,990)	(9,920)
	9,112	11,053
Unrestricted	(267)	(731)
Total net assets	$ (43,505)	$ (30,167)

11. OPERATING LEASE

During 2007, the Authority entered into a new lease for office space. The term of the lease is for twenty years commencing on August 1, 2007 and ending on July 31, 2027. The lease is subject to an automatic roll-over for five years, if the Authority does not communicate in writing one year prior to expiration that is desires not to extend the lease. The general terms of the lease requires the lessor to provide for utilities, building repairs, maintenance, and real estate taxes.

The total minimum future commitments under the lease for year ending December 31, 2011 are as follows:

2012	$	599
2013		616
2014		616
2015		616
2016		616
2017-2021		3,273
2022-2026		3,404
2027-2028		513
	$	10,253

The total annual rental for office space was approximately $599 and $598 for 2011 and 2010 respectively.

12. COMMITMENTS AND CONTINGENCIES

The Authority is proceeding with a capital improvement program which the Authority's independent engineer has estimated will entail expenditure of the existing construction funds and potential future bond issues. As of December 31, 2011, $70 million of the program is complete and $69 million is under active contract.

In addition to the matters discussed in Note 13, Consent Agreement, various other claims and lawsuits are pending against the Authority. The ultimate outcome of these claims and lawsuits cannot presently be determined and, accordingly, no provision for amounts arising from settlements has been made in these financial statements. In the opinion of management, the effect on the financial statements of potential losses associated with any such claim and/or lawsuit should not be material.

The Authority was insured for general liability coverage through 2001; however, effective January 1, 2002, it became self-insured. In previous years, the Authority established a fund to pay for deductibles, small claims, and other litigation costs. At year-end, the balance in this fund was approximately $578. This fund is grouped with "Restricted Assets" on the statements of net assets. During 2011 and 2010, the Authority paid $0 from this fund for claims, and there is $0 and $0 accrued as of December 31, 2011 and 2010, respectively.

Line Warranty Program

The Authority instituted an opt-out warranty line insurance program. Utility Line Security, LLC (“ULS”) operated the program providing for the repair of water and sewer lines for

ratepayers. Dominion Products and Services, Inc., Dominion Retail, Inc., The Manchester Group, LLC and Pamela Post (collectively, "Dominion") filed a lawsuit in the Common Pleas Court of Allegheny County (the "Court"). Dominion sought no monetary damages, but rather an injunction and declaratory judgment. The injunction was denied in June 2010. However, on March 14, 2011, the Court found that while the program was a good program, it violated the Municipal Authority Act. As a result, PWSA ended the program as of March 18, 2011. On March 18, 2011, ULS filed for bankruptcy protection in the United States Bankruptcy Court for the Western District of Pennsylvania (the "Bankruptcy Court") at Case No. 11-21630-JKF (the "Bankruptcy Case"). On April 6, 2011, an appealable order was entered in the Dominion case. ULS appealed said Order on April 7, 2011, and Dominion filed a cross-appeal on April 14, 2011. On April 15, 2011, ULS filed its Schedules of Assets and Liabilities in the Bankruptcy Court at Docket No. 69 and listed a potential claim against the Authority for breach of contract in the amount of $3 million. On December 2, 2011, ULS filed its Plan of Liquidation (the "Plan") in the Bankruptcy Case at Docket 206. Pursuant to Section 7.2 of the Plan, ULS agreed to fully and finally release the Authority of any and all claims and to withdraw the aforementioned appeal upon confirmation of the Plan by the Bankruptcy Court and the Authority's payment of $350,000. Pursuant to Section 13.04 of the Plan, any mechanic's liens that arose in connection with the ULS program are deemed released upon confirmation of the Plan by the Bankruptcy Court. On March 5, 2012, the Pennsylvania Supreme Court dismissed the appeal.

On February 9, 2011, two class action lawsuits were filed in the Court. These actions were seeking undetermined monetary damages and a determination that the opt-out program was not permitted. Counsel for the class and the Authority have reached a settlement in principal and have submitted a motion stipulation and a proposed notice to the class. The Authority will pay counsel fees in the amount of $125,000 for the allegations related to the legality of the opt-out program. Additionally, the Authority will credit members of the class in the amount of approximately $300,000 for DISC fees that were prematurely collected from the ratepayers. Counsel for the class will receive $25,000 in attorneys' fees for this portion of the settlement. At a hearing on April 3, 2012, the court declined to approve the notices for the class. Counsel for the parties is discussing revisions to the settlement proposal to make it acceptable to the Court.

Subsequent to year-end, the Authority was assessed a penalty of $110,000 by the Pennsylvania Department of Environmental Protection (DEP) under a consent order related to modifications to wastewater discharges at its water treatment plant. The non-compliance resulted from a failure by an engineering contractor to properly design required modifications, resulting in a delay in construction. Action is in process to correct the non-compliance; however, the potential exists for further penalties to be assessed by DEP. The

Authority is exploring a claim against the engineering contractor that is responsible for the delay.

13. CONSENT AGREEMENT

The Authority is subject to federal regulation under the Clean Water Act (1977) and regulations adopted under that Act. Among the specific requirements applicable to the Authority's system are those imposed by the United States Environmental Protection Agency's Combined Sewer Overflow (CSO) Policy (1994). On January 29, 2004, the Authority and the City of Pittsburgh executed a Consent Order and Agreement (Order) regarding wet weather sewer overflows within the City. The other signatories to the Order are the Pennsylvania Department of Environmental Protection (DEP) and the Allegheny County Health Department (ACHD).

Generally, the Order requires the Authority and the City to assess the City sewers in order to develop a plan with ALCOSAN to address wet weather sewer overflows within the City. The Order is part of a sewer assessment program for all municipalities served by ALCOSAN. To date, assessment activities have been completed for all accessible critical sewers and separate sanitary sewers with the exception of any additional sewers discovered through continued research and investigation. Ongoing pipe and manhole repairs are being completed in order to provide CCTV access to remaining inaccessible critical/sanitary sewer pipes. Assessment activities for non-critical sewers are to be completed on a longer schedule, including completing CCTV at an annual average rate that was utilized to complete the critical/sanitary televising. The majority of accessible non-critical manholes have been inspected with ongoing efforts to complete any remaining or newly identified. In addition to the assessment, the Order requires the Authority and the City to implement the Nine Minimum Controls to reduce combined sewer overflows, and to perform repairs and maintenance of deficiencies revealed by the assessment. The Authority maintains an expedited response to significant structural failures of the sewer system where imminent structural failures are determined by a professional engineer and prioritized for repair. Ongoing sewer line replacement, point repair, lining, point lining, and Gunite projects have been implemented to address structural deficiencies.

Given the scope of the Order, the size of the City sewer system, and the various conditions and/or deficiencies that may be discovered by the assessment, it is difficult to predict the total cost of compliance with the Order. Moreover, it is difficult to predict what, if any, large-scale and/or regional capital improvements may be required after the completion of the assessment to address wet weather sewer overflows in the City and in the ALCOSAN service area. Large-scale and/or regional capital improvements are not covered by the Order. The

Authority has hired two engineering firms to assess and model the sewer system, and it is moving forward with its plans to comply with the Order. Costs associated with Order compliance will be reflected in the capital improvement program and funded by proceeds of potential future bond issuances.

Supplementary Information

PITTSBURGH WATER AND SEWER AUTHORITY

SCHEDULE OF RESTRICTED ASSETS COMPOSITION - SCHEDULE I

(Dollars expressed in thousands)

DECEMBER 31, 2011

				Cash Equivalents		Investments		
	Total	Unrealized Gain/(Loss)	Accrued Interest Receivable	*(1) Fidelity Inst M Mkt Prime #690 Class 1	*(7) Overnight Tri-Party Repo GNMA	Commonwealth of PA Revenue Bonds	*(2) BTM CAP CORP DISC CP	*(3)GE CAP CORP CPDS
Capital project and construction funds:								
2005 Capital Project Fund	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
2008 Construction Fund	33,102	411	-	377	-	-	-	-
	33,102	411	-	377	-	-	-	-
Debt service funds:								
1993 Debt Service Fund	3,004	76	-	735	-	-	731	91
2003 Debt Service Fund	765	11	-	191	-	-	187	154
2007 A Debt Service Fund	1,961	45	-	482	-	-	478	121
2007 B-1 Var Debt Service Fund	7	-	-	7	-	-	-	-
2007 B-2 Var Debt Service Fund	10	-	-	10	-	-	-	-
2008A Debt Service Fund	1,525	15	-	379	-	-	377	376
2008B1 Debt Service Fund	9	-	-	9	-	-	-	-
2008B2 Debt Service Fund	8	-	-	8	-	-	-	-
2008C1A Debt Service Fund	15	-	-	15	-	-	-	-
2008C1D Debt Service Fund	15	-	-	15	-	-	-	-
2008C1C Debt Service Fund	9	-	-	9	-	-	-	-
2008C1D Debt Service Fund	235	-	-	235	-	-	-	-
2008C2 Debt Service Fund	12	-	-	12	-	-	-	-
2008D1 Debt Service Fund	407	-	-	407	-	-	-	-
2008D2 Debt Service Fund	10	-	-	10	-	-	-	-
	7,992	147	-	2,524	-	-	1,773	742
1993 Operating Reserve Fund	9,114	12	-	-	578	8,524	-	-
2008 Capitalized Interest Fund	-	-	-	-	-	-	-	-
Self-Insured Escrow Fund	-	-	-	-		-	-	-
	$ 50,208	$ 570	$ -	$ 2,901	$ 578	$ 8,524	$ 1,773	$ 742

(Continued)

(1) Fidelity Institutional M Market Prime #690 Class 1, yielding 0.10%.

(2) BTM Cap Corp Disc Commercial Paper, yielding 0.00% with a maturity date of 02/21/2012

(3) General Electric Cap Corp CPDs, yielding 0.00% with a maturity date of 02/29/2012

(4) Private Expt FDG Corp DISC C/P, yielding 0.0% with a maturity date of 02/29/2012

(5) Westpac BKG Corp CPDS, yielding 0.0% with a maturity date of 05/03/2012

(6) Wells Fargo/BLB Investment Agreement, yielding 0.00% with a maturity date of 6/30/2012

(7) Overnight Tri-Party Repo GNMA, yielding 0.0%

PITTSBURGH WATER AND SEWER AUTHORITY

SCHEDULE OF RESTRICTED ASSETS COMPOSITION - SCHEDULE I

(Dollars expressed in thousands)

DECEMBER 31, 2011
(Continued)

	Investments		
	*(4) PRVT EXCPT FDG CORP DISC CP	*(5)WESTPAC BKG CORP CPDS DISC C/P	*(6) Wells Fargo/BLB Investment Agreement
Capital project and construction funds:			
2005 Capital Project Fund	$ -	$ -	$ -
2008 Construction Fund	-	-	32,314
	-	-	32,314
Debt service funds:			
1993 Debt Service Fund	731	640	-
2003 Debt Service Fund	188	34	-
2007 A Debt Service Fund	478	357	-
2007 B-1 Var Debt Service Fund	-	-	-
2007 B-2 Var Debt Service Fund	-	-	-
2008A Debt Service Fund	378	-	-
2008B1 Debt Service Fund	-	-	-
2008B2 Debt Service Fund	-	-	-
2008C1A Debt Service Fund	-	-	-
2008C1D Debt Service Fund	-	-	-
2008C1C Debt Service Fund	-	-	-
2008C1D Debt Service Fund	-	-	-
2008C2 Debt Service Fund	-	-	-
2008D1 Debt Service Fund	-	-	-
2008D2 Debt Service Fund	-	-	-
	1,775	1,031	-
1993 Operating Reserve Fund	-	-	-
2008 Capitalized Interest Fund	-	-	-
Self-Insured Escrow Fund	-	-	-
	$ 1,775	$ 1,031	$ 32,314

(Concluded)

(1) Fidelity Institutional M Market Prime #690 Class 1, yielding 0.10%.

(2) BTM Cap Corp Disc Commercial Paper, yielding 0.00% with a maturity date of 02/21/2012

(3) General Electric Cap Corp CPDs, yielding 0.00% with a maturity date of 02/29/2012

(4) Private Expt FDG Corp DISC C/P, yielding 0.0% with a maturity date of 02/29/2012

(5) Westpac BKG Corp CPDS, yielding 0.0% with a maturity date of 05/03/2012

(6) Wells Fargo/BLB Investment Agreement, yielding 0.00% with a maturity date of 6/30/2012

(7) Overnight Tri-Party Repo GNMA, yielding 0.0%

PITTSBURGH WATER AND SEWER AUTHORITY

SCHEDULE OF RESTRICTED ASSETS ACTIVITY - SCHEDULE II

(Dollars expressed in thousands)

YEAR ENDED DECEMBER 31, 2011

	Series 1993 Bonds		Series 2003 Bonds	Series 2005 Bonds	Series 2007 Bonds			
	Debt Service Fund	Operating Reserve Account	Debt Service Fund	Capital Project Fund	2007A Debt Service Fund	2007 B1 Debt Service Fund	2007 B2 Debt Service Fund	Subtotal
Increases:								
Interest	$ 181	$ 8	$ (11)	$ 3	$ 79	$ -	$ -	$ 260
Total increases	181	8	(11)	3	79	-	-	260
Decreases:								
Capital projects	-	-	-	4,135	-	-	-	4,135
Interest	1,769	-	1,858	-	1,625	1,640	1,643	8,535
Bond principal/refunding escrow	10,350	-	405	-	4,130	-	-	14,885
Other	-	-	-	-	-	-	-	-
Total decreases	12,119	-	2,263	4,135	5,755	1,640	1,643	27,555
Interfund Transfers:								
Nontrusteed accounts	10,770	-	2,236	-	5,649	1,634	1,640	21,929
2008B Debt Svc Fund	-	-	-	-	-	-	-	-
2008C1 Debt Svc Fund	-	-	-	-	-	-	-	-
2008D1 Debt Svc Fund	-	-	-	-	-	-	-	-
2008D2 Debt Svc Fund	-	-	-	-	-	-	-	-
2008 Capital Projects Fund	-	-	-	-	-	-	-	-
Total interfund transfers	10,770	-	2,236	-	5,649	1,634	1,640	21,929
Net activity	(1,168)	8	(38)	(4,132)	(27)	(6)	(3)	(5,366)
Balance:								
Beginning of year	4,172	8,528	803	4,132	1,988	13	13	19,649
End of year	$ 3,004	$ 8,536	$ 765	$ -	$ 1,961	$ 7	$ 10	$ 14,283

(Continued)

PITTSBURGH WATER AND SEWER AUTHORITY

SCHEDULE OF RESTRICTED ASSETS ACTIVITY - SCHEDULE II

(Dollars expressed in thousands)

YEAR ENDED DECEMBER 31, 2011

(Continued)

		Series 2008 Bonds												
	Self-Insured Escrow Account	2008 Cap. Int. Fund	2008A Debt Svc Fund	2008B1 Debt Svc Fund	2008B2 Debt Svc Fund	2008C1A Debt Svc Fund	2008C1B Debt Svc Fund	2008C1C Debt Svc Fund	2008C1D Debt Svc Fund	2008C2 Debt Svc Fund	2008D1 Debt Svc Fund	2008D2 Debt Svc Fund	2008 Cap. Proj. Fund	Total
Increases:														
Interest	$ 3	$ 1	$ 24	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ 398	$ 686
Total increases	3	1	24	-	-	-	-	-	-	-	-	-	398	686
Decreases:														
Capital projects	-	-	-	-	-	-	-	-	-	-	-	-	22,934	27,069
Interest	-	-	4,531	2,946	2,920	426	426	212	1,728	2,098	1,222	2,946	-	27,990
Bond principal/refunding escrow	-	-	-	-	-	-	-	-	-	-	-	-	-	14,885
Other	-	1	-	-	-	-	-	-	-	-	-	-	966	967
Total decreases	-	1	4,531	2,946	2,920	426	426	212	1,728	2,098	1,222	2,946	23,900	70,911
Interfund Transfers:														
Nontrusteed accounts	-	-	4,494	2,933	2,909	426	426	213	1,728	2,094	18	1,061	-	38,231
2008 Capitalized Interest Fund	-	(1,947)	-	-	-	-	-		-	-	-	-	-	(1,947)
2008B Debt Svc Fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008C1 Debt Svc Fund	-	-	-	-	-	-	-	-	-	-	-	-	-	-
2008D1 Debt Svc Fund	-	-	-	-	-	-	-	-	-	-	612	-	-	612
2008D2 Debt Svc Fund	-	-	-	-	-	-	-	-	-	-	-	1,767	-	1,767
2008 Capital Projects Fund	-	-	-	-	-	-	-	-	-	-	-	-	(432)	(432)
Total interfund transfers	-	(1,947)	4,494	2,933	2,909	426	426	213	1,728	2,094	630	2,828	(432)	38,231
Net activity	3	(1,947)	(13)	(13)	(11)	-	-	1	-	(4)	(592)	(118)	(23,934)	(31,994)
Balance:														
Beginning of year	575	1,947	1,538	22	19	15	15	8	235	16	999	128	57,036	82,202
End of year	$ 578	$ -	$ 1,525	$ 9	$ 8	$ 15	$ 15	$ 9	$ 235	$ 12	$ 407	$ 10	$ 33,102	$ 50,208

(Concluded)

PITTSBURGH WATER AND SEWER AUTHORITY

SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS

YEAR ENDED DECEMBER 31, 2011

Federal Grantor/Pass-Through Grantor/Program Title	Federal CFDA Number	Expenditures
United States Department of Environmental Protection:		
Passed through the Pennsylvania Department of Environmental Protection:		
ARRA - Capitalization Grants for Drinking Water State Revolving Funds	66.468	$ 4,283,028
Total Federal Expenditures		$ 4,283,028

See accompanying notes to schedule of expenditures of federal awards.

PITTSBURGH WATER AND SEWER AUTHORITY

NOTES TO SCHEDULE OF EXPENDITURES OF FEDERAL AWARDS

YEAR ENDED DECEMBER 31, 2011

1. BASIS OF PRESENTATION

The accompanying schedule of expenditures of federal awards of the Pittsburgh Water and Sewer Authority is presented in accordance with the requirements of OMB Circular A-133, *Audits of States, Local Governments, and Non-Profit Organizations*. Therefore, some amounts may differ from amounts presented in, or used in the preparation of the basic financial statements.

2. BASIS OF ACCOUNTING

The information in this schedule is presented using the accrual method of accounting.

3. DETERMINATION OF FEDERAL EXPENDITURES

The amount of federal expenditures for the United States Department of Environmental Protection loan represents the expenditures incurred under the loan during the year ended December 31, 2011.

Pittsburgh Water and Sewer Authority

Independent Auditor's Reports in Accordance with OMB Circular A-133

Year Ended December 31, 2011

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

Board of Directors
Pittsburgh Water and Sewer Authority

We have audited the financial statements of the Pittsburgh Water and Sewer Authority (Authority) as of and for the year ended December 31, 2011, and have issued our report thereon dated April 24, 2012. We conducted our audit in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States.

Internal Control over Financial Reporting

In planning and performing our audit, we considered the Authority's internal control over financial reporting as a basis for designing our auditing procedures for the purpose of expressing our opinion on the financial statements, but not for the purpose of expressing an opinion on the effectiveness of the Authority's internal control over financial reporting. Accordingly, we do not express an opinion on the effectiveness of the Authority's internal control over financial reporting.

A deficiency in internal control exists when the design or operation of a control does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct misstatements on a timely basis. A material weakness is a deficiency, or a combination of deficiencies, in internal control such that there is a reasonable possibility that a material misstatement of the Authority's financial statements will not be prevented, or detected and corrected on a timely basis.

Our consideration of internal control over financial reporting was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control over financial reporting that might be deficiencies, significant deficiencies, or material weaknesses. We did not identify any deficiencies in internal control over financial reporting that we consider to be material weaknesses, as defined above.

Compliance and Other Matters

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

We noted certain matters that we reported to management of the Authority in a separate letter dated April 24, 2012.

* * * * * * * * * *

This report is intended solely for the information and use of the Board of Directors, management, and others within the Authority, and applicable federal and state agencies and pass-through entities and is not intended to be and should not be used by anyone other than these specified parties.

Maher Duessel

Pittsburgh, Pennsylvania
April 24, 2012

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Independent Auditor's Report on Compliance with Requirements that Could Have a Direct and Material Effect on its Major Program and on Internal Control over Compliance in Accordance with OMB Circular A-133

Board of Directors
Pittsburgh Water and Sewer Authority

Compliance

We have audited the Pittsburgh Water and Sewer Authority's (Authority) compliance with the types of compliance requirements described in the U.S. Office of Management and Budget (OMB) Circular A-133 *Compliance Supplement* that could have a direct and material effect on its major federal program for the year ended December 31, 2011. The Authority's major federal program is identified in the summary of auditor's results section of the accompanying schedule of findings and questioned costs. Compliance with the requirements of laws, regulations, contracts, and grants applicable to its major federal program is the responsibility of the Authority's management. Our responsibility is to express an opinion on the Authority's compliance based on our audit.

We conducted our audit of compliance in accordance with auditing standards generally accepted in the United States of America; the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States and OMB Circular A-133, *Audits of States, Local Governments, and Non-Profit Organizations*. Those standards and OMB Circular A-133 require that we plan and perform the audit to obtain reasonable assurance about whether noncompliance with the types of compliance requirements referred to above that could have a direct and material effect on a major federal program occurred. An audit includes examining, on a test basis, evidence about the Authority's compliance with those requirements and performing such other procedures as we considered necessary in the circumstances. We believe that our audit provides a reasonable basis for our opinion. Our audit does not provide a legal determination on the Authority's compliance with those requirements.

In our opinion, the Authority complied, in all material respects, with the compliance requirements referred to above that could have a direct and material effect on its major federal program for the year ended December 31, 2011.

Internal Control over Compliance

Management of the Authority is responsible for establishing and maintaining effective internal control over compliance with the requirements of laws, regulations, contracts, and grants applicable to federal programs. In planning and performing our audit, we considered the Authority's internal control over compliance with requirements that could have a direct and material effect on a major federal program to determine the auditing procedures for the purpose of expressing our opinion on compliance and to test and report on internal control over compliance in accordance with OMB Circular A-133, but not for the purpose of expressing an opinion on the effectiveness of internal control over compliance. Accordingly, we do not express an opinion on the effectiveness of the Authority's internal control over compliance.

A deficiency in internal control over compliance exists when the design or operation of a control over compliance does not allow management or employees, in the normal course of performing their assigned functions, to prevent, or detect and correct, noncompliance with a type of compliance requirement of a

federal program on a timely basis. A material weakness in internal control over compliance is a deficiency, or combination of deficiencies, in internal control over compliance, such that there is a reasonable possibility that material noncompliance with a type of compliance requirement of a federal program will not be prevented, or detected and corrected, on a timely basis.

Our consideration of internal control over compliance was for the limited purpose described in the first paragraph of this section and was not designed to identify all deficiencies in internal control that might be deficiencies, significant deficiencies, or material weaknesses. We did not identify any deficiencies in internal control over compliance that we consider to be material weaknesses, as defined above.

* * * * * * * * * *

This report is intended solely for the information and use of the Board of Directors, management, others within the Authority, federal awarding agencies, and pass-through entities, and is not intended to be and should not be used by anyone other than these specified parties.

Maher Duessel

Pittsburgh, Pennsylvania
April 24, 2012

PITTSBURGH WATER AND SEWER AUTHORITY

SCHEDULE OF FINDINGS AND QUESTIONED COSTS

YEAR ENDED DECEMBER 31, 2011

I. Summary of Audit Results

1. Type of auditor's report issued: Unqualified

2. Internal control over financial reporting:

   Material weakness(es) identified? ☐ yes ☒ no
   Significant deficiencies identified that are not considered to be material weakness(es)?
   ☐ yes ☒ none reported

3. Noncompliance material to financial statements noted? ☐ yes ☒ no

4. Internal control over major programs:

   Material weakness(es) identified? ☐ yes ☒ no
   Significant deficiencies identified that are not considered to be material weakness(es)?
   ☐ yes ☒ none reported

5. Type of auditor's report issued on compliance for major programs: Unqualified

6. Any audit findings disclosed that are required to be reported in accordance with Section 510(a) of Circular A-133? ☐ yes ☒ no

7. Major Programs:

CFDA Number(s)	Name of Federal Program or Cluster
66.468	ARRA - Capitalization Grants for Drinking Water State Revolving Funds

8. Dollar threshold used to distinguish between type A and type B programs: $300,000

9. Auditee qualified as low-risk auditee? ☐ yes ☒ no

II. Findings related to the financial statements which are required to be reported in accordance with GAGAS.

No matters were reported.

III. Findings and questioned costs for federal awards.

No matters were reported.

PITTSBURGH WATER AND SEWER AUTHORITY

SUMMARY SCHEDULE OF PRIOR AUDIT FINDINGS

YEAR ENDED DECEMBER 31, 2011

No Findings in Prior Year

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APPENDIX D

CERTAIN INFORMATION REGARDING THE CITY OF PITTSBURGH

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CITY OF PITTSBURGH, PENNSYLVANIA

The City of Pittsburgh located in western Pennsylvania, is the county seat of Allegheny County. As of the 2010 census, the City had a total population of 305,704 (2,388,076 metropolitan) making Pittsburgh the second-largest city in the state. The City's mailing address is 526 City County Building, 414 Grant Street, with a facsimile number of 412.255.4899. Additional information regarding the City can be found at www.pittsburghpa.gov

The Government of Pittsburgh

The City was incorporated in 1816 and became a home rule community on January 5, 1976. Its powers are set forth in the Charter which became effective January 5, 1976. The Charter was adopted by the electorate pursuant to Article IX, Section 2 of the Constitution of the Commonwealth and the Home Rule Charter and Optional Plans Law, Act of April 13, 1972, P.L. 184, No. 162. Under the Charter, the City has all home rule powers and may perform any function and exercise any power not denied by the Constitution of the Commonwealth, the laws of the Commonwealth or the Charter. The Charter provides, among other things, for the election of the Mayor and the powers and duties of the executive and administrative branch; the election, organization, powers and duties of the legislative branch; the method by which the City's capital and operating budgets are adopted; the rules which govern City personnel; and the financial disclosure requirements for elected officials.

Under the Charter, the executive, administrative and law enforcement powers of the City are vested in the Mayor, who is directed to control and be accountable for the executive branch of the City government. The Charter establishes a "strong mayor" form of government in which the Mayor controls and has wide powers of appointment over the units of the City government and has the power to initiate and veto legislation and to propose the City's operating and capital budgets, to which proposals the City's legislative body, the City Council, must react within a definite time period. The Mayor is elected to a four-year term and may be re-elected for subsequent consecutive terms without limitation.

The Controller of the City is elected to a four-year term in a different municipal election year from the mayoral election, and may be re-elected for subsequent consecutive terms without limitation. As provided in the Charter, the Controller audits all units of City government, countersigns all City contracts, controls all City disbursements and prepares reports on revenues, expenditures, debt and the financial condition of the City. The Controller serves ex-officio as controller of the School District.

The City's financial management functions are carried out by the Department of Finance, headed by the Director of Finance who is appointed by the Mayor, subject to confirmation by City Council. The Department of Finance is responsible for the treasury functions of revenue and tax collection, certain real estate functions, the investment of City funds and debt management, and for preparing and monitoring the operating and capital budgets.

The legislative power of the City is vested by the Charter in the City Council, which consists of nine members, all of whom are elected by district to four-year terms that are staggered so that four members are elected at the same time as the Mayor. Members may be re-elected for subsequent and consecutive terms without limitation. Under the Charter, the members of the City Council elect, by majority vote, one member to serve as President. The President of Council presides at meetings of City Council, appoints all committees, and refers proposed legislation to the proper committee.

CITY OF PITTSBURGH OFFICIALS

LUKE RAVENSTAHL	*Mayor* - Mr. Ravenstahl became the 59th Mayor of Pittsburgh on September 1, 2006 following the death of Mayor Bob O'Connor and was elected to a full term as Mayor on November 3, 2009. Mr. Ravenstahl was elected to City Council on November 4, 2003 and was elected President of City Council in December 2005. Mayor Ravenstahl is a graduate of North Catholic High School and received his B.A. Degree in Business Administration from Washington and Jefferson College in December 2002.
MICHAEL LAMB	*City Controller* - Mr. Lamb was elected Controller of the City of Pittsburgh in November of 2007, and took office on January 7, 2008. Mr. Lamb was re-elected City Controller in January 2012. Prior to being elected City Controller, Michael was the Prothonotary of Allegheny County, the chief record keeper of the Court of Common Pleas. Prior to working in the Prothonotary's office, Michael Lamb served as a research and legislative assistant to Pittsburgh City Council and was the Assistant Regional Director of the Pennsylvania Higher Education Assistance Agency.
SCOTT KUNKA	*Director of Finance* - Mr. Kunka was appointed Director of the Office of Management and Budget in March 2006 and as Director of Finance in November 2006. He is responsible for overseeing the operating and capital budgets. Previously, Mr. Kunka held positions in the Controller's Office, Office of Management and Budget and Department of General Services, and as the Budget Director for City Council.
DANIEL REGAN, ESQ.	*City Solicitor* - Mr. Regan serves as counsel for the City of Pittsburgh. He is responsible for rendering legal opinions and advice to the Mayor, City officials, City Council and the administrative units of City government. The City Solicitor also functions as Solicitor for the Comprehensive Municipal Trust Fund Board. Mr. Regan was appointed to his position in December 18, 2009. He was a partner in the Pittsburgh law firm Caputo & Caputo, P.C. prior to such appointment.

MEMBERS OF CITY COUNCIL

DARLENE M. HARRIS	*President of City Council* - Ms. Harris was elected in a special election in November 2006 to represent District 1 following the appointment of Mr. Ravenstahl as Mayor in 2006. She was re-elected President of City Council in January 2012. Councilwoman Harris serves as the Chairperson for the Committee on Hearings (held by the President of Council).
THERESA KAIL-SMITH	*Member of City Council* - Mrs. Kail-Smith was elected to represent District 2 in a special election and took office on February 19, 2009. Councilwoman Kail-Smith is currently the President pro tempore for City Council, and serves as the Chairperson for the Committee on Public Safety Services.
BRUCE KRAUS	*Member of City Council* - Mr. Kraus was elected to represent District 3 and took office on January 7, 2008. He was re-elected in January 2012. Councilman Kraus serves as the Chairman for the Committee on Public Works.
NATALIA RUDIAK	*Member of City Council* - Ms. Rudiak was elected to represent District 4 and took office on January 5, 2010. Councilwoman Rudiak serves as the Chairperson for the Committee on Performance and Asset Management.
COREY O'CONNNOR	*Member of City Council* - Mr. O'Connor was elected to represent City Council District 5 and took office on January 3, 2012. Mr. O'Connor serves as the Chairman for the Committee on Urban Recreation.
R. DANIEL LAVELLE	*Member of City Council* - Mr. Lavelle was elected to represent District 6 and took office on January 5, 2010. Councilman Lavelle serves as the Chairman for the Committee for Land Use and Economic Development.
PATRICK DOWD	*Member of City Council* - Dr. Dowd was elected to represent District 7 and took office on January 7, 2008. He was re-elected in January 2012. Councilman Dowd currently serves as the Chairman for the Committee on Intergovernmental Affairs.
WILLIAM PEDUTO	*Member of City Council* - Mr. Peduto was elected to represent District 8 and took office in 2001. Councilman Peduto serves as the Chairman for the Committee on Human Resources.
RICKY V. BURGESS	*Member of City Council* - Mr. Burgess was elected to represent District 9 and took office on January 7, 2008. He was re-elected in January 2012. He currently serves as the Chairman for the Committee on Finance and Law.

City Departments and Services

The Charter provides that all units of the City government, except those mandated by the Charter as described below, may be established, revised, or abolished by ordinance, which may be introduced by the Mayor or City Council. Under the Charter, the Mayor appoints the heads of all major administrative units, subject to the approval of City Council. The Charter also provides that the Mayor shall, subject to the approval of City Council, appoint the City Solicitor, the members of all boards and commissions and, except as otherwise required by law, all board members of authorities. Under the Charter, a member of City Council must serve on each authority board, but no member may serve concurrently on more than one board.

The Charter mandates the establishment of a 15-member Human Relations Commission, which is directed to investigate, report, hold hearings and otherwise enforce the rights of citizens in connection with unlawful discrimination.

The City Solicitor acts as counsel for the City and its officials, although the City Controller, City Council and the Human Relations Commission are empowered to retain their own counsel.

The Department of Personnel and the Civil Service Commission administer all the City's personnel policies, civil service requirements and the City's Workforce Investment Act (formerly JTPA) Program. The Department of Personnel and the Civil Service Commission are also responsible for City payroll, benefits and workers' compensation matters.

The Department of City Planning makes recommendations to the Mayor and City Council regarding the allocation of resources for the orderly development and redevelopment of the City. It also assists the Department of Finance in formulating the City's Capital Improvement Program, undertakes planning studies and administers zoning requirements.

The Department of Public Safety, created in 1985, carries out the traditional police, fire and emergency medical service functions, as well as the enforcement of building codes.

The Department of Public Works exercises responsibility for the maintenance of all the City's streets, sewers, parks, bridges and steps, for the construction of minor public works capital improvements, and operates sanitation services and is responsible for engineering and the design of projects in the City's Capital Improvement Program.

The Department of Parks and Recreation provides recreational opportunities to City residents.

Financial Management

Council is required to adopt a final operating and capital budget for the next year by the last day of the fiscal year, which is December 31. The annual budget is the basis of the City's financial planning and control. The operating budget is prepared on a departmental basis. The department heads may spend within a budget classification (e.g., salaries, supplies, rentals, miscellaneous) as they see fit. Any transfers between classifications or departments have to be approved by Council.

The Mayor's Office also prepares a five year plan annually. Most of strategic and development planning is done by the Urban Redevelopment Authority.

Internal Control. Management of the City is responsible for establishing and maintaining an internal control structure designed to ensure that the assets of the City are protected from loss, theft, or misuse and to ensure that adequate accounting information is compiled to prepare financial statements in accordance with accounting principles generally accepted in the United States of America. The internal control structure is designed to provide reasonable, but not absolute, assurance that these objectives are met. The concept of reasonable assurance recognizes that: (1) the cost of a control should not exceed the benefits likely to be derived and (2) the evaluation of costs and benefits requires estimates and judgements by management.

Budget Control. Budget control is maintained at the line item level on a departmental basis. Activities of the General Fund, the Special Revenue Fund (Community Development Fund only), and the Capital Projects Fund are controlled by an annual legally appropriated budget. Capital Projects and Community Development Funds are also controlled on a multi-year basis.

Revenues of the City

General

During 2011, Real Estate Taxes accounted for approximately 27% of the receipts of the General Fund, followed by Earned Income Tax with 15%, Payroll Preparation Tax at 10.5% and Parking Tax at 9.9%. RAD Sales Tax is 2.6% and Deed Transfer Tax comprises 3.8%. The remaining receipts were from miscellaneous non-tax revenue. Under the City's new tax structure, it is expected that Real Estate Taxes will continue to be the City's most significant source of revenue. See "Revenues of the City" – "Non-Real Estate Taxes" below. As noted below, the Business Privilege Tax was eliminated in 2010. Payroll Preparation Tax revenues are expected to offset the loss of Business Privilege Tax revenues in the coming years.

Real Estate Taxes

The City has the power to levy and collect ad valorem taxes, without limitation as to rate or amount, on all taxable real estate located within the City. The City shares the real estate tax base with the County of Allegheny and the School District of Pittsburgh, separate taxing bodies. Information regarding real estate, tax rates and major taxpayers is provided in the following tables.

CITY OF PITTSBURGH
REAL ESTATE TAX RATES
CITY OF PITTSBURGH AND OVERLAPPING JURISDICTIONS (mills)

Year	Land	Building	Total City [1]	School District	County [2]	Total
2006	10.8	10.8	10.8	13.92	4.69	29.41
2007	10.8	10.8	10.8	13.92	4.69	29.41
2008	10.8	10.8	10.8	13.92	4.69	29.41
2009	10.8	10.8	10.8	13.92	4.69	29.41
2010	10.8	10.8	10.8	13.92	4.69	29.41
2011	10.8	10.8	10.8	13.92	4.69	29.41

(1) Determined by multiplying the respective assessed valuation by the millage rate and dividing by the total assessed valuation.
(2) Includes levy by Allegheny County Institution District (the "Institution District").
(3) Four changes took place that affected the 2001 real estate tax rates: (i) the County conducted a property revaluation program that resulted in an approximate 57% increase in taxable property values for the City; (ii) the County changed the ratio of assessed value to market value from 25% to 100%; (iii) the City changed from a bifurcated (land and building) tax rate to a single, unified tax rate for both land and buildings; and (iv) the School District raised its effective millage rate by approximately 27%.

CITY OF PITTSBURGH
ASSESSED VALUE AND LEVY (1,000s)

Fiscal Year	Assessed Valuation Real Estate	Original Net Levy	Adjusted Net Levy	Budgeted Net Levy
2006	13,371,108	143,649	129,451	121,000
2007	13,325,234	144,972	128,926	121,257
2008	13,254,877	142,526	129,768	122,300
2009	13,348,821	145,967	128,830	123,673
2010	13,441,004	145,163	134,998	127,118
2011	13,486,434	145,653	139,547	128,790

CITY OF PITTSBURGH
REAL ESTATE TAX COLLECTIONS AND BUDGET

Fiscal Year	Receipts Net of Refunds	Original Net Levy	Adjusted Net Levy	Budget
2006	127,114	88.489%	98.195%	105.053%
2007	127,505	87.951%	98.898%	105.153%
2008	127,273	89.298%	98.077%	104.066%
2009	125,104	85.707%	97.108%	101.157%
2010	124,250	85.593%	92.038%	97.744%
2011	129,924	89.201%	93.104%	100.880%

CITY OF PITTSBURGH
TEN LARGEST REAL ESTATE TAXPAYERS
DECEMBER 31, 2011

TAXPAYER	TAXABLE ASSESSED VALUE
500 Grant Street Associates / Mellon Bank	349,940,300
Holdings Acquisition Co LP	276,789,000
PNC	203,091,800
Buncher Company	192,073,974
Martket Associates Limited	185,000,000
600 GS Prop LP	175,000,000
Oxford Development	115,000,000
Grant Liberty Development Group	110,000,000
North Shore Developers	64,297,550
Liberty Avenue Holdings	62,100,000
Total	1,733,292,624
Total Taxable Assessed Valuation	13,486,434,282

Real Estate Assessments

The City has the power to levy and collect ad valorem taxes on all taxable real estate within its boundaries without limitation as to rate or amount. The City does not have a statutory limit on real estate taxes, except for certain limits imposed in a year of reassessment.

In recent years, changes have occurred to the system by which real estate taxes are assessed by the County. These changes have affected revenues from taxable real property in the City.

In 2001, the County changed the ratio of assessed value to market value to 100% from 25%. As a result of the County's related assessment, land values in the City significantly increased. To lessen the burden on residential property owners while maintaining an adequate tax base, the City determined to change from a bifurcated system of taxation (where land was taxed at a higher rate than buildings) to a unified system. Thus in February of 2001, the City of Pittsburgh amended its City Code to provide for a unified tax rate of 10.8 mills, while also enacting a Homestead Exemption (which allowed qualifying homeowners to exempt the first $10,000 of property value from taxation) to lessen the burden the unified system would have on neighborhoods where the land values did not significantly increase.

Currently, the County is using 2002 as a "base year" for assessments (i.e. generally setting a property's assessment value at its worth in 2002, with exceptions for situations such as improvements having been made to the property). The Pennsylvania Supreme Court ruled on April 29, 2009 that the base year method for property valuation as applied by Allegheny County violates the uniformity clause of the State Constitution and as such is unconstitutional. A reassessment was ordered and is to be overseen by Judge R. Stanton Wettick. The County and Judge Wettick originally agreed to a reassessment schedule to be complete by January 1, 2012. However, on Thursday, January 12, 2012, Judge Wettick ruled that assessed values on all Allegheny County properties will not change until 2013. The reassessment is anticipated to be revenue neutral, except with respect to new construction or

improvements to existing buildings. In addition, there have been, and will continue to be, appeals to assessed values. The City makes tax abatements available for commercial and industrial properties for certain assessment increases attributable to rehabilitation and for new construction in varying degrees. The abatements have not had a substantial impact on the City's revenues.

The City's Urban Redevelopment Authority has been active in promoting tax increment financings to finance certain types of development within the City. The Tax Increment Financing Act of the Commonwealth precludes a municipality from allowing the aggregate value of taxable property of all tax increment financing districts to exceed ten percent of the total value of "equalized taxable property within the municipality." Typically the tax increment financings undertaken by the URA only provide for 60 to 75% of the tax increment attributable to such projects (representing the increase in real estate taxes above the base year when the tax increment financing district was established) to be diverted to the projects or related infrastructure.

On January 1, 2010, the City entered into an agreement with Jordan Tax Service to outsource properties with delinquent taxes of one year or more for aggressive collection services. The City coordinates with Jordan to lien eligible properties that are subject to Treasurer's sales.

Jordan Tax Service was selected by the Allegheny County Central Tax Collection Committee to collect the Earned Income Tax for the Allegheny County Central Tax Collection District (ACCTCD). The ACCTCD includes the City of Pittsburgh, School District of Pittsburgh and Mount Oliver Borough. These changes are the result of PA Act 32 of 2008, which took effect in 2012. The City of Pittsburgh still collects current and prior tax for the Payroll Expense Tax, Local Services, Amusement Tax, Parking Tax, Institution Privilege Tax, Facility Usage Fee and all prior Business Privilege, Mercantile Tax, and Mercantile License.

Non-Real Estate Taxes

In addition to ad valorem taxes on real estate, the City is empowered by the Local Tax Enabling Act and the Home Rule Charter and Optional Plans Law to levy taxes for general revenue purposes, on persons, transactions, occupations, privilege, and upon the transfer of real property or interest therein. All non-real estate taxes, except the Deed Transfer Tax, which is payable at the time of transfer, are payable annually, by April 15, quarterly or monthly depending on the tax.

In 2004, in connection with the Recovery Plan, legislation was passed eliminating the occupational privilege tax payable by residents and nonresident employees at $10 per year and replaced it with the Emergency and Municipal Services Tax, now named the Local Services Tax, payable by residents and nonresident employees at $1 per week, exempting those earning less than $12,000 per year and authorized the City to levy a gross payroll tax at the rate of 0.55% on all non-charitable businesses. The legislation also required the City to eliminate the 2 mill mercantile tax and to eliminate the City's business privilege tax, which occurred in 2010.

The City currently levies the following non-real estate taxes:

Earned Income Tax

The Earned Income Tax or "Wage-Tax" is levied at the rate of 1.00% on the wages or net profits earned by residents of the City. The majority of the tax payments are deducted from payrolls and remitted by employers to the City. As an Act 187

mandated subsidy, the School District of Pittsburgh remits an additional 0.25% on the wages or net profits earned by residents of the City.

Parking Tax A tax equal to 37.5% of the consideration paid for each parking transaction is levied on the patrons of non-residential parking places in the City.

Amusement Tax This tax is levied at the rate of 5% on the admission price paid by patrons of all manner and forms of amusement. Nonprofit charitable performing arts groups were granted exempt status in 2008.

Deed Transfer Tax The Deed Transfer Tax is levied on real property sales within the City at the rate of 4% of the gross sales price, with 2% going to the City, 1% to the Commonwealth and 1% to the School District of the City.

Local Services Tax This $52 tax is levied upon each individual whose principal place of employment is located in the City, regardless of residence. Legislative action requires collection at $1 per week, remitted according to a calendar quarter, with an exemption for wage earners making less than $12,000 per year, persons on active military duty and employees who are honorably discharged veterans with 100% service-connected disabilities.

Facility Usage Fee The Facility Usage Fee is levied on all non-resident individuals who use the City's sport stadiums or arena to engage in an athletic event or otherwise render a performance for which they receive remuneration. The fee is assessed at 3% of payroll amounts generated as a result of the business activity.

Institution Service Privilege This 6 mill tax is levied on certain receipts of non-profit, non-charitable organizations providing a service within the City.

Payroll Preparation Tax This tax is imposed on all for-profit companies in an amount equal to .55% of the total wages of all employees who perform work in the City.

RAD Tax Revenues

The Allegheny Regional Asset District (the "RAD"), a special purpose area wide unit of local government created in 1993 to provide supplemental sources of revenue for local governments in the southwestern region of Pennsylvania, imposes a 1% regional sales tax (the "RAD Tax") on sales of products and services in the County that are subject to the Pennsylvania State Sales Tax. The proceeds of the RAD Tax are distributed as follows: one-half to the RAD, one-fourth to the County and one-fourth to all other eligible municipalities, including the City.

Other Contingencies: ALCOSAN

In addition to potential contingencies from lawsuits, real estate tax appeals and possible disallowance of federal and state program costs, the Pittsburgh Water and Sewer Authority and the City entered into a Consent Order and Agreement on January 29, 2004 regarding wet weather sewer overflows in the City with the United States Environmental Protection Agency, the Pennsylvania Department of Environmental Protection and the Allegheny County Health Department. Work is ongoing with respect to such order to develop and implement a solution to wet weather sewer overflows in the City. Given the scope of the Order, the size of the City's sewer system, and the various conditions and/or deficiencies that may be discovered by the assessment, it is difficult to predict the total cost of compliance with the Order.

CITY OF PITTSBURGH
DEMOGRAPHIC INFORMATION

Fiscal Year	Estimate Population	Per Capita Income	Personal Income	Median Age	School Enrollment	Unemployment Rate
2002	334,563	34,260	74,361	35.5	35,146	5.40%
2003	334,563	32,381	76,354	36	34,619	4.90%
2004	334,563	33,015	77,738	35.5	34,167	5.40%
2005	334,563	34,897	79,478	40.9	32,529	5.20%
2006	334,563	36,680	83,116	38.4	31,148	4.20%
2007	334,563	36,894	85,876	39	29,445	4.20%
2008	334,563	38,550	91,101	41.9	28,265	6.00%
2009	334,563	42,819	100,675	35.5	26,123	8.80%
2010	305,704	44,191	102,135	35.5	25,326	6.50%
2011	305,704	43,784	106,800	35.6	24,997	6..60%

CITY OF PITTSBURGH
LARGEST EMPLOYERS

Rank	Employer	Employees
1	UPMC	38,700
2	US Government	18,750
3	Commonwealth of Pennsylvania	13,610
4	University of Pittsburgh	12,215
5	West Penn Allegheny Health System	11,084
6	Giant Eagle	9,981
7	Wal-Mart Stores	7,550
8	PNC Financial Services Group	7,.032
9	Westinghouse Electric	6,000
10	Mellon Financial Corp.	5,266
Total		130,011

APPENDIX E

CONSULTING ENGINEER'S REPORT AS OF MAY 10, 2012

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May 2012

Consulting Engineer's Annual Report

The Pittsburgh Water and Sewer Authority

Allegheny County, Pennsylvania

Penn Liberty Plaza 1, 1250 Penn Avenue, Pittsburgh, PA 15222
412.232.4410 – www.chesterengineers.com - Fax-412.232-4420

May 10, 2012

Chester Ref. No. 10-3548-CE-01

Mr. Dan Deasy, Chairman
The Pittsburgh Water and Sewer Authority
Penn Liberty Plaza I, 1200 Penn Avenue
Pittsburgh, PA 15222

Re: Consulting Engineer's Annual Report

Dear Mr. Deasy:

In accordance with Section 7.11 of the Trust Indenture dated October 15, 1993, as amended by the First Supplemental Indenture dated July 15, 1995, the Second Supplemental Indenture dated March 1, 1998, the Third Supplemental Indenture dated March 1, 2002, the Fourth Supplemental Indenture dated September 15, 2003, the Fifth Supplemental Indenture dated June 1, 2005, the Sixth on March 1, 2007, and the Seventh on June 1, 2008, Chester Engineers is pleased to present the Consulting Engineer's Annual Report for Fiscal Year 2011 to The Pittsburgh Water and Sewer Authority.

As required in the provisions of the Trust Indenture, the attached report addresses the following:

a. Advice and recommendations as to the proper maintenance, repair and operation of the Water and Sewer Systems during the next Fiscal Year and estimates of the amounts of money that should be expended for such purposes (Section II).
b. Advice and recommendations as the capital additions that should be made during the next fiscal year and estimates of the amounts of money that should be expended for such purposes (Section III).
c. Advice and recommendations as to the amount, if any, to be maintained in the Renewal and Replacement Fund for extraordinary maintenance and repair of the Water and Sewer Systems, and the amount, if any, to be deposited therein during the next Fiscal Year (Section IV).
d. Findings as to whether the properties of the Water and Sewer Systems have been maintained in good repair and sound operating condition, and estimates of the amount, if any, required to place such properties in such condition and the details of such expenditures and the approximate time required (Section V).
e. Estimated Receipts and Revenues and Current Expenses for the next Fiscal Year and recommendations as to any necessary revision of water and sewer rates, rents, or other charges (Section VI).

We trust that you will find the contents of this Consulting Engineer's Report satisfactory. Should you have any questions in regard to its contents, please do not hesitate contact me at (412) 232-4415 or via e-mail at cjordan@chesterengineers.com.

Respectfully submitted,
Chester Engineers

Charles J. Jordan, P.E.
Senior Project Manager

CJJ/lb
Enclosure

cc: Central File/Pgh File

The Pittsburgh Water and Sewer Authority
Allegheny County, Pennsylvania

Consulting Engineer's Annual Report

May 2012

Prepared by: Charles J. Jordan, P.E.

Approved by: John R. Balewski, P.E.

Project No.: 10-3548-CE-01

CHESTER ENGINEERS

1555 Coraopolis Heights Road - Moon Township, PA 15108
412-809-6600 - Fax 412-809-6611

THE PITTSBURGH WATER AND SEWER AUTHORITY
CONSULTING ENGINEER'S ANNUAL REPORT
TABLE OF CONTENTS

Page No.

Executive Summary vi
History and Background 1
General 1
Initial Authority Operation 1
First Bond Issue 1
1993 Bond Issue and Refinancing 2
1995 Bond Issue 2
1998 Bond Issue and Refinancing 3
2002 Bond Issue 3
2003 Bond Refinancing 3
2005 Bond Issue 3
2007 Bond Advance Refunding 3
2008 Bond Advance Refunding 4
PENNVEST Funding 5
Summary of Funding Sources 5
Water System 6
Sewer System 7
Repair, And Operation 8
Water System 8
Sewer System 9
Regulatory Agency Orders and Problem Areas 10
Future Needs 11
Capital Additions 14
General 14
Contract Awards and Authorizations for Bidding 17
2011 Requisitions 19
Pennvest Financing 19
Renewal and Replacement Fund 20
Findings on Current Conditions 21

CONSULTING ENGINEER'S ANNUAL REPORT
TABLE OF CONTENTS (CONT.)

Page No.

Estimate On Revenues And Current Expenses 22
General 22
Estimated Receipts and Revenues 22
Current Expenses 24
Rate Covenant Calculations 24

Exhibit A
Capital Improvement Program Budget 2008 Bond Issue as of December 31, 2011

Exhibit B
Pennvest Program Budget as of December 31, 2011

Exhibit C
Capital Improvement Program Status Report 2008 Construction Fund Status Report as of December 31, 2011

Exhibit D
Pennvest Program Status Report as of December 31, 2011

Exhibit E
Facilities Inspection Reports

LIST OF TABLES

Page No.

Table 1
Capital Improvement Program Bond Fund Status Report – 2010 vs. 2011..... vii

Table 2
Debt Service Coverage Factor viii

Table 3
Sources of Capital Improvement Funds.....5

Table 4
Capital Improvements Program Bond Fund Budget.....15

Table 5
Capital Improvement Program 2008 Fund Status Report - 2010 vs. 2011.....17

Table 6
2011 Contract Awards 17

Table 7
2011 Requisition Drawdown by Month.....19

Table 8
PENNVEST Loans Annual Debt Payment (Principal and Interest).....20

Table 9
Total Funds Available.....23

Table 10
Expenses 25

Table 11
Debt Service Coverage Factor 26

Table 12
Total Income vs. Total Operating Costs 27

LIST OF FIGURES

Page No.

Figure 1
Bond Fund Drawdown by Month 16

Figure 2
Income as a Percentage of Total Operating Costs 28

PITTSBURGH WATER AND SEWER AUTHORITY
CONSULTING ENGINEER'S ANNUAL REPORT

EXECUTIVE SUMMARY

This annual report, prepared for The Pittsburgh Water and Sewer Authority (Authority), presents a review of the Water and Sewer Systems' operations and the status of the Capital Improvements Program (CIP) for Fiscal Year 2011.

A summary of the conclusions and recommendations as contained herein are as follows:

1. The existing Water and Sewer Systems have been properly maintained and are in adequate operating condition. However, the systems are in need of certain improvements and/or replacements, which are being carried out under the Authority's CIP and DISC (Distribution Infrastructure Service Charge) Program. The Operating Budget for 2012, as adopted by the Authority Board of Directors at a regular meeting on December 16, 2011 and reviewed herein, is sufficient for maintaining proper operations in 2012.
2. Work has continued during the past year on the CIP implemented in 1984. Current capital project fund resources were made available in June of 2008 through the issuance of bonds (2008 Construction Fund). Details as to the use of these funds are included in Exhibits "A", "B", "C", and "D". In 2009, the Authority secured additional CIP funds from the Pennsylvania Infrastructure Investment Authority (PENNVEST). During 2011, work continued on all five projects funded in 2009 from PENNVEST.
3. During 2012, work should continue on the projects identified in the CIP and DISC Program. In addition to current ongoing projects, other projects will have to be undertaken for the replacement of old and worn facilities, emergencies, and new facilities, which may include projects being undertaken by the City of Pittsburgh, the Urban Redevelopment Authority (URA) , the Sports and Exhibition Authority (S&EA) and the Pennsylvania Department of Transportation.
4. During 2002, the Authority established a Capital Improvements Committee to oversee the capital projects of the Authority. This includes reviewing amendments to the Capital Improvement Program, reviewing change orders and work directives and evaluating projects presented to the Authority by the City of Pittsburgh, URA and S&EA. In the first half of 2012, the Authority will complete preparation of a 40-year capital plan for the entire organization. This plan will identify the long term needs of the Authority through the creation of eight five-year capital plans.

5. A comparison regarding the status of the CIP, as of December 2010 and December 2011, is indicated in Table 1.

Table 1
Capital Improvement Program
Bond Fund Status Report - 2010 vs. 2011

	December 2010	**December 2011**
Completed Contracts	$525,910,860.21	$532,647,938.43
Active Contracts	123,016,730.63	119,579,207.76
TOTAL	648,927,590.84	652,227,146.19
TOTAL BUDGET	$652,243,986.14	$652,253,791.81
Percent of Budget	99.5%	100.0%
Funds Paid from Construction Fund	$567,551,953.06	$602,954,415.44
Percent of Budget	87.0%	92.4%

6. Current deposits in the Authority's 2008 Construction Fund are $33,181,053.89. It is estimated that these funds will carry the Capital Improvements Program through the first quarter of 2013 based on the current Capital Expenditure Plan.

7. Current deposits in the Authority's 2008 Construction Fund are well in excess of $7,000,000. As a result, there is no need for the Authority to deposit any funds into the Renewal and Replacement Fund during the next fiscal year. The 2012 Operating Budget, adopted in December 2012, included a 7% Distribution Infrastructure System Charge (DISC). The DISC, which began at 5% in 2010, is implemented to reinvest in the system to replace and repair aging infrastructure and enhance customer service through improved water supply and water quality. DISC is a mechanism to recover the revenue requirement associated with increased annual capital expenditures. The DISC mechanism is a system charge added to customer bills to fund specific distribution, sewer conveyance, water supply and filtration projects, in addition to funds provided through the Capital Improvement Program funded by bond proceeds.

8. Projected 2011 end-of-year Revenues and Operating Expenses, as presented in this report, indicate that the Authority will satisfy the 2011 Rate Covenant Test as provided for in the Trust Indenture.

9. It is the Consulting Engineer's opinion, based upon estimated 2012 Revenues, Operating Expenses, and Operating Cash Reserves, that the existing schedule of rates will provide sufficient funds in 2012 to cover operating expenses and to satisfy the Rate Covenant Test as provided for in the Trust Indenture.

A summary of the Rate Covenant Test is indicated in Table 2.

Table 2
Debt Service Coverage Factor

	Projected 2011	Budget 2012
Cash – Beginning of Year	$36,128,592	$36,129,009
Water Collections	89,293,741	91,075,000
DISC	5,960,357	6,708,713
Interest Earnings	2,351,000	474,000
Fund Transfer	1,783,239	1,500,000
PENNVEST Projects	16,264,680	3,000,000
Tap Fee Collections	400,000	550,000
Sewage Collections	45,295,764	51,315,000
Other Collections	2,020,625	2,329,000
Operating Debt Service Reserve	0.00	4,563,750
Total Available Funds	$199,497,998	197,644,472
Operating Expenses	94,889,458	99,062,879
Capital Projects	18,373,056	9,708,713
Net Available for Debt Service	86,235,484	88,872,880
Debt Service Requirements	50,823,508	52,743,453
Coverage Factor	1.70	1.69

PITTSBURGH WATER AND SEWER AUTHORITY
CONSULTING ENGINEER'S ANNUAL REPORT

HISTORY AND BACKGROUND

General

In February 1984, the City of Pittsburgh established The Pittsburgh Water and Sewer Authority (Authority) under the provisions of the Commonwealth of Pennsylvania. The City charged the Authority with the responsibility of carrying out a major Capital Improvements Program (CIP), recommended in a comprehensive study report entitled "Evaluation of the Water and Sewer Systems of the City of Pittsburgh," dated December 9, 1983.

Initial Authority Operation

The Authority took over operations of the Water and Sewer Systems on May 1, 1984 pursuant to the terms of a Lease and Management Agreement between the City of Pittsburgh and the Authority. The Authority was authorized to operate and maintain the Water and Sewer Systems, construct all necessary improvements, establish and collect rates and charges for its service, and finance its operations and improvements through revenue collections and sale of bonds and notes payable solely from the Authority's revenues. The Authority appointed and designated the City as the Authority's agent to manage, operate, and maintain the Water and Sewer Systems for the term of the lease, subject to the general supervision, direction, and control of the Authority.

In 1995, the Authority and the City terminated the Lease and Management Agreement and established a Capital Lease Agreement and a Cooperation Agreement. Under the terms of the Capital Lease Agreement, the Authority will own the Water and Sewer System on September 1, 2025 upon payment of $1.00.

First Bond Issue

On April 19, 1984 the Authority Board adopted a major CIP by Resolution No. 19 of 1984. The Program was designed to maintain a satisfactory level of service to the Water and Sewer Systems' current users, to improve operating efficiency of the Water and Sewer Systems, and to address future user requirements. In July 1984, the Authority issued $93,600,000 Daily Adjustable Demand Water and Sewer System Revenue Bonds, Series of 1984, in order to implement the initial phase of this program. From proceeds of this bond issue, $78,777,000 was deposited into the Construction Fund for the initial phase of the CIP. In June 1986, the Authority issued an additional $134,700,000 Revenue Bonds, Series of 1986. From the 1986 Bond Issue, $115,000,000 was available to continue the program. An additional $7,000,000 was made available for capital improvements by Resolution No. 72 of 1993, adopted on August 18, 1993. These

additional funds were provided through a transfer from the Debt Service Reserve Fund in accordance with Section 6.04 of the Trust Indenture, which provided for the required funds for Debt Service Reserve Fund to be in the form of cash, a letter of credit or other credit instrument, a surety bond or a combination thereof. The Authority Board elected to replace the monies in the fund with a surety bond. As a result, $7,000,000 was transferred to the Construction Fund for capital improvements, and the balance of monies were transferred to the Debt Service Fund.

1993 Bond Issue and Refinancing

In 1993, the Authority issued two series of Water and Sewer System Revenue Bonds to: (i) advance refund of all of the outstanding previously issued bonds, (ii) provide additional funds for capital improvements to the Authority's Water and Sewer Systems, and (iii) pay all fees and expenses incurred in connection with issuance of the 1993 Bonds. Series A of the 1993 Bonds, in the aggregate principal amount of $278,970,000, was for the advanced refunding of outstanding bonds and Series B of 1993 Bonds, in the aggregate principal amount of $10,785,000, was for additional capital improvements.

The new Trust Indenture, dated October 15, 1993 and applicable to the Series A and B of 1993 Bond Issues, eliminated the requirements for a fund balance to be maintained in the "Renewal and Replacement Fund" unless determined necessary, annually, by the Consulting Engineer. Therefore, the $2,009,523, which was being maintained in the Fund under the previous Trust Indenture was transferred to the "Prior Bonds Construction Fund" for use for capital improvements. From the Series B of the 1993 Bond Issue, $9,990,477 was deposited into the 1993 Bond Construction Fund for additional capital improvements.

1995 Bond Issue

In 1995, the Authority recognized that the funding for the CIP implemented, in 1984, was almost depleted. In order to ensure a continued supply of safe drinking water and proper sewer service to the Authority's current and future users and to address future demands on the Water and Sewer Systems, a new CIP was developed and adopted.

The Authority also negotiated a Capital Lease Agreement with the City of Pittsburgh, which terminated the Lease and Management Agreement and provided for the Authority to acquire the Water and Sewer Systems from the City.

The Authority issued additional bonds in 1995 to fund the 1995 CIP and to pay certain obligations of the Authority to the City of Pittsburgh under the Capital Lease Agreement. Water and Sewer System First Lien Revenue Bonds, Series A of 1995, in the aggregate principal amount of $89,850,000, were issued on July 15, 1995 to pay for capital improvements as identified in a new CIP. On July 15, 1995, the Authority issued Water and Sewer System Subordinate Revenue Bonds, Series B of 1995, in the aggregate principal amount of $103,020,000, in order to pay the obligation of the Authority to the

City of Pittsburgh under the Capital Lease Agreement. From the 1995 Series A Bonds, $80,000,000 was deposited into the Series A 1995 Capital Project Fund to fund the new CIP of the Authority.

1998 Bond Issue and Refinancing

Early in 1998, additions to the CIP were proposed that addressed future needs of the Authority. These centered on covering Highland Reservoir No. 1, City of Pittsburgh and Urban Redevelopment Authority projects, and improvements to the water distribution and sewerage systems.

The Authority issued 1998 Series A, B, and C Water and Sewer Revenue Bonds on March 2, 1998. The 1998 Series A Bonds were used to provide for the refunding of the Authority's outstanding 1995 Series A Bonds. The 1998 Series B Bonds were used to fund additions to the CIP, and the 1998 Series C Bonds were used to refund the Authority's outstanding 1995 Series B Bonds. The Series B Bonds enabled $36,001,908 to be deposited in the 1998 Capital Projects Fund, funding the CIP into the year 2000.

2002 Bond Issue

At the end of 2000, the capital project funds of the Authority were largely spent with only about $345,000 in reserve for the construction of capital projects. The Authority had anticipated this drawdown of funds and had begun work to issue additional bonds in early 2002. The Capital Projects Fund, through this issue, provided $90,494,400 for the construction of capital projects and to meet the needs of emergencies that may require the use of capital funds.

2003 Bond Refinancing

During the fourth quarter of 2003, the Authority issued revenue refunding bonds in the amount of $167,400,000 for the purpose of partially refunding the 1993 Bond Issue. The 2003 Refunding Bonds, with an average yield of 3.8%, generated a reduction in annual debt service payment of approximately $4,000,000 for 2004.

2005 Bond Issue

In June of 2005, the Authority issued first lien revenue bonds in the amount of $50,385,000 to provide for continuation of the capital improvements program and to meet the needs of emergencies that may require the use of capital funds. The 2005 Revenue Bonds, with an average yield of 4.23%, created an increase in annual debt service payments of approximately $3.2 million for the first 12 years. The Capital Projects Fund, through this issue, provided $49,799,037 for capital projects.

2007 Bond Advance Refunding

Pursuant to Resolution No. 23 of 2007, adopted on February 9, 2007, the Authority issued Water and Sewer System First Lien Revenue Refinancing Bonds Series A of 2007

$43,720,000 (Fixed Rate) W, Series B-1 of 2007 $57,585,000 (Variable Rate Demand), and Series B-1 of 2007 $57,590,000 (Variable Rate Demand). The 2007 Bond Issue refunded the 2002 Bonds and the 2005 Bonds. The 2007 Bond Advance Refunding also resulted in a deposit of $6,319,014 into the 2007 Depository Agreement Fund. These funds were available for capital projects and were exhausted in December 2009. The final amount deposited was $7,503,881.

2008 Bond Advance Refunding

In June of 2008, and pursuant to Resolution No. 54 of 2008, adopted on April 11, 2008, the Authority issued (Variable Rate Demand) Water and Sewer System First Lien Revenue Bonds, Series of 2008 consisting of:

- $145,495,000 (Variable Rate Demand) Water and Sewer First Lien Revenue Refunding Bonds, Series B of 2008
- $71,225,000 (Variable Rate Demand) Water and Sewer Subordinate Revenue Refunding Bonds, Series D-2 of 2008, $51,910,000

On the same date and resolution, the Authority issued (Variable Rate Demand) Water and Sewer System Subordinate Revenue Refunding Bonds, Series of 2008 consisting of:

- $51,910,000 (Variable Rate Demand) Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1 of 2008
- $51,885,000 (Variable Rate Demand) Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-2 of 2008

On the same date and resolution, the Authority issued (Fixed Rate) Water and Sewer System First Lien revenue Refunding Bonds consisting of:

- $68,970,000 (Fixed Rate) Water and Sewer System First Lien Revenue Refunding Bonds, Series A of 2008 Taxable.
- $24,665,000 (Fixed Rate) Water and Sewer System First Lien Revenue Refunding Bonds, Series D-1 of 2008.

The 2008 Bond Issue refunded the Authority's 1998A Bonds, 1998C Bonds, certain maturities of the 2007 B-1 and 2007 B-2 Bonds, advanced refunding of certain maturities of the 1998B Bonds, and provided $98,062,184 for the continuation of the capital improvements program and to meet the needs of emergencies that may require the use of capital funds.

The issuance of the 2008 Bonds resulted in no rate increase and initially leveled the Authority's debt service requirements at approximately $42,000,000 until 2040. Due to the crisis that hit the financial sector in last quarter of 2008, the debt service for 2009 increased to $51,716,888, the debt service for 2010 was $49,803,245, and the debt

service for 2011 is projected at $50,823,508. The 2012 debt service budget is $52,743,453.

In 2011, Resolution 59 of 2011 extended liquidity facilities for $71,225,000 (Variable Rate Demand) Water and Sewer System First Lien Revenue Bonds, Series D-2 of 2008. Also in 2011, Resolution 77 of 2011 and Resolution 78 of 2011 extended credit facilities for $72,750,000 (Variable Rate Demand) Water and Sewer System First Lien Revenue Bonds, Series B-2 of 2008 and $72,745,000 (Variable Rate Demand) Water and Sewer System First Lien Revenue Bonds, Series B-2 of 2008, respectively.

PENNVEST Funding

Act 16 of 1988 established the Pennsylvania Infrastructure Investment Authority (PENNVEST) to assist local governments in financing sewer and water projects. The PENNVEST program provides loans and grants for acquisition, construction, improvement, expansion, extension, repair, and/or rehabilitation of all or part of any water or sewage system. Funding under the PENNVEST program is primarily in the form of low-interest, twenty-year loans.

To date, the Authority has secured 11 PENNVEST loans totaling $55,147,623. Five water projects, five sewage projects and one storm sewer project have been funded through this program. A total of $18,338,340 of the projects is complete. In 2011, the Authority continued work on projects associated with three sewage loans and two water loans totaling $36,809,297.

Summary of Funding Sources

Because of the various bond issues and PENNVEST loans that have been secured, a total of $626,899,582 has been made available for capital improvements since the establishment of the Authority in 1984. Table 3 summarizes the sources of these funds:

Table 3
Sources of Capital Improvement Funds

Source	Amount
1984 Bond Issue	$ 78,777,000
1986 Bond Issue	115,000,000
Transfer from Debt Service Reserve Fund	7,000,000
Transfer from Renewal and Replacement Fund	2,009,523
1993 Series B Bond Issue	9,990,477
1995 Series A Bond Issue	80,000,000
1998 Series B Bond Issue	36,001,908
2002 Bond Issue	90,494,400

Table 3
Sources of Capital Improvement Funds (continued)

Source	Amount
2005 Bond Issue	49,799,037
2007 Depository Agreement Fund	7,503,881
2008 Construction Fund	98,062,184
Sub-Total (Bond Funds)	$574,638.410
PENNVEST Funds	55,147,623
TOTAL (Total Funds)	$629,786,033

WATER SYSTEM

The water supply and distribution system consists of a 117 million gallon per day (mgd) rapid sand type treatment plant that was placed into service in 1969, one microfiltration plant, 1,200 miles of mains and service lines, 30,000 valves, 8,000 fire hydrants, 12 pumping stations, four reservoirs, and twelve storage tanks. The total storage capacity of the reservoirs and tanks is approximately 455 million gallons. Based on the average usage over the past several years, this capacity is sufficient to provide storage equivalent to approximately four to six days of normal water usage.

The sole source of water for the Water System is the Allegheny River. The Pennsylvania Department of Environmental Resources (now DEP) issued a Water Allocation Permit to the Authority in March 1989. This permit allows for water withdrawal of up to 100 mgd from the river. The DEP has advised that the permitted allocation would be reevaluated in the future should the Authority's demand increase as a result of growth within the City or through the sale of water to surrounding municipalities. The current average water withdrawal from the Allegheny River is approximately 72.8 mgd, and the maximum withdrawal made on any one day was approximately 99.3 million gallons during the past year.

The Water System currently provides approximately 86,000 residential, commercial, industrial, and public customers with potable water and water for fire protection within the geographic boundaries of the City.

The Pennsylvania-American Water Company provides service to approximately 24,600 customers in the southern and western sections of the City while two small areas, one in the eastern part and the other in the western end of the City, are served by the Wilkinsburg-Penn Joint Water Authority and the West View Water Authority, respectively. In each of these areas, the distribution system elements (waterlines, valves, hydrants, etc.) are owned and maintained by the respective independent water purveyor.

In addition, the Authority, through interconnections with other systems, provides water for supply and/or emergency use to several adjacent municipalities.

SEWER SYSTEM

The wastewater collection system is part of a regional system that provides service to about 900,000 people, nearly 306,000 of whom live within the City. The total drainage area served by the regional system is approximately 300 square miles. The City of Pittsburgh comprises about 55 square miles, or nearly 18 percent of the total drainage area. The Sewer System comprises an extensive network of approximately 1,400 miles of sewer lines and four wastewater pumping stations. The average age of the sewer lines is between 60 and 70 years old, with some portions reaching nearly 150 years in age.

The Sewer System conveys wastewater generated within the City boundaries to the Allegheny County Sanitary Authority (ALCOSAN) interceptors located along the rivers for conveyance to ALCOSAN's wastewater treatment facility for treatment prior to discharge into the Ohio River. The ALCOSAN treatment facility is operating in compliance with the National Pollutant Discharge Elimination System (NPDES) under Permit No. 0025984.

The Sewer System also is utilized by twenty-four suburban municipalities pursuant to agreements with the City to convey their wastewater to the ALCOSAN treatment facility. Many of the agreements with the suburban municipalities do not provide for sharing Sewer System maintenance and reconstruction costs.

The Sewer System is designed so that during wet weather, a portion of the collected stormwater and diluted wastewater is discharged to natural watercourses by diversion chambers located throughout the Sewer System and at connections to the ALCOSAN interceptors. The Sewer System is in satisfactory operating condition and has adequate capacity for the dry weather wastewater flows. However, during wet weather events, the Sewer System has often been taxed beyond its capacity and has resulted in overflows, bypassing, and flooding.

The U.S. Environmental Protection Agency (EPA) has adopted regulations regarding overflows from combined sewers during events that result in the discharge to receiving waters of untreated sanitary sewage. These combined sewer overflows (CSOs) contain pollutants that are present in domestic and industrial wastewater, as well as those in the urban stormwater runoff that enter the combined Sewer System. The EPA regulations require owners of any sewer system having CSOs to acquire NPDES discharge permits for each site. The owners of these systems implemented the EPA's "Nine Minimum Control Measures" in January of 1997.

Essentially all of the Authority sewers are combined sewers, and there are well over 100 CSOs within the system. The most efficient and cost-effective method of eliminating or controlling the CSOs is unknown. However, the Authority has undertaken the task of

inventorying and monitoring CSOs and the sewer collection and conveyance system in an effort to evaluate the impact of the CSO discharges on receiving streams. The Authority has commissioned detailed studies from two engineering consultants in an effort to develop a long-term control plan (LTCP) for addressing all CSO related issues. The Authority entered into an administrative consent order during 2004 in order to address the EPA regulations and extend deadlines for compliance. This subject is discussed further later in this report.

REPAIR AND OPERATION

Water System

The Pittsburgh Water and Sewer Authority (Authority) is directly responsible for the operation and maintenance of the Water System, including intake, treatment, pumping, distribution, storage, and metering. The overall procedures and programs established and currently being followed by the Authority, in the operation of the Water System, is satisfactory and should be continued during the coming fiscal year.

The Authority has renovated and replaced treatment equipment, chemical feed equipment, pumps, motors, waterlines, valves, hydrants, and storage tanks under the current Capital Improvements Program (CIP). These projects have been implemented at a cost of hundreds of millions of dollars. In order to realize the full life of these improvements and to maintain and improve the condition of the existing system, the Authority has used outside consultants to develop a computerized maintenance program that will enable tracking and reporting of scheduled and unscheduled maintenance and repairs of pumps, motors, valves, mechanical equipment, and electrical and control systems at the treatment plant and pumping stations.

As Consulting Engineer for the Authority, Chester Engineers recommends the following actions be undertaken in the coming year to further enhance the Authority's ability to provide a reliable source of potable water to its customers:

1. The Authority should continue its inspection and rehabilitation of water storage facilities within the existing water system.
2. The Authority should continue to update the computerized Supervisory Control and Data Acquisition (SCADA) Control System for the water system. An annual maintenance program should be instituted to keep this technology up to date and in good working order.
3. The Authority should aggressively continue tracking "lost and unaccounted for" water through increased leak detection efforts, a routine annual meter replacement program, installation of meters on unmetered uses, and scheduled regular calibrations of large meters (both internal and point-of-sale). The Operations and Engineering Departments should continue to combine

resources and develop a detailed long-range program for tracking and controlling “lost and unaccounted for” water.

4. The Authority should continue updating and calibrating the existing computerized hydraulic water model of the Water System. The updated model is an efficient and effective tool for evaluating current and future needs in the water system.
5. The Authority should evaluate existing electrical motor control centers and other electrical equipment at its pump stations and plan for replacement of outdated equipment.
6. The Authority should continue its investigation of the clarification and filtration processes at its Aspinwall Water Treatment Plant.
7. The Authority should continue it pump and motor rehabilitation program.
8. The Authority should continue to develop control strategies and alternative methods to comply with regulations regarding total trihalomethanes (TTHMs) in distribution system.

It is the engineer’s opinion that sufficient funds are provided in the proposed 2012 Operating Budget of the Authority to continue the current procedures and programs for operation, maintenance, and routine repair of the Water System.

Sewer System

The Authority assumed operation and maintenance responsibilities for the Sewer System in 1999.

In conjunction with developing the computerized maintenance program for the Water System, the Authority has developed a similar computerized system to track and report inspection, cleaning, and maintenance activities related to sewer lines, manholes, and catch basins throughout the sewer system.

The Authority owns and operates equipment for cleaning, flushing, and internally televising sewer lines on an as-needed basis. The equipment is used to identify needed repairs and/or replacements throughout the system. When required, Authority efforts are supplemented by the use of outside contractors to promptly address problem areas in the Sewer System.

The funding included in the Authority's 2012 Operating Budget will provide for the proper maintenance, routine repair, and operation of the Sewer System during the coming fiscal year.

Regulatory Agency Orders and Problem Areas

2004 Consent Order and Agreement (COA)

During 2004, the Authority and City of Pittsburgh jointly executed a COA with the Pennsylvania Department of Environmental Protection (DEP) and the Allegheny County Health Department (ACHD). This COA closely resembles COAs that were proposed and executed between the regulatory agencies and the other 82 communities that currently convey sewage to the Allegheny County Sanitary Authority (ALCOSAN) for treatment. The intent of the order is to develop a regional Long Term Control Plan (LTCP) for addressing combined and sanitary sewer overflows and ultimately improve water quality within Western Pennsylvania.

The COA requires that the Authority extensively inventory and inspect the entire sewer collection and conveyance system over a three-year period. In addition, flow monitoring must be performed and deficiencies identified as a result of the sewer system inspections must be corrected.

As previously noted, the Authority has commissioned two engineering consultants to perform detailed system investigations and flow monitoring within the COA schedule. The Consultants have also been tasked with developing a LTCP for the Authority so that it may adequately comply with the requirements of the COA.

In 2006, the Authority engaged two Consultants for COA Program Management. Tasks involved with this project included manhole inspection and mapping, catch basin inspection and mapping, dye testing, and regulatory support. The project is now completed.

Nine Mile Run

The Authority entered into a Consent Order and Agreement (COA) with the DEP on May 22, 2000 concerning problems identified in the Nine Mile Run Interceptor. PWSA was ordered to complete necessary repairs of its Nine Mile Run Interceptor sewer and to provide access to maintain the interceptor by November 30, 2004.

The Authority completed comprehensive mapping of the system and developed a plan for rehabilitating the sewer. Rehabilitation of the Upper Nine-Mile Run Interceptor was completed in August 2002 at a cost of $1,210,908.65. Rehabilitation of the Lower Nine-Mile Run Interceptor was completed in June 2005 at a total cost of $2,500,094.07.

The requirements of the Nine Mile Run COA were incorporated into the 2004 COA and this project is considered completed.

Saw Mill Run Corrective Action Plan and Streets Run Corrective Action Plan

Corrective Action Plans (CAPs) were developed for the Saw Mill Run and Streets Run Watersheds to address sewer surcharging problems. CAPs are agreements to perform a series of tasks to eliminate sewer problems. The DEP imposed sewer tap restrictions in both of these watersheds and the Authority has undertaken a series of projects to correct surcharging problems in these watersheds. Projects range from small sewer separation projects to lining and replacement of sewers. Like the Nine Mile Run COA, these watershed specific CAPs were incorporated into the 2004 COA. Upon execution of the COA, all tap restrictions were lifted.

Sewage Pumping Stations

The Authority has also received orders to address problems at its four sewage pumping stations. These stations have been identified as having chronic bypassing problems that must be addressed. The first stage in this process was to install flow monitoring devices at each of the pumping stations. These devices were ordered and placed into operation during January 2002. Flow monitoring results have been tabulated and reviewed. The Authority has entered into an Engineering Services Agreement to develop rehabilitation plans for each station, and the costs are included in the current Capital Expenditure Plan. The design of the improvements is approximately 80% complete. The Authority is also negotiating with ALCOSAN and the West Mifflin Sanitary Sewer Municipal Authority (WMSSMA) to eliminate two pump stations in the Lincoln Place section of the City. The pump stations can be eliminated by construction of a gravity sewer to the WMSSMA Thompson Run Trunk Sewer and treatment at the Thompson Run Treatment Plant. This will eliminate the long term maintenance costs associated with the pump stations.

Future Needs

In addition to routine maintenance and the work that has taken place through the Capital Improvement Program (CIP) in the past, both the water and sewerage systems are in need of repair, replacement, and improvement.

A broad list of projects was prepared for the 2002 CIP that included needs throughout the water and sewerage systems. Because of the extensive nature of the list, it was prioritized into five levels. Projects identified as having the highest priority level were included in the list of projects to be funded through the 2002 Bonds.

A Capital Expenditure Plan was developed in November 2004 and included a list of projects for inclusion in the CIP Bond issued in 2005. The Plan included brief project

descriptions, classifications, estimated costs, and ratings to identify critical projects through 2009.

A Capital Expenditure Plan was developed in March 2008 and included a list of projects for inclusion in the CIP Bond issued in 2008. The Plan included brief project descriptions, classifications, estimated costs, and ratings to identify critical projects through June of 2012. Of key importance is the continued funding of projects related to upgrades at the Water Treatment Plant and COA, including the Combined Sewer Overflow (CSO) program and COA Program Management.

With respect to upgrades at the Water Treatment Plant, the Authority awarded a Study and Design contract to perform an investigation of the clarification and filtration processes at its Aspinwall Water Treatment Plant and to prepare a report of their findings. The current budget for this phase is $2,208,000.

The study resulted in a comprehensive treatment plant improvement plan to meet the following major project goals:

- Develop a strategy to position the plant for meeting current and potentially more stringent future regulatory requirements.
- Evaluate the filters and identify optimization strategies.
- Evaluate alternatives to collect, store and treat backwash water.
- Evaluate existing facilities and identify potential improvements.
- Evaluate retrofit and new facilities.
- Evaluate costs and schedule of implementing various improvements.
- Minimize footprint of new facilities due to limited real estate.
- Utilize not more than a maximum daily discharge to ALCOSAN of 1 mgd.

The report's recommendations included the following plant improvements:

- Replacement of the clarifier chain and scraper equipment
- Rehabilitation of the rapid sand filters
- Construction of a filter backwash recycling system

In 2009, rehabilitation of Clarifier Number 4 was completed. In 2011, rehabilitation of Clarifiers 1, 2 and 3 were substantially completed. In 2011, work continued for the Filter Backwash Recycle System.

In 2002, two contracts for the preparation of the Long Term Control Plan (LTCP) were awarded. The contract value for these contracts is now $15,589,285. As of December 31, 2011, a total of $13,763,988 had been paid toward completing this work. The two contracts, originally scheduled to be completed by May 1, 2005, were extended to April

30, 2008. At the completion of this study phase, the Authority will have a proposed plan and schedule to meet its CSO obligations, as well as an estimate of the cost of implementation. The plan is under review by the PWSA Engineering staff.

In 2006, two contracts totaling $4,900,000 were awarded for the COA Compliance Program Management. As of December 31, 2011, a total of $5,373,374 had been paid toward completing this work. In July 2008, the PWSA authorized additional dye testing in the amount of $550,000.00 and that increased the value of the two contracts to $5,450,000.00. The projects are completed, resulting in the Authority meeting several of their obligations outlined in the COA.

In 2010, the Authority authorized the creation of a 40-Year Capital Plan. The plan will identify the capital needs of the Authority and create eight five-year capital plans. Completion of the plan is expected in the first half of 2012.

A partial list of projects not funded by the 2008 Construction Fund and for future CIP or DISC funding consideration is as follows:

- Water Distribution System
  - Waterline replacement in areas with chronic breaks (currently funded, but will require additional CIP funding).
  - Inspecting river crossings
- Pumping and Storage
  - Rehabilitating booster pump stations.
  - Inspecting and painting water storage tanks not included in 2008 Construction Fund or PENNVEST Program.
  - Replacing pump station switchgear and motor control centers not included in 2008 Construction Fund.
- Water Treatment Plant
  - Repair and upgrade clearwell.
  - Replacing switchgear and motor control centers not included in 2008 Construction Fund.
  - Sedimentation basin fencing/security upgrades.
- Miscellaneous
  - Continue with evaluation of Highland Park Dam for power generation.
  - Continue feasibility study for creation of a stormwater utility.
  - Engineering computer upgrades.
  - GIS hardware.

- Sewer System
  - Evaluation and mitigation of flood prone areas (currently funded, but will require additional CIP funding).
  - Sewer rehabilitation contracts (currently funded, but will require additional CIP funding).
  - Sewer internal inspection contracts (currently funded, but will require additional CIP funding).
  - Sewer line point repairs (currently funded, but will require additional CIP funding).
  - Sewer separation where economically feasible.
  - Eliminating small CSOs.
  - MS4 Stormwater compliance (currently funded, but will require additional CIP funding).

CAPITAL ADDITIONS

General

The initial Capital Improvements Program (CIP) was recommended in a report entitled "Evaluation of the Water and Sewer Systems of the City of Pittsburgh," dated December 9, 1983, prepared by Green International, Inc. This program has been continually reviewed and modified as required to reflect changing conditions in order to maintain a satisfactory level of service to current users, to improve operating efficiency, and to address future requirements.

The CIP was developed to ensure a continued supply of safe drinking water and proper sewer service to the Authority's current and future users and to address future demands on both the Water and Sewer Systems. In developing this program, the following factors and conditions were considered:

- Identification of improvements not currently funded.
- Rehabilitation and/or replacement of existing facilities that exceed their useful lives.
- Improvements required for sale of water to communities within the region.
- Water and Sewer system improvements required in association with planned City of Pittsburgh capital improvement projects, Urban Redevelopment Authority planned redevelopment projects, and Sports & Exhibition Authority projects.
- Improvements required under current and anticipated safe drinking water standards.

- Implementation of combined sewer overflow controls (CSOs) as required by the U.S. Environmental Protection Agency.
- Compliance with the 2004 COA.

The Authority has provided $579,904,179 through various Revenue Bond Issues to fund the CIP since 1984 to ensure that the above noted objectives are met.

Table 4 presents a summary of the CIP Bond Fund Budget by major components for both the Water System and the Sewer System.

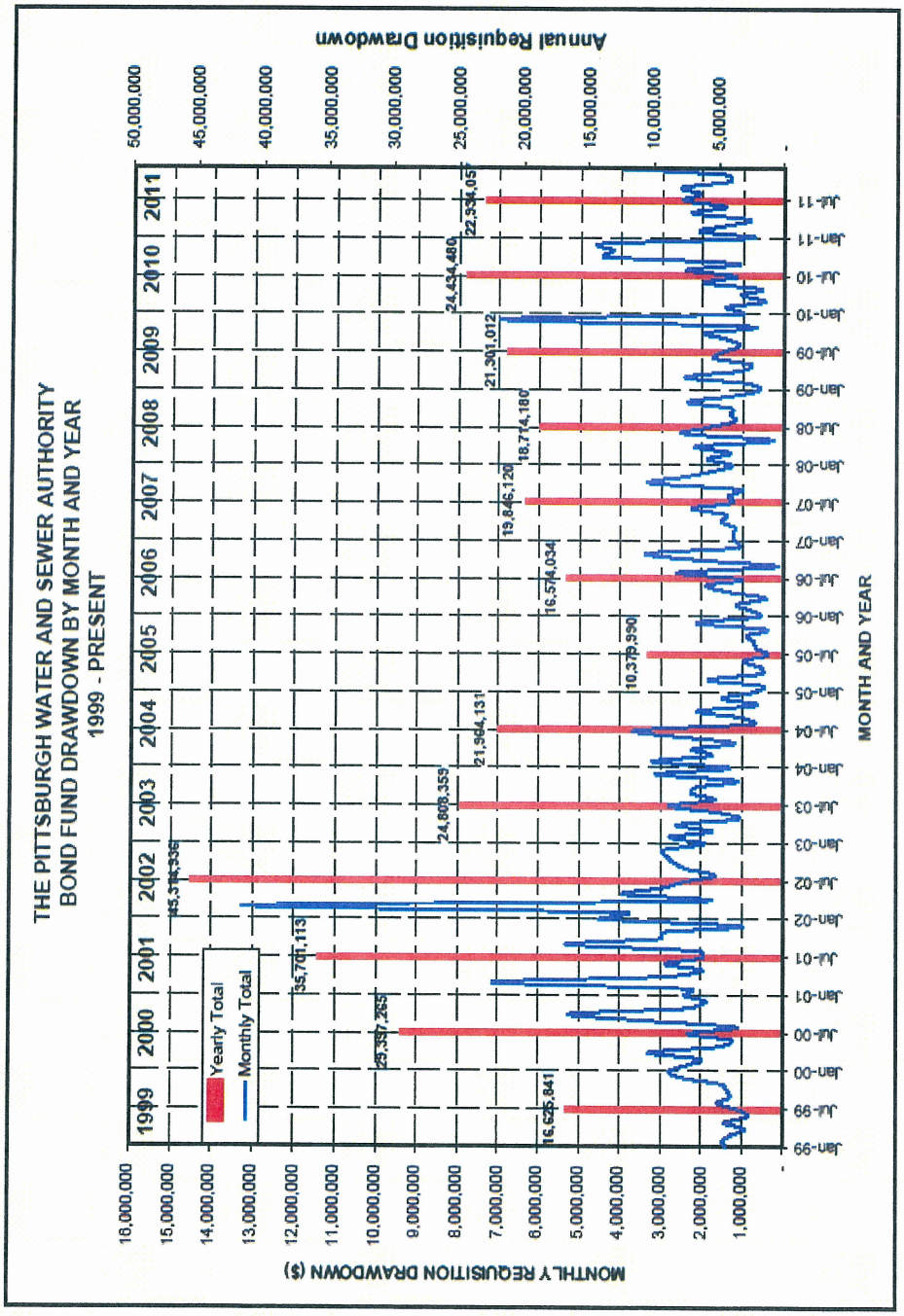
Table 4
Capital Improvements Program Bond Fund Budget

	Funds Budgeted
WATER SYSTEM	
Distribution System	25,210,781.36
Pumping and Storage	14,404,096.93
Treatment Plant	10,987,713.8
TOTAL WATER SYSTEM	50,602,592.09
SEWER SYSTEM	
Sanitary Sewer	0.00
Combined Sewer	18,023,299.32
Pump Station	500,000.00
TOTAL SEWER SYSTEM	18,523,299.32
CITY AND URA PROJECTS	8,806,434.79
ENGINEERING & CONSTRUCTION MANAGEMENT	10,873,600.25
TOOLS AND EQUIPMENT	5,614,188.98
IT / GIS	3,984,670.00
CONTINGENCIES	26,645.82
TOTAL 2008 CONSTRUCTION FUND	98,431,431.25
COMPLETED BOND ISSUES	481,472,747.88
TOTAL BOND FUNDS APPROPRIATED	579,904,179.13
COMPLETED CONTRACTS – ACTIVE	13,391,276.45
TOTAL COMPLETE	494,864,024.33

Exhibits “A” and “B, attached to this report, provide details by individual projects that are included in the active CIP as of December 31, 2011.

As of December 31, 2011, contracts have been completed having a value of $494,864,024.33. Current active contracts are valued at $85,013,508.98. Figure 1 shows

Figure 1
Bond Fund Drawdown by Month



the monthly status and progress of the program since January 1, 1999 through December 2011. It is noted that this graph also indicates the accumulated amounts paid by month from the 2002 Bond Issue, 2005 Bond Issue, 2007 Depository Agreement Fund, and 2008 Construction Fund.

Table 5 presents a summary of the status of the 2008 Construction Fund as of December 31, 2010 and December 31, 2011.

Table 5
Capital Improvement Program
2008 Fund Status Reports - 2010 vs. 2011

	December 2010	December 2011
2008 Construction Fund		
Completed Contracts	8,859,485.00	$13,391,276.45
Current Budgeted Projects	89,562,140.58	$85,040,154.80
TOTALS	98,421,625.58	$98,431,431.25
Percent of Budget (1)	100.00%	100.00%

Exhibit "A" provides details on each active and closed individual project paid from the 2008 Construction Fund. A copy of the 2008 Construction Fund Status Report as of December 31, 2011 is attached as Exhibit "C" - Pennvest Budget.

Contract Awards and Authorizations for Bidding

During 2011, the Authority awarded $21.2 million in construction contracts for water treatment, water distribution, and sewage collection facilities. A summary of these contract awards is shown in Table 6.

Table 6
2011 Contract Awards

Resolution No.	Project No.	Description	Original Contract Value
1	R-E1.11013-21	Purchase of Large UMEs	822,300.00
23	R-E1.11012-21	Purchase of Large Meters – Contract 1	1,942,920.20
23	R-E1.11012-22	Purchase of Large Meters – Contract 2	1,352,469.80
23	R-E1.11012-23	Purchase of Large Meters – Contract 3	416,600.00
51	R-B2.11018-21	Sewer Point Lining	593,340.00
60	R-A2.11017-21	Motor and Pump Rehabilitation	703,469.00
61	R-B2.11023-21	COA Sewer Inspection	391,432.00
62	R-B2.11024-21	Catch Basin Replacement	951,965.00
63	R-A1.11022-21	Vinial Street Waterline Relay	616,870.00
93	R-A3.10012-21	Clearwell Drain Separation for the Water Treatment Plant	876,950.00

Table 6
2011 Contract Awards (continued)

Resolution No.	Project No.	Description	Original Contract Value
94	R-A1.11033-21	Route 28 24-Inch Waterline Material – Contract 1	408,681.90
94	R-A1.11033-22	Route 28 24-Inch Waterline Material – Contract 2	106,499.84
94	R-A1.11033-23	Route 28 24-Inch Waterline Material – Contract 3	84,386.00
104	R-B2.10028-21	2011-2012 Sewer Rehabilitation – Gunite	2,071,663.00
105	R-B2.11037-21	2012 Ductile Iron Pipe – Contract 1	337,003.18
105	R-A1.11037-22	2012 Ductile Iron Pipe – Contract 2	442,303.04
106	R-A1.11039-21	2012 Gate and Tapping Valves and Tapping Sleeves – Contract 1	803,310.00
106	R-A1.11039-22	2012 Gate and Tapping Valves and Tapping Sleeves – Contract 2	1,412,549.56
106	R-A1.11039-23	2012 Gate and Tapping Valves and Tapping Sleeves – Contract 3	2,137.02
106	R-A1.11039-24	2012 Gate and Tapping Valves and Tapping Sleeves – Contract 4	59,986.35
106	R-A1.11039-25	2012 Gate and Tapping Valves and Tapping Sleeves – Contract 5	38,559.55
106	R-A1.11039-26	2012 Gate and Tapping Valves and Tapping Sleeves – Contract 6	48,323.98
107	R-A1.11038-21	2012 Ductile Iron Pipe Fittings – Contract 1	1,714,696.05
107	R-A1.11038-22	2012 Ductile Iron Pipe Fittings – Contract 2	2,056,011.45
107	R-A1.11038-23	2012 Ductile Iron Pipe Fittings – Contract 3	1,158.96
107	R-A1.11038-24	2012 Ductile Iron Pipe Fittings – Contract 4	12,929.11
107	R-A1.11038-25	2012 Ductile Iron Pipe Fittings – Contract 5	35,425.62
108	R-A1.11038-31	2012 Various Ductile Iron Transition Couplings – Contract 1	234,836.40
108	R-A1.11038-32	2012 Various Ductile Iron Transition Couplings – Contract 2	39,708.20
109	R-A1.11038-41	2012 Stainless Steel Repair Clamps	35,100.16
110	R-B2.11040-21	2012 PVC Sewer Pipe – Contract 1	27,691.44
110	R-B2.11040-22	2012 PVC Sewer Pipe – Contract 2	139,737.55
110	R-B2.11040-23	2012 PVC Sewer Pipe – Contract 3	1,566.32
111	R-A1.11029-21	Allegheny Back Channel Waterline River Crossing	1,176,935.00
125	R-B2.11032-21	Sewer Lining	1,192,135.00

2011 Requisitions

Table 7 shows the total drawdown of capital funds during fiscal year 2011 from the 2008 Construction Fund. This information is presented for each month of the year 2011.

Table 7
2011 Requisition Drawdown by Month

Month	2008 Construction Fund
January	801,705.51
February	2,083,937.79
March	1,443,096.20
April	847,190.08
May	2,269,219.46
June	1,439,955.66
July	2,481,622.94
August	2,055,618.72
September	2,537,357.39
October	1,324,792.21
November	1,406,530.54
December	4,243,030.10
TOTAL	**22,934,056.60**

Pennvest Financing

To date, the Authority has applied for and obtained 11 PENNVEST loans for a variety of water, sewage, and stormwater projects at various locations in the City of Pittsburgh. Of the 11 loans, six are complete.

Five loans of three sewage projects and two water projects totaling $36,809,297 are currently under construction.

At least three additional application cycles will occur in 2012 during which the PWSA may make application. Depending on Federal Stimulus Funds, additional application cycles may be added.

Table 8 presents a list of the projects for which PENNVEST funding has been obtained. A copy of the PENNVEST Program Budget as of December 31, 2011 is attached as Exhibit “B” and a copy of the PENNVEST Status Report as of December 31, 2011 is attached as Exhibit “D”.

Table 8
PENNVEST Loans
Annual Debt Payment (Principal and Interest)

Loan No.	Project Name	PENNVEST Loan Amount	Debt Service Payment Start Date	Estimated Annual Debt Service[1]
71911	Railside Street Sanitary Sewer Ext.	$ 158,399.23	February 2002	$ 9,456.00
58066	Ollie St. & Overbrook Blvd. Storm Sewer	800,963.48	May 2002	47,449.44
25074	Water System Improvements No. 1	3,940,113.91	January 2003	216,217.80
71217	Streets Run Interceptor	3,505,100.00	May 2003	105,965.61
12587	Water System Improvements No. 2	5,112,263.50	January 2004	296,981.16
12608	Water System Improvements No. 3	4,821,500.00	July 2004	266,085.65
71362	Sewer System Improvements – Phase I	*4,672,410.00	May 1, 2011	To be determined
27772	Sewer System Improvements – Phase II	*10,264,250.00	March 1, 2011	To be determined
27784	Sewer System Improvements – Phase III	*4,865,613.00	May 1, 2011	To be determined
12696	Water System Improvements – Phase V	*8,613,546.00	May 1, 2011	To be determined
83126	Water System Improvements – Phase VI	*8,393,478.00	October 1, 2011	To be determined
	TOTAL PENNVEST	$55,147,637.12		$942,155.66

* Loan amount at time of closing. Final loan amount to be determined by Pennvest after project completion.

RENEWAL AND REPLACEMENT FUND

Initial bond issues of the Authority, created the "Renewal and Replacement Fund" to be held in trust by the Trustee to be used by the Authority for extraordinary maintenance and repair of the Water and Sewer Systems or to pay the cost of Capital Additions. These Trust Indentures provided that the Consulting Engineer shall annually establish the amount, if any, to be on deposit in this Fund.

The previous Trust Indenture provided that so long as the aggregate amount of funds on deposit in the Construction Fund(s) and the Renewal and Replacement Fund were not less than $7,000,000, the Authority was not required to make any deposits into the Renewal and Replacement Fund. It further required that if this aggregate amount was less than $7,000,000, the Authority shall transfer, on or before the first day of each month, a sum of $100,000 from the Revenue Fund to the Renewal and Replacement Fund until the aggregate amounts equal $7,000,000. In addition, if the aggregate amounts on deposit in these two funds were less than $5,000,000, the Authority shall, on each September 1, transfer to the Renewal and Replacement Fund all surplus moneys

[1] PENNVEST loans are typically awarded with two interest rates: an initial rate for the first five years of debt payment and a second rate for the remaining fifteen years of payment. The Annual Debt Payment presented here is at the current interest rate.

remaining in the Revenue Fund after all payments required to be made on such September 1 have been made until such time as the aggregate amounts on deposit in these funds are equal to not less than $5,000,000.

Section 6.06 of the Trust Indenture dated October 15, 1993 eliminated the requirements of the Revenue and Replacement Fund unless determined necessary annually by the consulting engineer. Since the balance available in current Construction Funds exceeds $70,000,000, there is no need for the Authority to deposit any funds into the Renewal and Replacement Fund during the next fiscal year.

FINDINGS ON CURRENT CONDITIONS

The Pittsburgh Water and Sewer Authority (Authority) is beginning the twenty-sixth year of a Capital Improvements Program (CIP) that was recommended as a result of an "Evaluation of the Water and Sewer Systems of the City of Pittsburgh" conducted in 1983. This evaluation report indicated that the Water and Sewer Systems were in adequate operating condition, although both systems exhibited the need for certain improvements and replacements to ensure continued adequate service to the existing users and to meet foreseeable future demands.

As Consulting Engineer for the Authority, we find that both the Water and Sewer Systems are in adequate operating condition and are, in general, being adequately maintained. As discussed previously in this report, we recommend that the preventive maintenance program developed by the Authority be fully implemented to ensure full realization of the life of the improvements that have been part of the CIP.

An annual facilities inspection program was instituted several years ago as part of the annual report process. With the assistance of Authority staff, we have inspected treatment, pump station, and storage facilities within the operating Water and Sewer Systems. Facilities Inspection Reports are included in Exhibit “E” of this Report. These Inspection Reports provide valuable information that can be used to develop future capital programs for repair, maintenance, and replacement of facilities.

With implementation of these programs and continuation of the CIP, the systems should be capable of continuing to provide uninterrupted service to the users and provide for future demands.

An analysis of the fiscal year 2011 Budget and the projected operating results for 2011 along with the adopted Budget[2] for 2012 (with respect to the requirements of the Trust Indenture) follows.

It is the Consulting Engineer's opinion that the adopted 2012 Operating Budget as included in this report will provide sufficient funds for the proper operation and

[2] The Operating Budget for 2012 was adopted at the December 16, 2011 monthly meeting of the Board of Directors.

maintenance of both the water and sewer systems during the next fiscal year, and that the coverage requirement of the trust indenture will be met.

ESTIMATE ON REVENUES AND CURRENT EXPENSES

General

Section 7.11 of the Trust Indenture, dated as of October 15, 1993, provides that the Consulting Engineer shall include in his annual report:

> "His estimate of Receipts and Revenues and Current Expenses for the next Fiscal Year and his recommendation as to any necessary revision of water and sewer rates, rents or other charges."

Chester Engineers has worked with The Pittsburgh Water and Sewer Authority (Authority) staff in developing the 2012 Operating Budget for the Authority as contained herein. The Operating Budget was adopted at the Authority Board monthly meeting of December 16, 2011.

Estimated Receipts and Revenues

Determination of the Total Funds Available in 2012 for Operating Expenses and Debt Service Requirements are based on the following:

1. Revenue Fund Cash as of January 1, 2012.
2. Operating Revenues from water sales, collection of delinquent sewage treatment fees, and miscellaneous charges.
3. Interest Earnings on the following funds:
   - Construction Funds.
   - Debt Service Funds.
   - Debt Service Reserve Funds.
   - Revenue Fund.
4. Transfer from the Capital Projects Fund to reimburse the Authority for labor and expenses of the Authority's engineering staff working on Capital Improvement Projects (CIP) during the year.
5. Transfer from the Capital Projects Fund to reimburse Authority operating funds for the funding of capital projects.

Table 9 presents the Actual 2007, 2008, 2009, 2010, Budgeted and Projected 2011, and Adopted 2012 Budget of Total Funds Available.

A 5% rate increase was adopted on December 16, 2011. The DISC rate remained at 7%. This increase is effective January 1, 2012. The charges for metered consumption are as noted on page 24 of the report.

Table 9
Total Funds Available

	Actual 2007	Actual 2008	Actual 2009	Actual 2010	Budget 2011	Projected 2011	Budget 2012
WATER COLLECTIONS	$ 87,140,000	$ 85,599,760	$ 87,299,766	$ 83,984,493	$ 92,886,000	$ 89,648,741	$ 91,575,000
DISC	-	-		4,158,329	6,380,000	5,960,357	6,708,713
Customer Refunds	(2,002,776)	(414,240)	(498,866)	(480,201)	(500,000)	(355,000)	(500,000)
SEWAGE COLLECTIONS	37,728,455	38,457,863	45,544,011	49,484,016	48,445,000	45,400,764	51,360,000
Less Collection Agency Commission - 20%	(262,012)	(215,767)	(15,383)	(128,866)	(45,000)	(105,000)	(45,000)
TAP FEE COLLECTIONS	1,312,070	2,457,395	1,259,341	572,430	550,000	400,000	550,000
OTHER COLLECTIONS	1,366,523	1,137,312	1,950,549	1,127,485	2,129,000	2,020,625	2,329,000
OPERATING DEBT SERVICE RESERVE	-	-	-	-	-	-	4,563,750
INTEREST EARNINGS							
• Capitalized Interest Funds	-	-	1,509,930	4,300,251	1,945,000	1,945,000	-
• Capital Project Funds	1,500,809	-	1,386,804	11,375	70,000	70,000	99,000
• Debt Service Funds	727,592	-	447,112	392,553	309,000	309,000	348,000
• Debt Service Reserve Funds	201,332	-	21,384	8,910	-		
• Revenue Fund	1,135,665	646,864	100,425	25,798	27,000	27,000	27,000
• Other Funds	441,087		59,550	-	-		
• Interest in Trusteed Funds	-						
PENNVEST PROJECTS	269,066		-	10,913,352	3,000,000	16,264,680	3,000,000
TRANSFER FROM CONSTRUCTION FUND							
Engineering Department Reimbursement	1,430,186	1,461,395	1,250,341	1,775,036	1,500,000	1,783,239	1,500,000
Reimbursement for Capital Projects	-	-		-			
TOTAL SOURCES OF FUNDS	$ 130,987,997	$ 129,130,582	$ 140,314,964	$ 156,144,961	$ 156,696,000	$ 163,369,406	$ 161,515,463
REVENUE FUND CASH	$ 35,023,212	$ 41,661,420	$ 42,936,473	$ 37,128,447	$ 37,195,718	$ 36,128,592	$ 36,129,009
TOTAL AVAILABLE FUNDS	**$ 166,011,209**	**$ 170,792,002**	**$ 183,251,437**	**$ 193,273,408**	**$ 193,891,718**	**$ 199,497,998**	**$ 197,644,472**

METERED QUARTERLY WATER AND SEWER RATES

Meter Size (Inches)	Minimum Monthly Charge: Monthly Minimum Usage (1,000 gallons)	January 1, 2011	January 1, 2012
5/8	1	$ 15.80	$ 16.59
3/4	2	27.56	28.94
1	5	53.75	56.44
1-1/4	7	83.64	87.82
1-1/2	10	105.51	110.79
2	17	164.44	172.66
3	40	354.15	371.86
4	70	629.24	661.44
6	175	1,519.71	1,595.70
8	325	2,622.61	2,753.74
10 or larger	548	4,501.14	4,726.20

	Rate per 1,000 Gallons: January 1, 2011	January 1, 2012
Residential	$ 8.08	$ 8.48
Commercial	7.74	8.13
Industrial	7.26	7.62
Health and Education	10.59	11.23

	January 1, 2011	January 1, 2012
DISC Percentage	7%	7%

Current Expenses

Table 10 presents the Actual Operating Expenses for 2008, 2009 and 2010, Projected Operating Expenses for 2011, and Adopted 2012 Budget of Operating Expenses.

Rate Covenant Calculations

Table 11 presents the Actual 2008, 2009, and 2010, the projected 2011 and the budgeted 2012 Coverage Factors based upon Revenues and Earnings, Operating Expenses and Debt Service Requirements.

Table 12 presents the Actual 2008, 2009, 2010, budgeted 2011, unaudited 2011, and budgeted 2012, and projected 2013, 2014, and 2015 Total Income versus Operating Costs.

Table 10
Expenses

	Actual 2008	Actual 2009	Actual 2010	Budget 2011	Unaudited 2011	Budget 2012
WATER EXPENSES						
Total Wages, Salaries and Expenses						
Administration	$ 8,152,278	$ 8,759,293	$ 9,218,089	$ 9,070,631	$ 8,529,691	$ 8,827,120
Operations	26,772,815	27,318,257	25,083,867	23,637,291	24,734,667	25,410,826
Engineering	1,217,138	1,103,701	1,357,223	2,984,846	1,512,599	3,187,333
Employee Benefits	2,628,730	2,885,987	3,275,680	3,101,000	3,083,584	3,470,600
Total Wages, Salaries and Expenses	38,770,961	40,067,238	38,934,859	38,793,768	37,860,541	40,895,879
CITY EXPENSES						
Water Indirect Costs	1,850,000	1,831,250	1,850,000	1,850,000	1,850,000	1,850,000
Sewer Direct Costs	2,300,000	2,300,000	2,300,000	2,900,000	2,900,000	2,300,000
Sewer Indirect Costs	5,500,000	4,500,000	4,500,000	4,400,000	4,400,000	3,000,000
TOTAL CITY EXPENSES	9,650,000	8,631,250	8,650,000	9,150,000	9,150,000	7,150,000
SUBSIDY NON-CITY WATER SUBSIDY	1,057,135	1,602,691	2,172,168	1,500,000	1,533,794	1,600,000
TRANSFER COSTS TO DISC FUNDING			-	-	-	(1,515,000)
DELINQUENT SEWAGE CHARGES	-	-	-	-	-	-
Sewage	38,253,695	43,484,220	46,208,232	47,271,000	46,345,123	50,932,000
TOTAL OPERATING EXPENSES	87,731,791	93,785,399	95,965,259	96,714,768	94,889,458	99,062,879
CAPITAL EXPENDITURES						
Capital Projects Fund	-	-	-	-	-	-
Self Insured Escrow	-	-	-	-	-	-
DISC	-	-	-	6,380,000	5,960,357	6,708,713
PENNVEST Projects	-	-	16,185,010	3,000,000	12,412,699	3,000,000
TOTAL CAPITAL EXPENDITURES	-	-	16,185,010	9,380,000	18,373,056	9,708,713
DEBT SERVICE EXPENSES						
Principal on Bonds	14,730,000	13,820,000	15,620,000	14,885,000	14,885,000	12,465,000
Interest on Bonds	18,982,491	30,630,938	28,686,514	28,021,536	27,993,993	27,169,917
Remarketing and Liquidity			4,346,889	5,927,426	5,500,000	5,209,170
Transfer to Operating DSRF	-	-	-	-	-	4,563,750
Trustee Fees	134,685	151,033	191,935	250,000	190,000	250,000
PENNVEST Loan Payments	966,687	976,845	1,020,578	1,500,000	2,304,515	3,135,616
Reimbursements from Municipalities	(52,492)	(72,144)	(62,671)	(50,000)	(50,000)	(50,000)
TOTAL DEBT SERVICE EXPENSES	34,761,371	45,506,672	49,803,245	50,533,962	50,823,508	52,743,453
TOTAL EXPENSES	$ 122,493,162	$ 139,292,071	$ 161,953,514	$ 156,628,730	$ 164,086,022	$ 161,515,045

Table 11

Debt Service Coverage Factor

	Actual 2008	Actual 2009	Actual 2010	Budget 2011	Unaudited 2011	Budget 2012
Cash	$ 41,661,420	$ 42,936,473	$ 37,128,447	$ 37,195,718	$ 36,128,592	$ 36,129,009
Water Collections	85,185,520	86,800,900	83,504,292	92,386,000	89,293,741	91,075,000
DISC	-	-	4,158,329	6,380,000	5,960,357	6,708,713
Interest Earnings	646,864	3,525,205	4,738,887	2,351,000	2,351,000	474,000
Transfer - Engineering from CIP	1,461,395	1,250,341	1,775,036	1,500,000	1,783,239	1,500,000
Transfer - Reimbursement from CIP	-	-	-	-	-	-
PENNVEST Projects	-	-	10,913,352	3,000,000	16,264,680	3,000,000
Tap Fee Collections	2,457,395	1,259,341	572,430	550,000	400,000	550,000
Sewage Collections	38,242,096	45,528,628	49,355,150	48,400,000	45,295,764	51,315,000
Other Collections	1,137,312	1,950,549	1,127,485	2,129,000	2,020,625	2,329,000
OPERATING DEBT SERVICE RESERVE	-	-	-	-	-	4,563,750
TOTAL AVAILABLE FUNDS	$ 170,792,002	$ 183,251,437	$ 193,273,408	$ 193,891,718	$ 199,497,998	$ 197,644,472
OPERATING EXPENSES	87,731,791	93,785,399	95,965,259	96,714,768	94,889,458	99,062,879
CAPITAL PROJECTS	-	-	16,185,010	9,380,000	18,373,056	9,708,713
NET AVAILABLE FOR DEBT SERVICE	$ 83,060,211	$ 89,466,038	$ 81,123,139	$ 87,796,950	$ 86,235,484	$ 88,872,880
DEBT SERVICE REQUIREMENTS	34,761,371	45,506,672	49,803,245	50,533,962	50,823,508	52,743,453
COVERAGE FACTOR	2.39	1.97	1.63	1.74	1.70	1.69

Table 12
Total Income vs. Total Operating Costs

	Actual 2008	Actual 2009	Actual 2010	Unaudited 2011	Budget 2012	Projected 2013	Projected 2014	Projected 2015
TOTAL COSTS						3		
• Operating Expenses	$ 87,731,791	$ 93,785,399	$ 112,150,269	$ 113,262,514	$ 108,771,592	$ 112,034,740	$ 115,395,782	$ 118,857,655
• Debt Service	34,761,371	45,506,672	49,803,245	50,823,508	52,743,453	48,976,094	48,976,094	48,976,094
Total Operating Costs	$ 122,493,162	$ 139,292,071	$ 161,953,514	$ 164,086,022	$ 161,515,045	$ 161,010,834	$ 164,371,876	$ 167,833,749
INCOME								
• Revenue	$ 128,483,718	$ 136,789,759	$ 151,406,074	$ 161,018,406	$ 161,041,463	$ 169,093,536	$ 177,548,213	$ 186,425,624
• Recurring Interest	646,864	3,525,205	4,738,887	2,351,000	474,000	2,045,370	412,380	1,779,472
Total Income	$ 129,130,582	$ 140,314,964	$ 156,144,961	$ 163,369,406	$ 161,515,463	$ 171,138,906	$ 177,960,593	$ 188,205,096
Total Income as a Percent of Total Operating Costs	105.4%	100.7%	96.4%	99.6%	100.0%	106.3%	108.3%	112.1%

* Based on unaudited expenditures

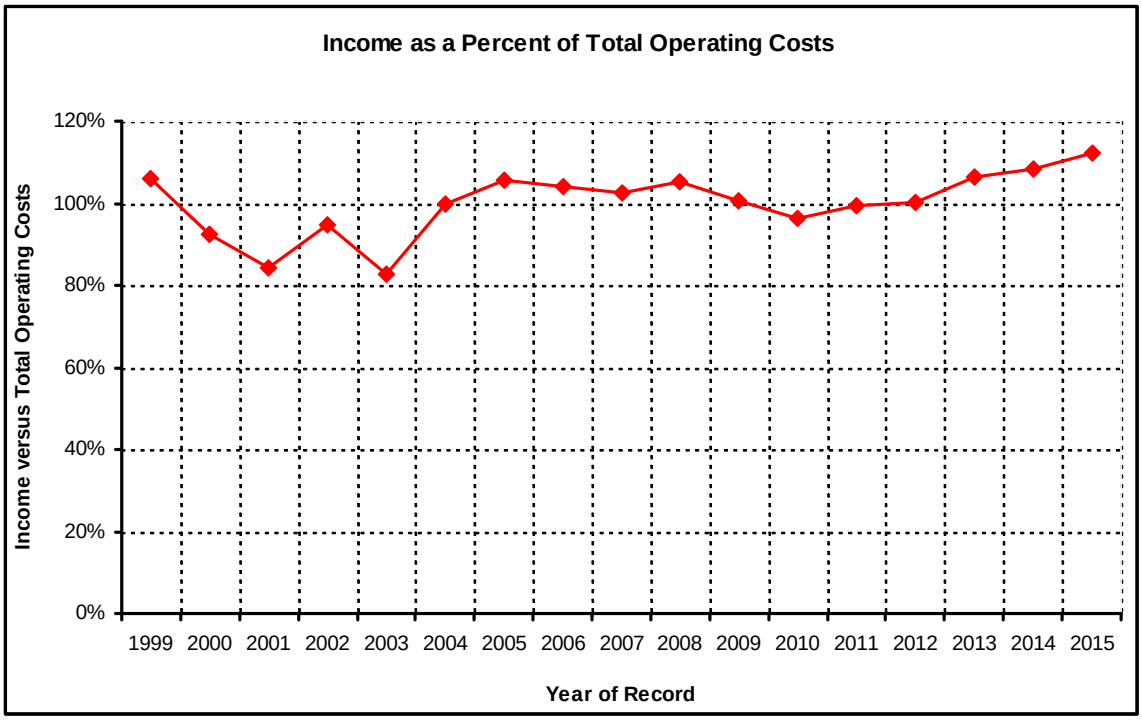
The Authority's Trust Indenture requires that water rates be established in order to provide a minimum Coverage Factor (ratio of net funds available for Debt Service to actual Debt Service Requirements) of 1.20.

As can be seen from Table 11, the projected Coverage Factor for 2011 is 1.70 and the 2012 Coverage Factor based on the adopted budget is 1.69. Based upon the above analysis, it is the Consulting Engineer's opinion that the existing water and sewer rates, together with available cash and interest earnings, will provide sufficient funds to cover operating expenses and to satisfy the Rate Covenant Test during 2012, as provided for in the Authority's Trust Indenture.

It is noted that since 1999, Operating Revenues (Water Sales and Miscellaneous Charges) plus recurring Interest Revenues (Interest Income from the Debt Service Funds and Debt Service Revenue Funds) have fallen from where they addressed approximately 105.9 percent of the Authority Total Expenses (Operating Expenses and Debt Service Requirements) in 1999 to 82.9 percent in 2003. From 2004 to 2010, this ratio has been at or above 100%. A slip decrease to 96.4% occurred in 2010, however, the ratio for 2011 is nearly 100%. As a result of increased revenues, which offset the operating costs, 100 percent of the Operating Costs in 2012 should be covered by revenues.

Figure 2 shows this ratio for 1999 to 2015.

Figure 2
Income as a Percentage of Total Operating Costs



The Authority has been able to maintain the required Coverage Factor and satisfy the financial obligations as a result of the past buildup of cash reserves and the interest earnings on the Authority's Construction Funds. As Construction Funds are spent, interest income from these funds will be reduced.

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EXHIBIT A
CAPITAL IMPROVEMENT PROGRAM BUDGET
2008 BOND ISSUE
AS OF DECEMBER 31, 2011

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM - ACTIVE FUNDS
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

	Original Budget	Supplements	Returns	Transfers	Current Budget
WATER SYSTEM					
A1 Water - Distribution System	$ 9,300,000.00	$ 348,000.00	$ -	$ 15,562,781.36	$ 25,210,781.36
A2 Water - Pumping & Storage	9,300,000.00	-	-	5,104,096.93	14,404,096.93
A3 Water - Treatment Plant	34,647,000.00	-	-	(23,659,286.20)	10,987,713.80
TOTAL WATER SYSTEM	**$ 53,247,000.00**	**$ 348,000.00**	**$ -**	**$ (2,992,407.91)**	**$ 50,602,592.09**
SEWER SYSTEM					
B1 Sewer - Sanitary Sewer	$ -	$ -	$ -	$ -	$ -
B2 Sewer - Combined Sewer	8,345,000.00	3,816.67	-	9,674,482.65	18,023,299.32
B4 Sewer - Pump Station	3,460,000.00	-	-	(2,960,000.00)	500,000.00
B5 Sewer - CSO	-	-	-	-	-
TOTAL SEWER SYSTEM	**$ 11,805,000.00**	**$ 3,816.67**	**$ -**	**$ 6,714,482.65**	**$ 18,523,299.32**
C1 CITY/URA/SEA/PORT AUTHORITY	**$ 16,225,000.00**	**$ -**	**$ -**	**$ (7,418,565.21)**	**$ 8,806,434.79**
D1 ENGINEERING	**$ 9,215,000.00**	**$ 29,448.00**	**$ -**	**$ 1,629,152.25**	**$ 10,873,600.25**
E1 TOOLS AND EQUIPMENT	**$ 5,550,000.00**	**$ -**	**$ -**	**$ 64,188.98**	**$ 5,614,188.98**
F1 IT/GIS	**$ -**	**$ -**	**$ -**	**$ 3,984,670.00**	**$ 3,984,670.00**
Z1 CONTINGENCY	**$ 2,008,166.58**	**$ -**	**$ -**	**$ (1,981,520.76)**	**$ 26,645.82**
TOTAL 2008 CONSTRUCTION FUND	**$ 98,050,166.58**	**$ 381,264.67**	**$ -**	**$ -**	**$ 98,431,431.25**

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

A1 WATER - DISTRIBUTION SYSTEM

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS R-A1.02027-21-2008	**AUTOMATED METER READING (AMR) PROGRAM**	**400,000.00**	**-**	**-**	**516,649.97**	**916,649.97**
WBS R-A1.02027-23-2008	**Automated Meter Reading (AMR) Program**	**-**	**-**	**-**	**333,350.03**	**333,350.03**
WBS R-A1.08100	**Water Valve & Hydrant Replacement**	**1,500,000.00**	**-**	**-**	**(1,500,000.00)**	**-**
WBS R-A1.08100-01	Water Valve & Hydrant Replacement	1,500,000.00	-	-	(1,500,000.00)	-
WBS R-A1.08101	**Small Meter Replacement Program**	**5,000,000.00**	**-**	**-**	**(2,507,558.00)**	**2,492,442.00**
WBS R-A1.08101-01	Small Meter Replacement Program	5,000,000.00	-	-	(5,000,000.00)	-
WBS R-A1.08101-21	Small Meters	-	-	-	2,492,442.00	2,492,442.00
WBS R-A1.08102	**Purchase Fire Hydrants**	**200,000.00**	**-**	**-**	**300,000.00**	**500,000.00**
WBS R-A1.08102-01	Purchase Fire Hydrants	200,000.00	-	-	54,560.00	254,560.00
WBS R-A1.08102-21	2010 Purchase Fire Hydrants	-	-	-	245,440.00	245,440.00
WBS R-A1.08103	**Waterline Relays**	**1,000,000.00**	**348,000.00**	**-**	**4,604,790.52**	**5,952,790.52**
WBS R-A1.08103-01	Waterline Relays	1,000,000.00	348,000.00	-	(1,348,000.00)	-
WBS R-A1.08103-02	Darragh St 12-inch WL Relay	-	-	-	4,699.28	4,699.28
WBS R-A1.08103-03	SawMill Run WL Lewis to Woodruff	-	-	-	7,911.71	7,911.71
WBS R-A1.08103-04	Waterline Replacement Contract - Eng	-	-	-	1,579.03	1,579.03
WBS R-A1.08103-05	Bigelow Blvd W/L Design	-	-	-	9,681.06	9,681.06
WBS R-A1.08103-11	Darragh St 12-inch WL Relay - CM	-	-	-	23,781.77	23,781.77
WBS R-A1.08103-12	SawMill Run WL Lewis to Woodruff - CM	-	-	-	65,000.00	65,000.00
WBS R-A1.08103-13	Waterline Replacement Contract - CM	-	-	-	312,500.00	312,500.00
WBS R-A1.08103-14	Market Square Waterline - CM	-	-	-	67,620.26	67,620.26
WBS R-A1.08103-15	Bates Street Waterline - CM	-	-	-	175,000.00	175,000.00
WBS R-A1.08103-16	Bigelow Blvd Waterline - CM	-	-	-	103,000.00	103,000.00
WBS R-A1.08103-21	Darragh St 12-inch WL Relay - Const	-	-	-	284,736.34	284,736.34
WBS R-A1.08103-22	SawMill Run WL Lewis to Woodruff - Cons	-	-	-	370,000.00	370,000.00
WBS R-A1.08103-23	Waterline Replacement Contract - Const	-	-	-	1,830,569.85	1,830,569.85
WBS R-A1.08103-24	Market Square Waterline - Construction	-	-	-	190,524.40	190,524.40
WBS R-A1.08103-25	Bates Street Waterline - Construction	-	-	-	1,749,440.00	1,749,440.00
WBS R-A1.08103-26	Bigelow Blvd Waterline - Construction	-	-	-	672,691.96	672,691.96
WBS R-A1.08103-50	Waterline Relay Material Purchase	-	-	-	84,054.86	84,054.86
WBS R-A1.08104	**Valve Inspections and Mapping**	**1,200,000.00**	**-**	**-**	**(422,855.00)**	**777,145.00**
WBS R-A1.08104-11	Valve Inspections and Mapping	1,200,000.00	-	-	(422,855.00)	777,145.00
WBS R-A1.08134	**60-Inch Transmission Main Improvements**	**-**	**-**	**-**	**3,147.56**	**3,147.56**
WBS R-A1.08134-01	60" Transmission Main	-	-	-	-	-
WBS R-A1.08134-11	60" Transmission Main - Eng	-	-	-	3,147.56	3,147.56
WBS R-A1.08135	**SR 28 Reconstruction - Waterline Reloc**	**-**	**-**	**-**	**900,432.26**	**900,432.26**
WBS R-A1.08135-01	SR 28 Reconstruction Waterline	-	-	-	764,132.26	764,132.26
WBS R-A1.08135-11	SR 28 Reconstruction Waterline	-	-	-	136,300.00	136,300.00
WBS R-A1.08145-11-2008	**Purchase Millvale Water System**	**-**	**-**	**-**	**5,000.00**	**5,000.00**
WBS R-A1.08145-12-2008	**Balance of Water AR Due 2008 Bond**	**-**	**-**	**-**	**809,316.79**	**809,316.79**
WBS R-A1.08145-21-2008	**Millvale Service Line Material**	**-**	**-**	**-**	**34,556.71**	**34,556.71**

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

A1 WATER - DISTRIBUTION SYSTEM

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS R-A1.08147	**Brackenridge Street Waterline**	**-**	**-**	**-**	**1,176,351.77**	**1,176,351.77**
WBS R-A1.08147-11	Brackenridge Street Waterline	-	-	-	139,000.00	139,000.00
WBS R-A1.08147-21	Brackenridge Street Waterline - Const.	-	-	-	1,037,351.77	1,037,351.77
WBS R-A1.10009	**Diamond Street**	**-**	**-**	**-**	**13,950.00**	**13,950.00**
WBS R-A1.10009-11	Diamond Street	-	-	-	13,950.00	13,950.00
WBS R-A1.10024	**2010-2011 Waterline Replacement Contrac**	**-**	**-**	**-**	**1,540,670.00**	**1,540,670.00**
WBS R-A1.10024-11	2010-2011 Waterline Replacement - CM	-	-	-	200,000.00	200,000.00
WBS R-A1.10024-21	2010-2011 Waterline Replacement-Const	-	-	-	1,340,670.00	1,340,670.00
WBS R-A1.10032	**Waterline Relays (10006WAEM)**	**-**	**-**	**-**	**346,942.97**	**346,942.97**
WBS R-A1.10032-21	WL Relay - Bigelow Blvd at Herron	-	-	-	181,957.02	181,957.02
WBS R-A1.10032-22	WL Relay - 30th St btwn Liberty to Penn	-	-	-	164,985.95	164,985.95
WBS R-A1.10039-21-2008	**Pennvest Water 2 Capital Reimbursement**	**-**	**-**	**-**	**400,952.77**	**400,952.77**
WBS R-A1.10040	**Pennvest Water 3 Capital Reimbursement**	**-**	**-**	**-**	**545,732.47**	**545,732.47**
WBS R-A1.10040-21	Pennvest Water 3 Capital Reimbursement	-	-	-	545,732.47	545,732.47
WBS R-A1.11001	**Water System Acquisition**	**-**	**-**	**-**	**500,000.00**	**500,000.00**
WBS R-A1.11001-01	Water System Acquisition	-	-	-	500,000.00	500,000.00
WBS R-A1.11002	**Ductile Iron Pipe**	**-**	**-**	**-**	**263,157.86**	**263,157.86**
WBS R-A1.11002-01	Ductile Iron Pipe	-	-	-	-	-
WBS R-A1.11002-21	Ductile Iron Pipe - Contract 1	-	-	-	-	-
WBS R-A1.11002-22	Ductile Iron Pipe - Contract 2	-	-	-	-	-
WBS R-A1.11002-23	Ductile Iron Pipe - Contract 3	-	-	-	81,669.30	81,669.30
WBS R-A1.11002-24	Ductile Iron Pipe - Contract 4	-	-	-	181,488.56	181,488.56
WBS R-A1.11003	**Ductile Iron Appurtenances**	**-**	**-**	**-**	**441,653.49**	**441,653.49**
WBS R-A1.11003-01	Ductile Iron Fittings	-	-	-	-	-
WBS R-A1.11003-21	Ductile Iron Fittings Contract 1	-	-	-	220,248.18	220,248.18
WBS R-A1.11003-22	Ductile Iron Fittings Contract 2	-	-	-	109,590.13	109,590.13
WBS R-A1.11003-23	Ductile Iron Fittings Contract 3	-	-	-	900.00	900.00
WBS R-A1.11003-31	DI Transition Couplings - Contract 1	-	-	-	24,931.25	24,931.25
WBS R-A1.11003-32	DI Transition Couplings - Contract 2	-	-	-	19,739.44	19,739.44
WBS R-A1.11003-33	DI Transition Couplings - Contract 3	-	-	-	32,264.30	32,264.30
WBS R-A1.11003-41	Stainless Steel Clamps - Contract 1	-	-	-	20,516.60	20,516.60
WBS R-A1.11003-42	Stainless Steel Clamps - Contract 2	-	-	-	4,896.00	4,896.00
WBS R-A1.11003-43	Stainless Steel Clamps - Contract 3	-	-	-	8,567.59	8,567.59
WBS R-A1.11004	**2011 Gate & Tapping Valves & Sleeves**	**-**	**-**	**-**	**425,429.50**	**425,429.50**
WBS R-A1.11004-01	2011 Gate & Tapping Valves & Sleeves	-	-	-	-	-
WBS R-A1.11004-21	2011 Valves & Sleeves - Contract 1	-	-	-	356,766.00	356,766.00
WBS R-A1.11004-22	2011 Valves & Sleeves - Contract 2	-	-	-	2,469.79	2,469.79
WBS R-A1.11004-23	2011 Valves & Sleeves - Contract 3	-	-	-	2,180.00	2,180.00
WBS R-A1.11004-24	2011 Valves & Sleeves - Contract 4	-	-	-	20,319.52	20,319.52
WBS R-A1.11004-25	2011 Valves & Sleeves - Contract 5	-	-	-	16,904.19	16,904.19
WBS R-A1.11004-26	2011 Valves & Sleeves - Contract 6	-	-	-	26,790.00	26,790.00

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

A1 WATER - DISTRIBUTION SYSTEM

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS R-A1.11006	**2011 Water Valve & Hydrant Replacement**	**-**	**-**	**-**	**2,634,600.00**	**2,634,600.00**
WBS R-A1.11006-11	2011 Water Valve & Hydrant - CM	-	-	-	235,000.00	235,000.00
WBS R-A1.11006-21	2011 Water Valve & Hydrant -Constructio	-	-	-	2,399,600.00	2,399,600.00
WBS R-A1.11022	**Vinial Street Waterline Relay**	**-**	**-**	**-**	**677,870.00**	**677,870.00**
WBS R-A1.11022-11	Vinial Street Waterline Relay - CM	-	-	-	61,000.00	61,000.00
WBS R-A1.11022-21	Vinial Street Waterline Relay - Const	-	-	-	616,870.00	616,870.00
WBS R-A1.11027	**Summerset 16" Waterline Easements**	**-**	**-**	**-**	**15,150.00**	**15,150.00**
WBS R-A1.11027-11	Summerset 16" Waterline Easements	-	-	-	15,150.00	15,150.00
WBS R-A1.11029	**Allegheny River Back Channel W/L**	**-**	**-**	**-**	**1,330,593.00**	**1,330,593.00**
WBS R-A1.11029-11	Allegheny River Back Channel W/L Design	-	-	-	26,058.00	26,058.00
WBS R-A1.11029-12	Allegheny River Channel W/L Mussel Stud	-	-	-	7,600.00	7,600.00
WBS R-A1.11029-13	Allegheny River Channel W/L - CM	-	-	-	120,000.00	120,000.00
WBS R-A1.11029-21	Allegheny River Channel W/L-Constructio	-	-	-	1,176,935.00	1,176,935.00
WBS R-A1.11033	**Route 28 Waterline Material Purchase**	**-**	**-**	**-**	**599,567.74**	**599,567.74**
WBS R-A1.11033-21	Rt 28 Waterline Material - Contract 1	-	-	-	408,681.90	408,681.90
WBS R-A1.11033-22	Rt 28 Waterline Material - Contract 2	-	-	-	106,499.84	106,499.84
WBS R-A1.11033-23	Rt 28 Waterline Material - Contract 3	-	-	-	84,386.00	84,386.00
WBS R-A1.11037	**2012 Ductile Iron Pipe**	**-**	**-**	**-**	**400,000.00**	**400,000.00**
WBS R-A1.11037-21	2012 Ductile Iron Pipe - Contract 1	-	-	-	200,000.00	200,000.00
WBS R-A1.11037-22	2012 Ductile Iron Pipe - Contract 2	-	-	-	200,000.00	200,000.00
WBS R-A1.11038	**2012 Ductile Iron Pipe Appurtenances**	**-**	**-**	**-**	**624,322.05**	**624,322.05**
WBS R-A1.11038-21	2012 Ductile Iron Fittings - Contract 1	-	-	-	200,000.00	200,000.00
WBS R-A1.11038-22	2012 Ductile Iron Fittings - Contract 2	-	-	-	200,000.00	200,000.00
WBS R-A1.11038-23	2012 Ductile Iron Fittings - Contract 3	-	-	-	1,158.96	1,158.96
WBS R-A1.11038-24	2012 Ductile Iron Fittings - Contract 4	-	-	-	12,929.11	12,929.11
WBS R-A1.11038-25	2012 Ductile Iron Fittings - Contract 5	-	-	-	35,425.62	35,425.62
WBS R-A1.11038-31	2012 Ductile Iron Couplings - Contract	-	-	-	100,000.00	100,000.00
WBS R-A1.11038-32	2012 Ductile Iron Couplings - Contract	-	-	-	39,708.20	39,708.20
WBS R-A1.11038-41	2012 Stainless Steel Repair Clamps	-	-	-	35,100.16	35,100.16
WBS R-A1.11039	**2012 Gate & Tapping Valves & Sleeves**	**-**	**-**	**-**	**549,006.90**	**549,006.90**
WBS R-A1.11039-21	2012 Gate, Tap Valves & Sleeves - Cont	-	-	-	200,000.00	200,000.00
WBS R-A1.11039-22	2012 Gate, Tap Valves & Sleeves - Cont	-	-	-	200,000.00	200,000.00
WBS R-A1.11039-23	2012 Gate, Tap Valves & Sleeves - Cont	-	-	-	2,137.02	2,137.02
WBS R-A1.11039-24	2012 Gate, Tap Valves & Sleeves - Cont	-	-	-	59,986.35	59,986.35
WBS R-A1.11039-25	2012 Gate, Tap Valves & Sleeves - Cont	-	-	-	38,559.55	38,559.55
WBS R-A1.11039-26	2012 Gate, Tap Valves & Sleeves - Cont	-	-	-	48,323.98	48,323.98
A1 TOTAL		**9,300,000.00**	**348,000.00**	**-**	**15,562,781.36**	**25,210,781.36**

A2 WATER - PUMPING AND STORAGE

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS R-A2.07019-11-2008	**Switchgear Upgrade - Engineering**	**-**	**-**	**-**	**52,056.32**	**52,056.32**
WBS R-A2.07019-12-2008	**Switchgear Upgrade - CM**	**135,000.00**	**-**	**-**	**25,000.00**	**160,000.00**
WBS R-A2.07019-13-2008	**Switchgear Upgrade - ENG for CONST**	**-**	**-**	**-**	**54,000.00**	**54,000.00**
WBS R-A2.07019-21-2008	**Switchgear Upgrade - Construction**	**1,365,000.00**	**-**	**-**	**783,598.00**	**2,148,598.00**
WBS R-A2.08012	**Brashear Tanks Rehabilitation**	**-**	**-**	**-**	**1,992,000.00**	**1,992,000.00**
WBS R-A2.08012-12	Brashear Tanks Rehabilitation - CM	-	-	-	270,000.00	270,000.00
WBS R-A2.08012-21	Brashear Tanks Rehabilitation	-	-	-	1,722,000.00	1,722,000.00
WBS R-A2.08014-12	**Howard Pumps #6 & 7 - CM**	**-**	**-**	**-**	**115,500.00**	**115,500.00**
WBS R-A2.08105	**Howard and Lincoln Pump Station**	**900,000.00**	**-**	**-**	**(50,480.00)**	**849,520.00**
WBS R-A2.08105-01	Howard and Lincoln Pump Station	900,000.00	-	-	(834,858.00)	65,142.00
WBS R-A2.08105-12	Howard Pump Station 6 & 7 - CM	-	-	-	-	-
WBS R-A2.08105-21	Howard Pump Station 6 & 7 - Const	-	-	-	784,378.00	784,378.00
WBS R-A2.08106	**Water System Modeling Support**	**150,000.00**	**-**	**-**	**(50,000.00)**	**100,000.00**
WBS R-A2.08106-11	Water System Modeling Support	150,000.00	-	-	(50,000.00)	100,000.00
WBS R-A2.08107	**Water Tank Painting and Improvements**	**3,000,000.00**	**-**	**-**	**(3,000,000.00)**	**-**
WBS R-A2.08107-01	Water Tank Painting and Improvements	3,000,000.00	-	-	(3,000,000.00)	-
WBS R-A2.08108	**Highland No. 2 Cover**	**3,000,000.00**	**-**	**-**	**526,236.04**	**3,526,236.04**
WBS R-A2.08108-11	Highland No. 2 Cover - Engineering	200,000.00	-	-	(200,000.00)	-
WBS R-A2.08108-12	Highland No. 2 Cover - CM	200,000.00	-	-	-	200,000.00
WBS R-A2.08108-21	Highland No. 2 Cover - Construction	2,600,000.00	-	-	726,236.04	3,326,236.04
WBS R-A2.08109	**H.H. Pump Station Main Replacement**	**750,000.00**	**-**	**-**	**(397,766.77)**	**352,233.23**
WBS R-A2.08109-11	H.H. Pump Station Main - Engineering	62,500.00	-	-	11,145.16	73,645.16
WBS R-A2.08109-12	H.H. Pump Station Main - CM	62,500.00	-	-	(31,736.87)	30,763.13
WBS R-A2.08109-21	H.H. Pump Station Main - Construction	625,000.00	-	-	(377,175.06)	247,824.94
WBS R-A2.08144	**Pump and Motor Rehabilitation**	**-**	**-**	**-**	**757,837.94**	**757,837.94**
WBS R-A2.08144-12	Pump and Motor Rehabilitation	-	-	-	48,904.94	48,904.94
WBS R-A2.08144-21	Pump and Motor Rehabilitation	-	-	-	708,933.00	708,933.00
WBS R-A2.09021	**Howard PS Emergency Pumping Plan**	**-**	**-**	**-**	**18,723.00**	**18,723.00**
WBS R-A2.09021-11	Howard PS Emergency Pumping Plan	-	-	-	18,723.00	18,723.00
WBS R-A2.09022	**MFP 2nd Electrical Feed**	**-**	**-**	**-**	**49,187.60**	**49,187.60**
WBS R-A2.09022-21	MFP 2nd Electrical Feed	-	-	-	49,187.60	49,187.60
WBS R-A2.10013	**Mission Pump Station Floor Inspection**	**-**	**-**	**-**	**903,816.00**	**903,816.00**
WBS R-A2.10013-11	Mission Pump Station Floor Insp - ENG	-	-	-	3,816.00	3,816.00
WBS R-A2.10013-12	Mission Pump Station Floor Rehab-ENG	-	-	-	75,000.00	75,000.00
WBS R-A2.10013-13	Mission Pump Station Floor Rehab-CM	-	-	-	75,000.00	75,000.00
WBS R-A2.10013-21	Mission Pump Station Floor Rehab-CONST	-	-	-	750,000.00	750,000.00
WBS R-A2.11017	**Motor and Pump Rehabilitation**	**-**	**-**	**-**	**773,469.00**	**773,469.00**
WBS R-A2.11017-11	Motor and Pump Rehabilitation - CM	-	-	-	70,000.00	70,000.00
WBS R-A2.11017-21	Motor and Pump Rehabilitation - Const	-	-	-	703,469.00	703,469.00

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

A2 WATER - PUMPING AND STORAGE

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS R-A2.98001-12-2008	Highland #1 MFP - CM	-	-	-	50,000.00	50,000.00
WBS R-A2.98001-27-2008	HIGHLAND NO. 1 MFP - FILTER ELEMENTS	-	-	-	2,500,000.00	2,500,000.00
WBS R-A2.98001-43	HIGHLAND NO. 1 MFP - Air Handler Rehab	-	-	-	919.80	919.80
A2 TOTAL		9,300,000.00	-	-	5,104,096.93	14,404,096.93

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

A3 WATER - TREATMENT PLANT

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS R-A3.05006-15-2008	**Filter Backwash / Clarification ENG**	**127,000.00**	**-**	**-**	**-**	**127,000.00**
WBS R-A3.05006-16-2008	**Filter Backwash / Clarification CM**	**1,095,000.00**	**-**	**-**	**(684,375.00)**	**410,625.00**
WBS R-A3.05006-17-2008	**Filter Backwash Equalization - ENG**	**160,000.00**	**-**	**-**	**(160,000.00)**	**-**
WBS R-A3.05006-18-2008	**Filter Backwash Equalization - CM**	**500,000.00**	**-**	**-**	**(500,000.00)**	**-**
WBS R-A3.05006-24-2008	**Filter Backwash Equalization - CONST**	**18,615,000.00**	**-**	**-**	**(13,815,125.00)**	**4,799,875.00**
WBS R-A3.05006-25-2008	**Filter Backwash / Clarification ELECTR**	**3,285,000.00**	**-**	**-**	**(2,663,750.00)**	**621,250.00**
WBS R-A3.06007-13-2008	**SCADA - CM**	**190,000.00**	**-**	**-**	**-**	**190,000.00**
WBS R-A3.06007-14-2008	**SCADA Systems Upgrade Engineering**	**-**	**-**	**-**	**750,798.42**	**750,798.42**
WBS R-A3.06007-15-2008	**SCADA Aspinwall Workstation Upgrade**	**-**	**-**	**-**	**96,850.00**	**96,850.00**
WBS R-A3.06007-16-2008	**SCADA MFP Workstation Upgrade**	**-**	**-**	**-**	**96,850.00**	**96,850.00**
WBS R-A3.06007-21-2008	**SCADA - Const**	**1,810,000.00**	**-**	**-**	**-**	**1,810,000.00**
WBS R-A3.06007-22-2008	**SCADA Hardware/Software Purchase**	**-**	**-**	**-**	**26,000.00**	**26,000.00**
WBS R-A3.07018	**Rehab of Clarifiers**	**-**	**-**	**-**	**245,698.72**	**245,698.72**
WBS R-A3.07018-11	Rehab of Clariifers - CM	-	-	-	35,000.00	35,000.00
WBS R-A3.07018-21	Rehab of Clarifers - Construction	-	-	-	210,698.72	210,698.72
WBS R-A3.08110	**Bruecken Pump Station Standby Power**	**7,765,000.00**	**-**	**-**	**(7,765,000.00)**	**-**
WBS R-A3.08110-11	Bruecken Standby Power - Engineering	115,000.00	-	-	(115,000.00)	-
WBS R-A3.08110-12	Bruecken Standby Power - CM	250,000.00	-	-	(250,000.00)	-
WBS R-A3.08110-21	Bruecken Standby Power - Construction	7,400,000.00	-	-	(7,400,000.00)	-
WBS R-A3.08111	**Highland No. 1 Reservoir MFP Expansion**	**1,100,000.00**	**-**	**-**	**(1,100,000.00)**	**-**
WBS R-A3.08111-12	Highland No. 1 MFP Expansion - CM	100,000.00	-	-	(100,000.00)	-
WBS R-A3.08111-21	Highland No. 1 MFP Expansion - Const.	1,000,000.00	-	-	(1,000,000.00)	-
WBS R-A3.08137	**WTP Chemical Containment Walls**	**-**	**-**	**-**	**112,630.99**	**112,630.99**
WBS R-A3.08137-11	WTP Chemical Containment Walls	-	-	-	8,928.49	8,928.49
WBS R-A3.08137-12	WTP Chemical Containment Walls - CM	-	-	-	20,000.00	20,000.00
WBS R-A3.08137-21	WTP Chemical Containment Walls - Const	-	-	-	83,702.50	83,702.50
WBS R-A3.10010	**Clarifiers 1, 2 & 3 - Joint Rehab.**	**-**	**-**	**-**	**457,855.00**	**457,855.00**
WBS R-A3.10010-21	Clarifiers 1, 2 & 3 - Joint Rehab.	-	-	-	457,855.00	457,855.00
WBS R-A3.10012-10	**Clearwell Drain Separation - Survey**	**-**	**-**	**-**	**974,813.15**	**974,813.15**
WBS R-A3.10012-10-2008	Clearwell Drain Separation - Survey	-	-	-	7,863.15	7,863.15
WBS R-A3.10012-11	Clearwell Drain Separation - CM	-	-	-	90,000.00	90,000.00
WBS R-A3.10012-21	Clearwell Drain Separation -Constructio	-	-	-	876,950.00	876,950.00
WBS R-A3.10019	**Relocation of 500 KV Ductbank WTP**	**-**	**-**	**-**	**102,543.00**	**102,543.00**
WBS R-A3.10019-21	Relocation of 500 KV Ductbank WTP	-	-	-	102,543.00	102,543.00
WBS R-A3.10020	**WTP Operations Bldg Ceiling Replacement**	**-**	**-**	**-**	**41,147.90**	**41,147.90**
WBS R-A3.10020-21	WTP Operations Bldg 2nd Flr Ceiling	-	-	-	41,147.90	41,147.90
WBS R-A3.10021	**WTP HVAC Upgrades**	**-**	**-**	**-**	**44,053.08**	**44,053.08**
WBS R-A3.10021-21	WTP Automatic Temperature Control Renov	-	-	-	44,053.08	44,053.08
WBS R-A3.10022	**WTP Gas Chromatograph**	**-**	**-**	**-**	**27,830.00**	**27,830.00**
WBS R-A3.10022-21	WTP Gas Chromatograph	-	-	-	27,830.00	27,830.00

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

A3 WATER - TREATMENT PLANT

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS R-A3.10027	**Automated Gate System Contract**	**-**	**-**	**-**	**51,893.54**	**51,893.54**
WBS R-A3.10027-21	Automated Gate System Contract - CONST	-	-	-	51,893.54	51,893.54
A3 TOTAL		**34,647,000.00**	**-**	**-**	**(23,659,286.20)**	**10,987,713.80**

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

B2 SEWER - COMBINED SEWER

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS R-B2.05018-14	**Sheraden Park - Phase II**	**-**	**-**	**-**	**18,560.63**	**18,560.63**
WBS R-B2.05019-11-2008	**CSO Project - Region One - 2008**	**-**	**-**	**-**	**181,421.15**	**181,421.15**
WBS R-B2.05020-11-2008	**CSO Project - Region Two (Baker)**	**-**	**-**	**-**	**20,000.00**	**20,000.00**
WBS R-B2.06001-11-2008	**COA PM Contract 1**	**-**	**-**	**-**	**109,348.95**	**109,348.95**
WBS R-B2.06001-12-2008	**COA PM Contract 2**	**-**	**-**	**-**	**178,035.41**	**178,035.41**
WBS R-B2.08112	**COA Sewer Televising and Cleaning**	**2,250,000.00**	**-**	**-**	**(1,865,555.13)**	**384,444.87**
WBS R-B2.08112-01	COA Sewer Televising and Cleaning	2,250,000.00	-	-	(2,238,470.07)	11,529.93
WBS R-B2.08112-11	COA Sewer Televising & Cleaning - Eng	-	-	-	3,470.07	3,470.07
WBS R-B2.08112-12	COA Sewer Televising & Cleaning - CM	-	-	-	185,000.00	185,000.00
WBS R-B2.08112-21	COA Sewer Televising & Cleaning - Const	-	-	-	184,444.87	184,444.87
WBS R-B2.08113	**CSO / COA Management**	**750,000.00**	**-**	**-**	**(488,805.51)**	**261,194.49**
WBS R-B2.08113-01	CSO / COA Management	750,000.00	-	-	(488,805.51)	261,194.49
WBS R-B2.08114	**MH CB & Sewer Line Point Repair**	**2,250,000.00**	**-**	**-**	**(693,313.65)**	**1,556,686.35**
WBS R-B2.08114-01	MH CB & Sewer Line Point Repair	2,250,000.00	-	-	(2,250,000.00)	-
WBS R-B2.08114-02	MH CB & Sewer Line Point Repair - Eng	-	-	-	2,366.33	2,366.33
WBS R-B2.08114-11	MH CB & Sewer Line Point Repair - CM	-	-	-	261,361.24	261,361.24
WBS R-B2.08114-12	Solar Street Point Repair	-	-	-	1,272.43	1,272.43
WBS R-B2.08114-21	MH CB & Sewer Line Point Repair - Const	-	-	-	1,273,544.80	1,273,544.80
WBS R-B2.08114-22	Solar Street Point Repair	-	-	-	18,141.55	18,141.55
WBS R-B2.08115	**Sewer Rehabilitation - Gunite**	**750,000.00**	**-**	**-**	**(462,835.23)**	**287,164.77**
WBS R-B2.08115-01	Sewer Rehabilitation - Gunite	750,000.00	-	-	(750,000.00)	-
WBS R-B2.08115-02	Science Ctr Sewer Repair - Engineering	-	-	-	10,649.84	10,649.84
WBS R-B2.08115-11	Science Ctr Sewer Repair - CM	-	-	-	41,094.53	41,094.53
WBS R-B2.08115-21	Science Ctr Sewer Repair - Construction	-	-	-	235,420.40	235,420.40
WBS R-B2.08116	**Sewer Rehabilitation - Lining**	**650,000.00**	**-**	**-**	**(588,340.00)**	**61,660.00**
WBS R-B2.08116-01	Sewer Rehabilitation - Lining	650,000.00	-	-	(650,000.00)	-
WBS R-B2.08116-11	Sewer Rehabilitation - CM	-	-	-	5,000.00	5,000.00
WBS R-B2.08116-21	Sewer Rehabilitation - CONST	-	-	-	56,660.00	56,660.00
WBS R-B2.08117	**Sewer Improvements - Planned**	**1,050,000.00**	**3,816.67**	**-**	**475,717.32**	**1,529,533.99**
WBS R-B2.08117-01	Sewer Improvements - Planned	1,050,000.00	-	-	(1,050,000.00)	-
WBS R-B2.08117-05	S 22nd St Sewer Const - Eng	-	-	-	7,304.97	7,304.97
WBS R-B2.08117-11	Sewer Improvement Contract - CM	-	-	-	189,207.50	189,207.50
WBS R-B2.08117-21	Sewer Improvement Contract - CONST	-	3,816.67	-	1,329,204.85	1,333,021.52
WBS R-B2.08118	**MS4 Stormwater Compliance**	**400,000.00**	**-**	**-**	**(300,000.00)**	**100,000.00**
WBS R-B2.08118-01	MS4 Stormwater Compliance	400,000.00	-	-	(300,000.00)	100,000.00
WBS R-B2.08119	**Sewer Flow Monitoring**	**45,000.00**	**-**	**-**	**-**	**45,000.00**
WBS R-B2.08119-01	Sewer Flow Monitoring	45,000.00	-	-	(35,936.00)	9,064.00
WBS R-B2.08119-11	5th Ave - 96" Sewer Crawford to Diamond	-	-	-	26,336.00	26,336.00
WBS R-B2.08119-12	Bryant St - 24" Sewer Highland to Mello	-	-	-	9,600.00	9,600.00

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

B2 SEWER - COMBINED SEWER

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS R-B2.08120	**Colby Chapin Sewer Extension**	**200,000.00**	**-**	**-**	**21,138.45**	**221,138.45**
WBS R-B2.08120-10	Coby Chapin Sewer Extension Easement	10,000.00	-	-	(5,200.00)	4,800.00
WBS R-B2.08120-11	Coby Chapin Sewer Extension Engineering	12,000.00	-	-	(12,000.00)	-
WBS R-B2.08120-12	Coby Chapin Sewer Extension - CM	15,000.00	-	-	9,000.00	24,000.00
WBS R-B2.08120-21	Coby Chapin Sewer Extension - CONST	163,000.00	-	-	29,338.45	192,338.45
WBS R-B2.08136	**SR 28 Reconstruction - Sewer Reloc**	**-**	**-**	**-**	**500,000.00**	**500,000.00**
WBS R-B2.08136-01	SR 28 Reconstruction Sewer Reloc	-	-	-	458,700.00	458,700.00
WBS R-B2.08136-11	SR 28 Reconstruction Sewer Reloc	-	-	-	41,300.00	41,300.00
WBS R-B2.10007	**Catch Basin Replacement**	**-**	**-**	**-**	**633,084.29**	**633,084.29**
WBS R-B2.10007-11	Catch Basin Replacement - CM	-	-	-	62,000.00	62,000.00
WBS R-B2.10007-21	Catch Basin Replacement - Const	-	-	-	571,084.29	571,084.29
WBS R-B2.10018	**2010-2011 Sewer Rehabilitation Gunite**	**-**	**-**	**-**	**1,798,236.00**	**1,798,236.00**
WBS R-B2.10018-11	2010-2011 Sewer Rehab Gunite - ENG	-	-	-	10,000.00	10,000.00
WBS R-B2.10018-12	2010-2011 Sewer Rehab Gunite - CM	-	-	-	150,000.00	150,000.00
WBS R-B2.10018-21	2010-2011 Sewer Rehab Gunite - CONST	-	-	-	1,638,236.00	1,638,236.00
WBS R-B2.10023	**2010-2011 Sewer Improvement Contract**	**-**	**-**	**-**	**1,315,136.25**	**1,315,136.25**
WBS R-B2.10023-11	2010-2011 Sewer Improvement - CM	-	-	-	140,000.00	140,000.00
WBS R-B2.10023-12	South 26th - CSX Inspection Fees	-	-	-	10,111.25	10,111.25
WBS R-B2.10023-21	2010-2011 Sewer Improvement - CONST	-	-	-	1,165,025.00	1,165,025.00
WBS R-B2.10025	**2010-2011 Catch Basin Replacement**	**-**	**-**	**-**	**946,942.50**	**946,942.50**
WBS R-B2.10025-11	2010-2011 Catch Basin Replacement - CM	-	-	-	100,000.00	100,000.00
WBS R-B2.10025-21	2010-2011 Catch Basin Replacement -CONS	-	-	-	846,942.50	846,942.50
WBS R-B2.10033	**Sewer Improvements (09017ESOR)**	**-**	**-**	**-**	**202,022.27**	**202,022.27**
WBS R-B2.10033-21	SI - Denora at Beckfield	-	-	-	39,629.30	39,629.30
WBS R-B2.10033-22	SI - Bradish St btwn 10th & 11th Street	-	-	-	60,669.70	60,669.70
WBS R-B2.10033-23	SI - Hobart St 5900 Block	-	-	-	25,571.55	25,571.55
WBS R-B2.10033-24	SI - Stetson St btwn Pioneer - Plainvie	-	-	-	36,947.97	36,947.97
WBS R-B2.10033-25	SI - Mellon Terrace at Mellon	-	-	-	39,203.75	39,203.75
WBS R-B2.11005	**PVC Sewer Pipe**	**-**	**-**	**-**	**36,691.75**	**36,691.75**
WBS R-B2.11005-21	PVC Sewer Pipe - Contract 1	-	-	-	12,243.00	12,243.00
WBS R-B2.11005-22	PVC Sewer Pipe - Contract 2	-	-	-	24,448.75	24,448.75
WBS R-B2.11009	**Manhole, Catch Basin & Point Repair**	**-**	**-**	**-**	**1,439,895.00**	**1,439,895.00**
WBS R-B2.11009-11	Manhole, Catch Basin & Point Repair - C	-	-	-	220,000.00	220,000.00
WBS R-B2.11009-21	Manhole, Catch Basin & Point Repair	-	-	-	1,219,895.00	1,219,895.00
WBS R-B2.11018	**Sewer Point Lining**	**-**	**-**	**-**	**653,340.00**	**653,340.00**
WBS R-B2.11018-11	Sewer Point Lining	-	-	-	60,000.00	60,000.00
WBS R-B2.11018-21	Sewer Point Lining	-	-	-	593,340.00	593,340.00
WBS R-B2.11023	**COA Sewer Inspection**	**-**	**-**	**-**	**491,432.00**	**491,432.00**
WBS R-B2.11023-11	COA Sewer Inspection	-	-	-	100,000.00	100,000.00
WBS R-B2.11023-21	COA Sewer Inspection	-	-	-	391,432.00	391,432.00

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

B2 SEWER - COMBINED SEWER

Project Number		Original Budget	Supplements	Returns	Transfers	Current Budget
WBS R-B2.11024	**Catch Basin Repair & Replacement**	**-**	**-**	**-**	**1,046,965.00**	**1,046,965.00**
WBS R-B2.11024-11	Catch Basin Repair & Replacement	-	-	-	95,000.00	95,000.00
WBS R-B2.11024-21	Catch Basin Repair & Replacment - CONST	-	-	-	951,965.00	951,965.00
WBS R-B2.11026	**2011 Sewer Improvement Contract**	**-**	**-**	**-**	**1,594,444.44**	**1,594,444.44**
WBS R-B2.11026-11	2011 Sewer Improvement Contract - CM	-	-	-	150,000.00	150,000.00
WBS R-B2.11026-21	2011 Sewer Improvement Contract - Const	-	-	-	1,444,444.44	1,444,444.44
WBS R-B2.11028	**2011-2012 Sewer Rehab Gunite**	**-**	**-**	**-**	**2,281,663.00**	**2,281,663.00**
WBS R-B2.11028-11	2011-2012 Sewer Rehab Gunite-CM	-	-	-	210,000.00	210,000.00
WBS R-B2.11028-21	2011-2012 Sewer Rehab Gunite-Constr	-	-	-	2,071,663.00	2,071,663.00
WBS R-B2.11040	**2012 PVC Sewer Pipe**	**-**	**-**	**-**	**129,257.76**	**129,257.76**
WBS R-B2.11040-21	2012 PVC Sewer Pipe - Contract 1	-	-	-	27,691.44	27,691.44
WBS R-B2.11040-22	2012 PVC Sewer Pipe - Contract 2	-	-	-	100,000.00	100,000.00
WBS R-B2.11040-23	2012 PVC Sewer Pipe - Contract 3	-	-	-	1,566.32	1,566.32
B2 TOTAL		**8,345,000.00**	**3,816.67**	**-**	**9,674,482.65**	**18,023,299.32**

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

B4 SEWER - PUMP STATION

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS R-B4.05001-01-2008	Sewage Pump Station Improvements	3,360,000.00	-	-	(2,860,000.00)	500,000.00
WBS R-B4.05001-26-2008	Brown's Hill Rd Sewer Separation - CONS	90,000.00	-	-	(90,000.00)	-
WBS R-B4.05001-17-2008	Brown's Hill Rd Sewer Separation - CM	10,000.00	-	-	(10,000.00)	-
B4 TOTAL		3,460,000.00	-	-	(2,960,000.00)	500,000.00

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

C1 CITY / URA / SEA / PORT AUTHORITY

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS R-C1.06501-21-2008	**URA - Liberty Park Phase 2 - Constructi**	**-**	**-**	**-**	**156,907.27**	**156,907.27**
WBS R-C1.06501-13-2008	**URA Liberty Park - CM**	**-**	**-**	**-**	**25,459.99**	**25,459.99**
WBS R-C1.06501-14-2008	**URA Liberty Park Phase 2 Design**	**-**	**-**	**-**	**7,632.74**	**7,632.74**
WBS R-C1.08501	**Manchester Housing**	**200,000.00**	**-**	**-**	**(45,000.00)**	**155,000.00**
WBS R-C1.08501-01	Manchester Housing	200,000.00	-	-	(200,000.00)	-
WBS R-C1.08501-21	Manchester Housing - Construction	-	-	-	155,000.00	155,000.00
WBS R-C1.08502	**Proposed Development Projects**	**875,000.00**	**-**	**-**	**(875,000.00)**	**-**
WBS R-C1.08502-01	Proposed Development Projects	875,000.00	-	-	(875,000.00)	-
WBS R-C1.08503	**Garfield Housing**	**4,000,000.00**	**-**	**-**	**(2,590,945.19)**	**1,409,054.81**
WBS R-C1.08503-01	Garfield Housing	4,000,000.00	-	-	(3,866,202.59)	133,797.41
WBS R-C1.08503-02	Garfield Housing - Administrative	-	-	-	34,887.53	34,887.53
WBS R-C1.08503-11	Garfield Housing - Design	-	-	-	88,203.00	88,203.00
WBS R-C1.08503-21	Garfield Housing - Construction	-	-	-	949,666.87	949,666.87
WBS R-C1.08503-22	Garfield Housing Phase 2 - Const.	-	-	-	202,500.00	202,500.00
WBS R-C1.08504	**Pittsburgh Technology Center**	**1,350,000.00**	**-**	**-**	**(1,350,000.00)**	**-**
WBS R-C1.08504-01	Pittsburgh Technology Center	1,350,000.00	-	-	(1,350,000.00)	-
WBS R-C1.10034	**Market Square (PWSA Infrastructure)**	**-**	**-**	**-**	**83,853.03**	**83,853.03**
WBS R-C1.10034-21	Market Square (PWSA Infrastructure)	-	-	-	83,853.03	83,853.03
WBS R-C1.10401	**City Web Base Permitting**	**-**	**-**	**-**	**125,000.00**	**125,000.00**
WBS R-C1.10401-11	City Web Base Permitting	-	-	-	125,000.00	125,000.00
WBS R-C1.10501	**Oak Hill Phase II**	**-**	**-**	**-**	**1,388,000.00**	**1,388,000.00**
WBS R-C1.10501-11	Oak Hill Phase II - Engineering	-	-	-	120,000.00	120,000.00
WBS R-C1.10501-21	Oak Hill Phase II - Construction	-	-	-	1,268,000.00	1,268,000.00
WBS R-C1.91501-21-2008	**NINE MILE RUN REDEVELOPMENT**	**4,450,000.00**	**-**	**-**	**(2,450,000.00)**	**2,000,000.00**
WBS R-C1.95502-21-2008	**SOUTH SIDE RIVERFRONT HOUSING**	**-**	**-**	**-**	**93,348.08**	**93,348.08**
WBS R-C1.96482-21-2008	**ALLEQUIPPA TERRACE**	**3,750,000.00**	**-**	**-**	**(3,388,000.00)**	**362,000.00**
WBS R-C1.98501-21-2008	**S.S. Industrial Development**	**1,600,000.00**	**-**	**-**	**1,337,610.52**	**2,937,610.52**
WBS R-C1.98501-22-2008	**S.S. Industrial Development**	**-**	**-**	**-**	**62,568.35**	**62,568.35**
C1 TOTAL		**16,225,000.00**	**-**	**-**	**(7,418,565.21)**	**8,806,434.79**

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

D1 ENGINEERING

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS I-D1.05031-2008-13	**Sewer Construction Cassabill Drive**	**-**	**-**	**-**	**10,000.00**	**10,000.00**
WBS I-D1.08123	**Misc Engineering Services - 2008 CF**	**1,250,000.00**	**-**	**-**	**(1,250,000.00)**	**-**
WBS I-D1.08123-2008	Misc Engineering Services - 2008 CF	1,250,000.00	-	-	(1,250,000.00)	-
WBS R-D1.08121	**Surveys**	**175,000.00**	**-**	**-**	**(165,687.05)**	**9,312.95**
WBS R-D1.08121-01	Surveys	175,000.00	-	-	(165,687.05)	9,312.95
WBS R-D1.08122	**CM for Private Development**	**435,000.00**	**29,448.00**	**-**	**(93,791.04)**	**370,656.96**
WBS R-D1.08122-01	CM for Private Development	435,000.00	-	-	(402,691.08)	32,308.92
WBS R-D1.08122-11	Forbes 5th Relocation W&S Facilities	-	-	-	15,448.87	15,448.87
WBS R-D1.08122-12	N.S. Fred Rogers Memorial	-	1,750.00	-	739.88	2,489.88
WBS R-D1.08122-13	Western Ave Street Scape	-	-	-	16,902.22	16,902.22
WBS R-D1.08122-14	5th Ave Waterline 3 PNC/Market Sq Pl	-	10,267.00	-	(2,785.89)	7,481.11
WBS R-D1.08122-15	PAT N.S. Connector	-	-	-	260,000.00	260,000.00
WBS R-D1.08122-16	Plymouth St Inlet Reconstruction	-	200.00	-	1,491.56	1,691.56
WBS R-D1.08122-17	57th St - Hydrant & CB Relocation	-	-	-	618.43	618.43
WBS R-D1.08122-19	North Shore Hyatt Fire Hydrant Reloc.	-	982.00	-	(982.00)	-
WBS R-D1.08122-20	Sweetbriar Homes - WL & MH Construction	-	7,750.00	-	7,023.62	14,773.62
WBS R-D1.08122-21	Pitt Olympic Sports Complex	-	6,010.00	-	(6,010.00)	-
WBS R-D1.08122-22	Bakery Square W&S Reconstruction	-	-	-	10,000.00	10,000.00
WBS R-D1.08122-25	Aldi Store Sussex Ave Sewer Relocation	-	-	-	6,453.35	6,453.35
WBS R-D1.08122-26	YMCA 2114 Centre Ave - Sewer Lining	-	2,489.00	-	-	2,489.00
WBS R-D1.08124	**2008 CF Temp Staffing**	**1,800,000.00**	**-**	**-**	**1,370,000.00**	**3,170,000.00**
WBS R-D1.08124-11	2008 CF Temp Staffing - Chester Eng	800,000.00	-	-	371,448.77	1,171,448.77
WBS R-D1.08124-12	2008 CF Temp Staffing - Kimball	464,000.00	-	-	210,862.96	674,862.96
WBS R-D1.08124-13	2008 CF Temp Staffing - URS	536,000.00	-	-	(66,543.98)	469,456.02
WBS R-D1.08124-14	2011 CF Temp Staffing - Chester Enginee	-	-	-	538,551.23	538,551.23
WBS R-D1.08124-15	2011 CF Temp Staffing - Kimball	-	-	-	164,137.04	164,137.04
WBS R-D1.08124-16	2011 CF Temp Staffing - URS	-	-	-	151,543.98	151,543.98
WBS R-D1.08125	**Developer Reviews**	**295,000.00**	**-**	**-**	**71,790.65**	**366,790.65**
WBS R-D1.08125-11	Developer Reviews	295,000.00	-	-	(196,450.15)	98,549.85
WBS R-D1.08125-12	Developer Reviews - 2009	-	-	-	118,240.80	118,240.80
WBS R-D1.08125-13	Developer Reviews - 2010	-	-	-	79,019.73	79,019.73
WBS R-D1.08125-14	Developer Reviews - 2011	-	-	-	70,980.27	70,980.27
WBS R-D1.08126	**Consulting Engineer Additional Services**	**350,000.00**	**-**	**-**	**(84,643.71)**	**265,356.29**
WBS R-D1.08126-01	Consulting Engineer Additonal Services	125,000.00	-	-	(116,000.00)	9,000.00
WBS R-D1.08126-11	CE - Miscellaneous Design	70,000.00	-	-	(45,049.53)	24,950.47
WBS R-D1.08126-12	CE - SAP Setup and Testing	40,000.00	-	-	(34,643.71)	5,356.29
WBS R-D1.08126-13	CE - Meeting Attendance	15,000.00	-	-	25,090.27	40,090.27
WBS R-D1.08126-14	CE - Preparation of Monthly Reports	100,000.00	-	-	(38,323.22)	61,676.78
WBS R-D1.08126-15	2011 CE - Miscellaneous Design	-	-	-	45,049.53	45,049.53
WBS R-D1.08126-16	2011 CE - Meeting Attendance	-	-	-	20,909.73	20,909.73
WBS R-D1.08126-17	2011 CE - Preparation of Monthly Report	-	-	-	38,323.22	38,323.22
WBS R-D1.08126-18	2011 CE - Cogsdale Implentation Trainin	-	-	-	20,000.00	20,000.00

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

D1 ENGINEERING

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS R-D1.08127	**Construction Manager Additional Service**	**210,000.00**	**-**	**-**	**(50,000.00)**	**160,000.00**
WBS R-D1.08127-01	Construction Manager Additional Service	85,000.00	-	-	(57,000.00)	28,000.00
WBS R-D1.08127-11	CM - Meetings	25,000.00	-	-	(7,548.70)	17,451.30
WBS R-D1.08127-12	CM-SAP Purchase Requisition Preparation	50,000.00	-	-	(13,629.05)	36,370.95
WBS R-D1.08127-13	CM - Miscellaneous Design	50,000.00	-	-	(32,833.54)	17,166.46
WBS R-D1.08127-14	2011 CM - Meetings	-	-	-	9,548.70	9,548.70
WBS R-D1.08127-15	2011 CM - SAP Purchase Requisition Prep	-	-	-	18,629.05	18,629.05
WBS R-D1.08127-16	2011 CM - Miscellaneous Design	-	-	-	32,833.54	32,833.54
WBS R-D1.08128	**Construction Management for URA Project**	**700,000.00**	**-**	**-**	**526,470.87**	**1,226,470.87**
WBS R-D1.08128-01	Construction Management for URA Project	340,000.00	-	-	(331,886.95)	8,113.05
WBS R-D1.08128-11	CM - S.S. Industrial Development	100,000.00	-	-	(10,000.00)	90,000.00
WBS R-D1.08128-12	CM - Nine Mile Run Development	100,000.00	-	-	-	100,000.00
WBS R-D1.08128-13	CM - Bedford Dwellings	10,000.00	-	-	-	10,000.00
WBS R-D1.08128-14	CM - Allequippa Terrace	100,000.00	-	-	(50,000.00)	50,000.00
WBS R-D1.08128-15	CM - Pittsburgh Technology Center	50,000.00	-	-	69,901.33	119,901.33
WBS R-D1.08128-16	CM - Susquehanna Street	-	-	-	32,564.42	32,564.42
WBS R-D1.08128-17	CM - Federal Hill Housing	-	-	-	102,257.86	102,257.86
WBS R-D1.08128-18	CM - Garfield Heights	-	-	-	90,000.00	90,000.00
WBS R-D1.08128-19	CM - Carson St Widening	-	-	-	324,200.00	324,200.00
WBS R-D1.08128-20	CM - Browns Hill Rd Intersection Recon	-	-	-	40,973.20	40,973.20
WBS R-D1.08128-21	CM - Market Square Water Facilities	-	-	-	12,470.87	12,470.87
WBS R-D1.08128-22	CM - Garfield Heights Phase 2	-	-	-	38,084.74	38,084.74
WBS R-D1.08128-23	CM - North Shore Underpasses	-	-	-	65.39	65.39
WBS R-D1.08128-24	CM - Oak Hill As Built Drawings	-	-	-	25,159.01	25,159.01
WBS R-D1.08128-25	CM - Garfield Heights Phase 3	-	-	-	26,500.00	26,500.00
WBS R-D1.08128-26	CM - Liberty Park Phase 2	-	-	-	50,000.00	50,000.00
WBS R-D1.08128-27	CM - SEA North Shore Roadway Improvemen	-	-	-	15,000.00	15,000.00
WBS R-D1.08128-28	CM - Columbus Square	-	-	-	91,181.00	91,181.00
WBS R-D1.08129	**Engineering Department Reimbursement**	**4,000,000.00**	**-**	**-**	**494,975.00**	**4,494,975.00**
WBS R-D1.08129-11	2008 Engineering Dept Reimbursement	1,000,000.00	-	-	461,395.00	1,461,395.00
WBS R-D1.08129-12	2009 Engineering Dept Reimbursement	1,000,000.00	-	-	250,341.00	1,250,341.00
WBS R-D1.08129-13	2010 Engineering Dept Reimbursement	1,000,000.00	-	-	(1,000,000.00)	-
WBS R-D1.08129-14	2011 Engineering Dept Reimbursement	1,000,000.00	-	-	783,239.00	1,783,239.00
WBS R-D1.08139	**Mobile Map Application Upgrade**	**-**	**-**	**-**	**1,039.14**	**1,039.14**
WBS R-D1.08139-11	Mobile Map Application Upgrade	-	-	-	1,039.14	1,039.14
WBS R-D1.08140	**IT Support Services**	**-**	**-**	**-**	**8,000.00**	**8,000.00**
WBS R-D1.08140-11	IT Support Services	-	-	-	8,000.00	8,000.00
WBS R-D1.08141	**Bond Financing Legal Fees**	**-**	**-**	**-**	**400,000.00**	**400,000.00**
WBS R-D1.08141-01	Bond Financing Legal Fees	-	-	-	400,000.00	400,000.00
WBS R-D1.08142	**Bedford Dwellings**	**-**	**-**	**-**	**5,596.00**	**5,596.00**
WBS R-D1.08142-11	Bedford Dwellings - As Built	-	-	-	5,596.00	5,596.00

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

D1 ENGINEERING

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS R-D1.10015	**40 Year Capital Plan**	**-**	**-**	**-**	**235,875.39**	**235,875.39**
WBS R-D1.10015-01	40 Year Capital Plan	-	-	-	235,875.39	235,875.39
WBS R-D1.11010	**Stormwater Management Rate Study**	**-**	**-**	**-**	**149,527.00**	**149,527.00**
WBS R-D1.11010-01	Stormwater Management Rate Study	-	-	-	149,527.00	149,527.00
D1 TOTAL		**9,215,000.00**	**29,448.00**	**-**	**1,629,152.25**	**10,873,600.25**

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

E1 TOOLS AND EQUIPMENT

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS R-E1.08130	**Street Repaving Sewer Risers and Lids**	**1,200,000.00**	**-**	**-**	**(662,224.29)**	**537,775.71**
WBS R-E1.08130-01	Water and Sewer Castings	1,200,000.00	-	-	(1,200,000.00)	-
WBS R-E1.08130-21	Contract 1 - East Jordan	-	-	-	393,505.21	393,505.21
WBS R-E1.08130-22	Contract 2 - Bingham & Taylor	-	-	-	76,278.50	76,278.50
WBS R-E1.08130-23	Contract 3 - Neenah	-	-	-	67,992.00	67,992.00
WBS R-E1.08131	**Purchase Water Meters / UMEs**	**750,000.00**	**-**	**-**	**(750,000.00)**	**-**
WBS R-E1.08131-01	Purchase Water Meters / UMEs	750,000.00	-	-	(750,000.00)	-
WBS R-E1.08132	**Vehicles**	**2,100,000.00**	**-**	**-**	**(1,280,678.95)**	**819,321.05**
WBS R-E1.08132-01	Vehicles	2,100,000.00	-	-	(2,100,000.00)	-
WBS R-E1.08132-21	Vehicles - 09 SPEC 7300 Dump Truck	-	-	-	91,973.00	91,973.00
WBS R-E1.08132-22	Vehicles - Four Dump Trucks	-	-	-	220,085.40	220,085.40
WBS R-E1.08132-23	Vehicles - Water Distribution Crew	-	-	-	197,896.50	197,896.50
WBS R-E1.08132-24	Vehicles - Vactor Truck	-	-	-	309,366.15	309,366.15
WBS R-E1.08133	**Warehouse / Facility Improv / Fencing**	**1,500,000.00**	**-**	**-**	**(1,500,000.00)**	**-**
WBS R-E1.08133-01	Warehouse / Facility Improv / Fencing	1,500,000.00	-	-	(1,500,000.00)	-
WBS R-E1.08138	**Purchase of Trench Shoring Equipment**	**-**	**-**	**-**	**29,095.00**	**29,095.00**
WBS R-E1.08138-21	Purchase of Trench Shoring Equipment	-	-	-	29,095.00	29,095.00
WBS R-E1.10014	**Small Meters & Residental Fire Meters**	**-**	**-**	**-**	**503.97**	**503.97**
WBS R-E1.10014-11	Small Meters & Residental Fire Meter EN	-	-	-	503.97	503.97
WBS R-E1.10026	**Water & Sewer Castings**	**-**	**-**	**-**	**1,399,563.25**	**1,399,563.25**
WBS R-E1.10026-01	Water & Sewer Castings	-	-	-	-	-
WBS R-E1.10026-21	Water & Sewer Castings - Contract 1	-	-	-	353,155.75	353,155.75
WBS R-E1.10026-22	Water & Sewer Castings - Contract 2	-	-	-	419,950.00	419,950.00
WBS R-E1.10026-23	Water & Sewer Castings - Contract 3	-	-	-	626,457.50	626,457.50
WBS R-E1.11011	**Purchase Digital Leak Detection Equip,**	**-**	**-**	**-**	**43,640.00**	**43,640.00**
WBS R-E1.11011-21	Purchase Digital Leak Detection Equip.	-	-	-	43,640.00	43,640.00
WBS R-E1.11012	**Purchase Large Meters**	**-**	**-**	**-**	**1,961,990.00**	**1,961,990.00**
WBS R-E1.11012-21	Purchase Large Meters - Contract 1	-	-	-	1,192,920.20	1,192,920.20
WBS R-E1.11012-22	Purchase Large Meters - Contract 2	-	-	-	602,469.80	602,469.80
WBS R-E1.11012-23	Purchase Large Meters - Contract 3	-	-	-	166,600.00	166,600.00
WBS R-E1.11013	**Purchase UME's Contract**	**-**	**-**	**-**	**822,300.00**	**822,300.00**
WBS R-E1.11013-21	Purchase UME's Contract	-	-	-	822,300.00	822,300.00
E1 TOTAL		**5,550,000.00**	**-**	**-**	**64,188.98**	**5,614,188.98**

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

F1 IT / GIS

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS R-F1.10030	**Cogsdale Implementation**	**-**	**-**	**-**	**3,984,670.00**	**3,984,670.00**
WBS R-F1.10030-11	Cogsdale - EA Data Cleansing	-	-	-	225,000.00	225,000.00
WBS R-F1.10030-12	Cogsdale - ERP Software	-	-	-	1,801,770.00	1,801,770.00
WBS R-F1.10030-13	Cogsdale - PWSA Personnel & Consulting	-	-	-	1,612,400.00	1,612,400.00
WBS R-F1.10030-14	Cogsdale - Infrastructure	-	-	-	176,853.57	176,853.57
WBS R-F1.10030-15	Cogsdale - Training	-	-	-	21,500.00	21,500.00
WBS R-F1.10030-16	Cogsdale - Associated Software	-	-	-	112,757.35	112,757.35
WBS R-F1.10030-17	Cogsdale - Miscellaneous	-	-	-	34,389.08	34,389.08
F1 TOTAL		**-**	**-**	**-**	**3,984,670.00**	**3,984,670.00**

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
BUDGET AS OF DECEMBER 31, 2011

Z1 CONTINGENCY

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS I-Z1.50000-2008	CONTINGENCY BOND 2008	2,008,166.58	-	-	(1,981,520.76)	26,645.82
Z1 TOTAL		2,008,166.58	-	-	(1,981,520.76)	26,645.82

EXHIBIT B
PENNVEST PROGRAM BUDGET
AS OF DECEMBER 31, 2011

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM - ACTIVE FUNDS
PENNVEST
BUDGET AS OF DECEMBER 31, 2011

	Original Budget	Supplements	Returns	Transfers	Current Budget
WATER SYSTEM					
A1 Water - Distribution System	$ 6,340,706.24	$ -	$ -	$ -	$ 6,340,706.24
A2 Water - Pumping & Storage	1,459,007.76	-	-	-	1,459,007.76
A3 Water - Treatment Plant	8,185,889.00	-	-	-	8,185,889.00
TOTAL WATER SYSTEM	**$ 15,985,603.00**	**$ -**	**$ -**	**$ -**	**$ 15,985,603.00**
SEWER SYSTEM					
B1 Sewer - Sanitary Sewer	$ -	$ -	$ -	$ -	$ -
B2 Sewer - Combined Sewer	17,452,050.90	-	-	-	17,452,050.90
B4 Sewer - Pump Station	-	-	-	-	-
B5 Sewer - CSO	-	-	-	-	-
TOTAL SEWER SYSTEM	**$ 17,452,050.90**	**$ -**	**$ -**	**$ -**	**$ 17,452,050.90**
C1 CITY/URA/SEA/PORT AUTHORITY	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
D1 ENGINEERING	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
E1 TOOLS AND EQUIPMENT	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
F1 IT/GIS	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Z1 CONTINGENCY	**$ 3,371,643.10**	**$ -**	**$ -**	**$ -**	**$ 3,371,643.10**
TOTAL PENNVEST	**$ 36,809,297.00**	**$ -**	**$ -**	**$ -**	**$ 36,809,297.00**

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVMENT PROGRAM
PENNVEST
BUDGET AS OF DECEMBER 31, 2011

A1 WATER - DISTRIBUTION SYSTEM

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS P-A1.09005	**Pennvest Water Phase 5**	**4,200,045.00**	**-**	**-**	**-**	**4,200,045.00**
WBS P-A1.09005-01	Pennvest Water 5 - Administration	5,000.00	-	-	-	5,000.00
WBS P-A1.09005-02	Pennvest Water 5 - Legal Fees	63,000.00	-	-	-	63,000.00
WBS P-A1.09005-03	Pennvest Water 5 - Interest During Cons	35,300.00	-	-	-	35,300.00
WBS P-A1.09005-10	Pennvest Water 5 - Engineering	375,213.02	-	-	-	375,213.02
WBS P-A1.09005-11	Pennvest Water 5 - 60" Main - Engineering	31,216.98	-	-	-	31,216.98
WBS P-A1.09005-12	Pennvest Water 5 - 60" Main - CM	251,200.00	-	-	-	251,200.00
WBS P-A1.09005-21	Pennvest Water 5 - 60" Main - Const	3,439,115.00	-	-	-	3,439,115.00
WBS P-A1.09018	**Pennvest Water Phase 6**	**2,140,661.24**	**-**	**-**	**-**	**2,140,661.24**
WBS P-A1.09018-01	Pennvest Water 6 - Administration	2,000.00	-	-	-	2,000.00
WBS P-A1.09018-02	Pennvest Water 6 - Legal Fees	65,000.00	-	-	-	65,000.00
WBS P-A1.09018-03	Pennvest Water 6 - Interest During Cons	38,000.00	-	-	-	38,000.00
WBS P-A1.09018-10	Pennvest Water 6 - Engineering	503,541.24	-	-	-	503,541.24
WBS P-A1.09018-11	Pennvest Water 6 - Valve & Hydrant - CM	136,900.00	-	-	-	136,900.00
WBS P-A1.09018-21	Pennvest Water 6 - Valve & Hydrant - Co	1,395,220.00	-	-	-	1,395,220.00
A1 TOTAL		**6,340,706.24**	**-**	**-**	**-**	**6,340,706.24**

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVMENT PROGRAM
PENNVEST
BUDGET AS OF DECEMBER 31, 2011

A2 WATER - PUMPING AND STORAGE

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS P-A2.09007	**Pennvest Water 5 - Squirrel Hill Tank**	**792,899.00**	**-**	**-**	**-**	**792,899.00**
WBS P-A2.09007-11	Pennvest Water 5-Squirrel Hill Tank - C	111,900.00	-	-	-	111,900.00
WBS P-A2.09007-21	Pennvest Water 5-Squirrel Hill Tank-Con	680,999.00	-	-	-	680,999.00
WBS P-A2.09015	**Pennvest Water 6 - Herron Hill Tank**	**666,108.76**	**-**	**-**	**-**	**666,108.76**
WBS P-A2.09015-10	Pennvest Water 6 - Herron Hill Tank - En	5,158.76	-	-	-	5,158.76
WBS P-A2.09015-11	Pennvest Water 6 - Herron Hill Tank - CM	112,000.00	-	-	-	112,000.00
WBS P-A2.09015-21	Pennvest Water 6 - Herron Hill Tank - Co	548,950.00	-	-	-	548,950.00
A2 TOTAL		**1,459,007.76**	**-**	**-**	**-**	**1,459,007.76**

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVMENT PROGRAM
PENNVEST
BUDGET AS OF DECEMBER 31, 2011

A3 WATER - TREATMENT PLANT

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS P-A3.09008	**Pennvest Water 5 - WTP Clarifiers 1,2,3**	**2,941,489.00**	**-**	**-**	**-**	**2,941,489.00**
WBS P-A3.09008-11	Pennvest Water 5 - WTP Clarifiers - CM	270,470.00	-	-	-	270,470.00
WBS P-A3.09008-21	Pennvest 5 - WTP Clarifiers - Gen Const	2,263,788.00	-	-	-	2,263,788.00
WBS P-A3.09008-22	Pennvest 5 - WTP Clarifiers - Elec Cons	407,231.00	-	-	-	407,231.00
WBS P-A3.09014	**Pennvest Water 6 - Filter Backwash**	**5,244,400.00**	**-**	**-**	**-**	**5,244,400.00**
WBS P-A3.09014-11	Pennvest Water 6 - Filter Backwash - CM	342,400.00	-	-	-	342,400.00
WBS P-A3.09014-21	PV Water 6 - Backwash - Gen/Mec - Const	4,569,000.00	-	-	-	4,569,000.00
WBS P-A3.09014-22	PV Water 6 - Backwash - Electric - Cons	333,000.00	-	-	-	333,000.00
A3 TOTAL		**8,185,889.00**	**-**	**-**	**-**	**8,185,889.00**

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVMENT PROGRAM
PENNVEST
BUDGET AS OF DECEMBER 31, 2011

B2 SEWER - COMBINED SEWER

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS P-B2.08034	**Sewer System Improvements**	**4,302,373.00**	**-**	**-**	**-**	**4,302,373.00**
WBS P-B2.08034-01	Pennvest Sewer 1 Legal Fees	46,000.00	-	-	-	46,000.00
WBS P-B2.08034-02	Pennvest Sewer 1 Interest During Const.	25,000.00	-	-	-	25,000.00
WBS P-B2.08034-03	Pennvest Sewer 1 Administration	1,000.00	-	-	-	1,000.00
WBS P-B2.08034-10	Engineering - Semple Street Survey	7,000.00	-	-	-	7,000.00
WBS P-B2.08034-11	Pennvest Sewer 1 Engineering	219,000.00	-	-	-	219,000.00
WBS P-B2.08034-12	Sewer Gunite Contract - CM	112,000.00	-	-	-	112,000.00
WBS P-B2.08034-13	Sewer Lining Contract - CM	94,000.00	-	-	-	94,000.00
WBS P-B2.08034-14	Sewer Improvement Contract - CM	98,000.00	-	-	-	98,000.00
WBS P-B2.08034-21	Sewer Gunite Contract - Construction	1,559,803.00	-	-	-	1,559,803.00
WBS P-B2.08034-22	Sewer Lining Contract - Construction	1,193,175.00	-	-	-	1,193,175.00
WBS P-B2.08034-23	Sewer Improvement Contract -Construction	947,395.00	-	-	-	947,395.00

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVMENT PROGRAM
PENNVEST
BUDGET AS OF DECEMBER 31, 2011

B2 SEWER - COMBINED SEWER

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS P-B2.09006	**Pennvest Sewer Phase 2**	**8,640,847.90**	**-**	**-**	**-**	**8,640,847.90**
WBS P-B2.09006-01	Pennvest Sewer Phase 2 - Administration	5,000.00	-	-	-	5,000.00
WBS P-B2.09006-02	Pennvest Sewer Phase 2 - Legal Fees	63,000.00	-	-	-	63,000.00
WBS P-B2.09006-03	Pennvest Sewer 2 - Interest During Cons	50,000.00	-	-	-	50,000.00
WBS P-B2.09006-10	Pennvest Sewer 2 - Engineering	24,000.00	-	-	-	24,000.00
WBS P-B2.09006-11	COA Critical Sewer Inspection #1 - CM	71,000.00	-	-	-	71,000.00
WBS P-B2.09006-12	COA Critical Sewer Inspection #2 - CM	71,000.00	-	-	-	71,000.00
WBS P-B2.09006-13	COA Non-Critical Sewer Inspection #1-CM	126,000.00	-	-	-	126,000.00
WBS P-B2.09006-14	COA Non-Critical Sewer Inspection #2-CM	126,000.00	-	-	-	126,000.00
WBS P-B2.09006-15	MH CB & Point Repair - CM	147,000.00	-	-	-	147,000.00
WBS P-B2.09006-16	Sewer Lining Contract - CM	70,000.00	-	-	-	70,000.00
WBS P-B2.09006-17	Sewer Rehab Gunite Contract - CM	131,000.00	-	-	-	131,000.00
WBS P-B2.09006-18	Sewer Improvement McBride - CM	106,000.00	-	-	-	106,000.00
WBS P-B2.09006-19	Sewer Improvement Browns Hill - CM	25,000.00	-	-	-	25,000.00
WBS P-B2.09006-20	Sewer Improvement 44th/Davison - CM	103,000.00	-	-	-	103,000.00
WBS P-B2.09006-21	COA Critical Sewer Inspection #1 - Cons	218,852.50	-	-	-	218,852.50
WBS P-B2.09006-22	COA Critical Sewer Inspection #2 - Cons	228,568.50	-	-	-	228,568.50
WBS P-B2.09006-23	COA NonCritical Sewer Inspection 1-Cons	441,850.00	-	-	-	441,850.00
WBS P-B2.09006-24	COA NonCritical Sewer Inspection 2-Cons	433,880.00	-	-	-	433,880.00
WBS P-B2.09006-25	MH CB & Point Repair - Construction	1,476,395.00	-	-	-	1,476,395.00
WBS P-B2.09006-26	Sewer Lining Contract - Construction	693,474.00	-	-	-	693,474.00
WBS P-B2.09006-27	Sewer Rehab Gunite Contract-Construction	1,207,445.00	-	-	-	1,207,445.00
WBS P-B2.09006-28	Sewer Improvement McBride - Construction	1,507,777.90	-	-	-	1,507,777.90
WBS P-B2.09006-29	Sewer Improvement Browns Hill - Const	237,720.00	-	-	-	237,720.00
WBS P-B2.09006-30	Sewer Improvement 44th/Davison - Const	1,076,885.00	-	-	-	1,076,885.00

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVMENT PROGRAM
PENNVEST
BUDGET AS OF DECEMBER 31, 2011

B2 SEWER - COMBINED SEWER

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS P-B2.09011	**Pennvest Sewer Phase 3**	**4,508,830.00**	**-**	**-**	**-**	**4,508,830.00**
WBS P-B2.09011-01	Pennvest Sewer 3 - Administration	1,000.00	-	-	-	1,000.00
WBS P-B2.09011-02	Pennvest Sewer 3 - Legal Fees	60,000.00	-	-	-	60,000.00
WBS P-B2.09011-03	Pennvest Sewer 3 - Interest During Cons	30,000.00	-	-	-	30,000.00
WBS P-B2.09011-10	Pennvest Sewer 3 - Engineering	470,800.00	-	-	-	470,800.00
WBS P-B2.09011-11	Sewer Lining Contract - CM	150,600.00	-	-	-	150,600.00
WBS P-B2.09011-12	MH CB & Point Repair - CM	177,200.00	-	-	-	177,200.00
WBS P-B2.09011-13	Sewer Point Lining - CM	51,400.00	-	-	-	51,400.00
WBS P-B2.09011-21	Sewer Lining Contract - Construction	1,494,600.00	-	-	-	1,494,600.00
WBS P-B2.09011-22	MH CB & Point Repair - Construction	1,564,100.00	-	-	-	1,564,100.00
WBS P-B2.09011-23	Sewer Point Lining - Construction	509,130.00	-	-	-	509,130.00
B2 TOTAL		**17,452,050.90**	**-**	**-**	**-**	**17,452,050.90**

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVMENT PROGRAM
PENNVEST
BUDGET AS OF DECEMBER 31, 2011

Z1 CONTINGENCY

Project Number	Description	Original Budget	Supplements	Returns	Transfers	Current Budget
WBS I-Z1.50000-SSI1	CONTINGENCY PENNVEST SSI PHASE 1	370,037.00	-	-	-	370,037.00
WBS I-Z1.50000-SSI2	CONTINGENCY PENNVEST SSI PHASE 2	1,623,402.10	-	-	-	1,623,402.10
WBS I-Z1.50000-SSI3	CONTINGENCY PENNVEST SSI PHASE 3	356,783.00	-	-	-	356,783.00
WBS I-Z1.50000-WSI5	CONTINGENCY PENNVEST WSI PHASE 5	679,113.00	-	-	-	679,113.00
WBS I-Z1.50000-WSI6	CONTINGENCY PENNVEST WSI PHASE 6	342,308.00	-	-	-	342,308.00
Z1 TOTAL		3,371,643.10	-	-	-	3,371,643.10

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EXHIBIT C
CAPITAL IMPROVEMENT PROGRAM STATUS REPORT
2008 CONSTRUCTION FUND STATUS REPORT
AS OF DECEMBER 31, 2011

THE PITTSBURGH WATER AND SEWER AUTHORITY

CAPITAL IMPROVEMENT PROGRAM

2008 CONSTRUCTION FUND

STATUS AS OF DECEMBER 31, 2011

	AMOUNT BUDGETED	COMPLETED CONTRACTS	ACTUAL COST ACTIVE CONTRACTS	TOTAL COMPLETE AND ACTIVE	RETAINAGE HELD	REIMBURSEMENTS	SETTLEMENT TO OPERATING FUND	BOND ISSUANCE COSTS	SAP POSTING ERROR	AMOUNT REQUISITIONED
WATER SYSTEM										
A1 Water - Distribution System	$ 25,210,781.36	$ 2,769,596.10	$ 9,716,174.38	$ 12,485,770.48	$ 309,007.80	$ 348,000.00	$ 946,685.24	$ -	$ -	$ 13,471,447.92
A2 Water - Pumping & Storage	14,404,096.93	1,230,957.89	9,931,794.99	11,162,752.88	240,258.71	-	-	-	(248,889.50)	11,171,383.67
A3 Water - Treatment Plant	10,987,713.80	689,102.59	457,627.82	1,146,730.41	10,250.65	-	-	-	-	1,136,479.76
TOTAL WATER SYSTEM	**$ 50,602,592.09**	**$ 4,689,656.58**	**$ 20,105,597.19**	**$ 24,795,253.77**	**$ 559,517.16**	**$ 348,000.00**	**$ 946,685.24**	**$ -**	**$ (248,889.50)**	**$ 25,779,311.35**
SEWER SYSTEM										
B1 Sewer - Sanitary Sewer	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -	$ -
B2 Sewer - Combined Sewer	18,023,299.32	792,024.85	9,639,395.51	10,431,420.36	175,651.61	-	-	-	-	10,255,768.75
B4 Sewer - Pump Station	500,000.00	-	-	-	-	-	-	-	-	-
B5 Sewer - CSO	-	-	-	-	-	-	-	-	-	-
TOTAL SEWER SYSTEM	**$ 18,523,299.32**	**$ 792,024.85**	**$ 9,639,395.51**	**$ 10,431,420.36**	**$ 175,651.61**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 10,255,768.75**
C1 CITY/URA/SEA/PORT AUTHORITY	**$ 8,806,434.79**	**$ 390,404.11**	**$ 6,083,598.04**	**$ 6,474,002.15**	**$ -**	**$ -**			**$ -**	**$ 6,474,002.15**
D1 ENGINEERING	**$ 10,873,600.25**	**$ 5,940,302.53**	**$ 3,863,092.24**	**$ 9,803,394.77**	**$ -**	**$ 12,017.00**		**$ 448,934.63**	**$ 517.47**	**$ 10,263,828.93**
E1 TOOLS AND EQUIPMENT	**$ 5,614,188.98**	**$ 1,367,645.73**	**$ 455,065.76**	**$ 1,822,711.49**	**$ -**	**$ 19,050.00**	**$ -**	**$ -**	**$ -**	**$ 1,841,761.49**
F1 IT/GIS	**$ 3,984,670.00**	**$ 211,242.65**	**$ 2,462,021.15**	**$ 2,673,263.80**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ 2,673,263.80**
Z1 CONTINGENCY	**26,645.82**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
TOTAL 2008 CONSTRUCTION FUND	**$ 98,431,431.25**	**$ 13,391,276.45**	**$ 42,608,769.89**	**$ 56,000,046.34**	**$ 735,168.77**	**$ 379,067.00**	**$ 946,685.24**	**$ 448,934.63**	**$ (248,372.03)**	**$ 57,287,936.47**

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
STATUS AS OF DECEMBER 31, 2011

A1 WATER - DISTRIBUTION SYSTEM

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS R-A1.02027-21-2008	**AUTOMATED METER READING (AMR) PROGRAM**	**400,000.00**	**516,649.97**	**916,649.97**	**-**	**916,649.97**	**-**	**100%**	**Complete**
WBS R-A1.02027-23-2008	**AUTOMATED METER READING (AMR) PROGRAM**	**-**	**333,350.03**	**333,350.03**	**-**	**332,125.44**	**1,224.59**	**100%**	**Active**
WBS R-A1.08100	**Water Valve & Hydrant Replacement**	**1,500,000.00**	**(1,500,000.00)**	**-**	**-**	**-**	**-**		**Complete**
WBS R-A1.08100-01	Water Valve & Hydrant Replacement	1,500,000.00	(1,500,000.00)	-	-	-	-		Complete
WBS R-A1.08101	**Small Meter Replacement Program**	**5,000,000.00**	**(2,507,558.00)**	**2,492,442.00**	**2,129,795.10**	**362,646.90**	**2,129,795.10**	**15%**	**Active**
WBS R-A1.08101-01	Small Meter Replacement Program	5,000,000.00	(5,000,000.00)	-	-	-	-		Active
WBS R-A1.08101-21	Small Meters	-	2,492,442.00	2,492,442.00	2,129,795.10	362,646.90	2,129,795.10	15%	Active
WBS R-A1.08102	**Purchase Fire Hydrants**	**200,000.00**	**300,000.00**	**500,000.00**	**143,658.00**	**197,329.18**	**302,670.82**	**39%**	**Active**
WBS R-A1.08102-01	Purchase Fire Hydrants	200,000.00	54,560.00	254,560.00	-	-	254,560.00	0%	Active
WBS R-A1.08102-21	2010 Purchase Fire Hydrants	-	245,440.00	245,440.00	143,658.00	197,329.18	48,110.82	80%	Active
WBS R-A1.08103	**Waterline Relays**	**1,000,000.00**	**4,952,790.52**	**5,952,790.52**	**2,032,632.13**	**4,840,995.24**	**1,111,795.28**	**81%**	**Active**
WBS R-A1.08103-01	Waterline Relays	1,000,000.00	(1,000,000.00)	-	-	-	-		Complete
WBS R-A1.08103-02	Darragh St 12-inch WL Relay	-	4,699.28	4,699.28	-	4,699.28	-	100%	Complete
WBS R-A1.08103-03	SawMill Run WL Lewis to Woodruff	-	7,911.71	7,911.71	-	7,911.71	-	100%	Complete
WBS R-A1.08103-04	Waterline Replacement Contract - Eng	-	1,579.03	1,579.03	-	1,579.03	-	100%	Complete
WBS R-A1.08103-05	Bigelow Blvd W/L Design	-	9,681.06	9,681.06	-	9,681.06	-	100%	Complete
WBS R-A1.08103-11	Darragh St 12-inch WL Relay - CM	-	23,781.77	23,781.77	-	23,781.77	-	100%	Complete
WBS R-A1.08103-12	SawMill Run WL Lewis to Woodruff - CM	-	65,000.00	65,000.00	-	61,652.07	3,347.93	95%	Active
WBS R-A1.08103-13	Waterline Replacement Contract - CM	-	312,500.00	312,500.00	-	310,553.23	1,946.77	99%	Active
WBS R-A1.08103-14	Market Square Waterline - CM	-	67,620.26	67,620.26	-	67,620.26	-	100%	Complete
WBS R-A1.08103-15	Bates Street Waterline - CM	-	175,000.00	175,000.00	-	107,210.77	67,789.23	61%	Active
WBS R-A1.08103-16	Bigelow Blvd Waterline - CM	-	103,000.00	103,000.00	-	101,025.12	1,974.88	98%	Active
WBS R-A1.08103-21	Darragh St 12-inch WL Relay - Const	-	284,736.34	284,736.34	-	284,736.34	-	100%	Complete
WBS R-A1.08103-22	SawMill Run WL Lewis to Woodruff - Cons	-	370,000.00	370,000.00	90,783.91	364,478.14	5,521.86	99%	Active
WBS R-A1.08103-23	Waterline Replacement Contract - Const	-	1,830,569.85	1,830,569.85	478,511.62	1,830,569.85	-	100%	Active
WBS R-A1.08103-24	Market Square Waterline - Construction	-	190,524.40	190,524.40	-	190,524.40	-	100%	Complete
WBS R-A1.08103-25	Bates Street Waterline - Construction	-	1,749,440.00	1,749,440.00	1,172,119.70	718,225.39	1,031,214.61	41%	Active
WBS R-A1.08103-26	Bigelow Blvd Waterline - Construction	-	672,691.96	672,691.96	291,216.90	672,691.96	-	100%	Active
WBS R-A1.08103-50	Waterline Relay Material Purchase	-	84,054.86	84,054.86	-	84,054.86	-	100%	Complete
WBS R-A1.08104	**Valve Inspections and Mapping**	**1,200,000.00**	**(422,855.00)**	**777,145.00**	**448,758.00**	**375,234.00**	**401,911.00**	**48%**	**Active**
WBS R-A1.08104-11	Valve Inspections and Mapping	1,200,000.00	(422,855.00)	777,145.00	448,758.00	375,234.00	401,911.00	48%	Active
WBS R-A1.08134	**60-Inch Transmission Main Improvements**	**-**	**3,147.56**	**3,147.56**	**-**	**3,147.56**	**-**	**100%**	**Complete**
WBS R-A1.08134-01	60" Transmission Main	-	-	-	-	-	-		Complete
WBS R-A1.08134-11	60" Transmission Main - Eng	-	3,147.56	3,147.56	-	3,147.56	-	100%	Complete
WBS R-A1.08135	**SR 28 Reconstruction - Waterline Reloc**	**-**	**900,432.26**	**900,432.26**	**-**	**111,561.30**	**788,870.96**	**12%**	**Active**
WBS R-A1.08135-01	SR 28 Reconstruction Waterline	-	764,132.26	764,132.26	-	-	764,132.26	0%	Active
WBS R-A1.08135-11	SR 28 Reconstruction Waterline	-	136,300.00	136,300.00	-	111,561.30	24,738.70	82%	Active
WBS R-A1.08145-11-2008	**Purchase Millvale Water System**	**-**	**5,000.00**	**5,000.00**	**-**	**5,000.00**	**-**	**100%**	**Complete**
WBS R-A1.08145-12-2008	**Balance of Water AR Due 2008 Bond**	**-**	**809,316.79**	**809,316.79**	**-**	**809,316.79**	**-**	**100%**	**Complete**
WBS R-A1.08145-21-2008	**Millvale Service Line Material**	**-**	**34,556.71**	**34,556.71**	**-**	**34,556.71**	**-**	**100%**	**Active**
WBS R-A1.08147	**Brackenridge Street Waterline**	**-**	**1,176,351.77**	**1,176,351.77**	**359,505.93**	**1,167,650.59**	**8,701.18**	**99%**	**Active**
WBS R-A1.08147-11	Brackenridge Street Waterline	-	139,000.00	139,000.00	-	136,406.40	2,593.60	98%	Active
WBS R-A1.08147-21	Brackenridge Street Waterline - Const.	-	1,037,351.77	1,037,351.77	359,505.93	1,031,244.19	6,107.58	99%	Active
WBS R-A1.10009	**Diamond Street**	**-**	**13,950.00**	**13,950.00**	**-**	**13,950.00**	**-**	**100%**	**Complete**
WBS R-A1.10009-11	Diamond Street	-	13,950.00	13,950.00	-	13,950.00	-	100%	Complete
WBS R-A1.10024	**2010-2011 Waterline Replacement Contrac**	**-**	**1,540,670.00**	**1,540,670.00**	**585,079.52**	**969,419.63**	**571,250.37**	**63%**	**Active**
WBS R-A1.10024-11	2010-2011 Waterline Replacement - CM	-	200,000.00	200,000.00	-	170,036.38	29,963.62	85%	Active
WBS R-A1.10024-21	2010-2011 Waterline Replacement-Const	-	1,340,670.00	1,340,670.00	585,079.52	799,383.25	541,286.75	60%	Active

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
STATUS AS OF DECEMBER 31, 2011

A1 WATER - DISTRIBUTION SYSTEM

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS R-A1.10032	**Waterline Relays (10006WAEM)**	**-**	**346,942.97**	**346,942.97**	**-**	**346,942.97**	**-**	**100%**	**Complete**
WBS R-A1.10032-21	WL Relay - Bigelow Blvd at Herron	-	181,957.02	181,957.02	-	181,957.02	-	100%	Complete
WBS R-A1.10032-22	WL Relay - 30th St btwn Liberty to Penn	-	164,985.95	164,985.95	-	164,985.95	-	100%	Complete
WBS R-A1.10039-21-2008	**Pennvest Water 2 Capital Reimbursement**	**-**	**400,952.77**	**400,952.77**	**-**	**0.10**	**400,952.67**		**Complete**
WBS R-A1.10040	**Pennvest Water 3 Capital Reimbursement**	**-**	**545,732.47**	**545,732.47**	**-**	**-**	**545,732.47**		**Complete**
WBS R-A1.10040-21	Pennvest Water 3 Capital Reimbursement	-	545,732.47	545,732.47	-	-	545,732.47		Complete
WBS R-A1.11001	**Water System Acquisition**	**-**	**500,000.00**	**500,000.00**	**-**	**-**	**500,000.00**	**0%**	**Active**
WBS R-A1.11001-01	Water System Acquisition	-	500,000.00	500,000.00	-	-	500,000.00	0%	Active
WBS R-A1.11002	**Ductile Iron Pipe**	**-**	**263,157.86**	**263,157.86**	**538,277.47**	**219,540.71**	**43,617.15**	83%	**Active**
WBS R-A1.11002-01	Ductile Iron Pipe	-	-	-	-	-	-		Active
WBS R-A1.11002-21	Ductile Iron Pipe - Contract 1	-	-	-	109,686.60	-	-		Active
WBS R-A1.11002-22	Ductile Iron Pipe - Contract 2	-	-	-	36,749.16	-	-		Active
WBS R-A1.11002-23	Ductile Iron Pipe - Contract 3	-	81,669.30	81,669.30	197,016.71	34,652.59	47,016.71	42%	Active
WBS R-A1.11002-24	Ductile Iron Pipe - Contract 4	-	181,488.56	181,488.56	194,825.00	184,888.12	(3,399.56)	102%	Active
WBS R-A1.11003	**Ductile Iron Appurtenances**	**-**	**441,653.49**	**441,653.49**	**1,973,562.60**	**199,231.64**	**242,421.85**	**45%**	**Active**
WBS R-A1.11003-01	Ductile Iron Fittings	-	-	-	-	-	-		Active
WBS R-A1.11003-21	Ductile Iron Fittings Contract 1	-	220,248.18	220,248.18	703,882.44	148,581.99	71,666.19	67%	Active
WBS R-A1.11003-22	Ductile Iron Fittings Contract 2	-	109,590.13	109,590.13	1,009,590.13	-	109,590.13	0%	Active
WBS R-A1.11003-23	Ductile Iron Fittings Contract 3	-	900.00	900.00	850.00	50.00	850.00	6%	Active
WBS R-A1.11003-31	DI Transition Couplings - Contract 1	-	24,931.25	24,931.25	23,769.09	16,162.16	8,769.09	65%	Active
WBS R-A1.11003-32	DI Transition Couplings - Contract 2	-	19,739.44	19,739.44	112,831.20	6,908.24	12,831.20	35%	Active
WBS R-A1.11003-33	DI Transition Couplings - Contract 3	-	32,264.30	32,264.30	92,757.55	22,812.95	9,451.35	71%	Active
WBS R-A1.11003-41	Stainless Steel Clamps - Contract 1	-	20,516.60	20,516.60	16,418.60	4,716.30	15,800.30	23%	Active
WBS R-A1.11003-42	Stainless Steel Clamps - Contract 2	-	4,896.00	4,896.00	4,896.00	-	4,896.00	0%	Active
WBS R-A1.11003-43	Stainless Steel Clamps - Contract 3	-	8,567.59	8,567.59	8,567.59	-	8,567.59	0%	Active
WBS R-A1.11004	**2011 Gate & Tapping Valves & Sleeves**	**-**	**425,429.50**	**425,429.50**	**3,442,401.71**	**271,757.42**	**153,672.08**	**64%**	**Active**
WBS R-A1.11004-01	2011 Gate & Tapping Valves & Sleeves	-	-	-	-	-	-		Active
WBS R-A1.11004-21	2011 Valves & Sleeves - Contract 1	-	356,766.00	356,766.00	316,598.00	175,897.66	180,868.34	49%	Active
WBS R-A1.11004-22	2011 Valves & Sleeves - Contract 2	-	2,469.79	2,469.79	769.76	81,700.00	(79,230.21)	3308%	Active
WBS R-A1.11004-23	2011 Valves & Sleeves - Contract 3	-	2,180.00	2,180.00	42,180.00	-	2,180.00	0%	Active
WBS R-A1.11004-24	2011 Valves & Sleeves - Contract 4	-	20,319.52	20,319.52	14,159.76	14,159.76	6,159.76	70%	Active
WBS R-A1.11004-25	2011 Valves & Sleeves - Contract 5	-	16,904.19	16,904.19	91,904.19	-	16,904.19	0%	Active
WBS R-A1.11004-26	2011 Valves & Sleeves - Contract 6	-	26,790.00	26,790.00	2,976,790.00	-	26,790.00	0%	Active
WBS R-A1.11006	**2011 Water Valve & Hydrant Replacement**	**-**	**2,634,600.00**	**2,634,600.00**	**1,640,545.86**	**1,109,474.22**	**1,525,125.78**	**42%**	**Active**
WBS R-A1.11006-11	2011 Water Valve & Hydrant - CM	-	235,000.00	235,000.00	-	173,154.58	61,845.42	74%	Active
WBS R-A1.11006-21	2011 Water Valve & Hydrant -Constructio	-	2,399,600.00	2,399,600.00	1,640,545.86	936,319.64	1,463,280.36	39%	Active
WBS R-A1.11022	**Vinial Street Waterline Relay**	**-**	**677,870.00**	**677,870.00**	**484,929.56**	**154,805.64**	**523,064.36**	**23%**	**Active**
WBS R-A1.11022-11	Vinial Street Waterline Relay - CM	-	61,000.00	61,000.00	-	15,725.20	45,274.80	26%	Active
WBS R-A1.11022-21	Vinial Street Waterline Relay - Const	-	616,870.00	616,870.00	484,929.56	139,080.44	477,789.56	23%	Active
WBS R-A1.11027	**Summerset 16" Waterline Easements**	**-**	**15,150.00**	**15,150.00**	**-**	**10,852.47**	**4,297.53**	**72%**	**Active**
WBS R-A1.11027-11	Summerset 16" Waterline Easements	-	15,150.00	15,150.00	-	10,852.47	4,297.53	72%	Active
WBS R-A1.11029	**Allegheny River Back Channel W/L**	**-**	**1,330,593.00**	**1,330,593.00**	**-**	**33,582.00**	**1,297,011.00**	**3%**	**Active**
WBS R-A1.11029-11	Allegheny River Back Channel W/L Design	-	26,058.00	26,058.00	-	26,058.00	-	100%	Active
WBS R-A1.11029-12	Allegheny River Channel W/L Mussel Stud	-	7,600.00	7,600.00	-	7,524.00	76.00	99%	Active
WBS R-A1.11029-13	Allegheny River Channel W/L - CM	-	120,000.00	120,000.00	-	-	120,000.00		
WBS R-A1.11029-21	Allegheny River Channel W/L-Constructio	-	1,176,935.00	1,176,935.00	-	-	1,176,935.00		

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
STATUS AS OF DECEMBER 31, 2011

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS R-A1.11033	**Route 28 Waterline Material Purchase**	**-**	**599,567.74**	**599,567.74**	**-**	**-**	**599,567.74**	**0%**	Active
WBS R-A1.11033-21	Rt 28 Waterline Material - Contract 1	-	408,681.90	408,681.90	-	-	408,681.90	0%	Active
WBS R-A1.11033-22	Rt 28 Waterline Material - Contract 2	-	106,499.84	106,499.84	-	-	106,499.84	0%	Active
WBS R-A1.11033-23	Rt 28 Waterline Material - Contract 3	-	84,386.00	84,386.00	-	-	84,386.00	0%	Active
WBS R-A1.11037	**2012 Ductile Iron Pipe**	**-**	**400,000.00**	**400,000.00**	**-**	**-**	**400,000.00**	**0%**	**Active**
WBS R-A1.11037-21	2012 Ductile Iron Pipe - Contract 1	-	200,000.00	200,000.00	-	-	200,000.00	0%	Active
WBS R-A1.11037-22	2012 Ductile Iron Pipe - Contract 2	-	200,000.00	200,000.00	-	-	200,000.00	0%	Active
WBS R-A1.11038	**2012 Ductile Iron Pipe Appurtenances**	**-**	**624,322.05**	**624,322.05**	**-**	**-**	**624,322.05**	**0%**	**Active**
WBS R-A1.11038-21	2012 Ductile Iron Fittings - Contract 1	-	200,000.00	200,000.00	-	-	200,000.00	0%	Active
WBS R-A1.11038-22	2012 Ductile Iron Fittings - Contract 2	-	200,000.00	200,000.00	-	-	200,000.00	0%	Active
WBS R-A1.11038-23	2012 Ductile Iron Fittings - Contract 3	-	1,158.96	1,158.96	-	-	1,158.96	0%	Active
WBS R-A1.11038-24	2012 Ductile Iron Fittings - Contract 4	-	12,929.11	12,929.11	-	-	12,929.11	0%	Active
WBS R-A1.11038-25	2012 Ductile Iron Fittings - Contract 5	-	35,425.62	35,425.62	-	-	35,425.62	0%	Active
WBS R-A1.11038-31	2012 Ductile Iron Couplings - Contract	-	100,000.00	100,000.00	-	-	100,000.00	0%	Active
WBS R-A1.11038-32	2012 Ductile Iron Couplings - Contract	-	39,708.20	39,708.20	-	-	39,708.20	0%	Active
WBS R-A1.11038-41	2012 Stainless Steel Repair Clamps	-	35,100.16	35,100.16	-	-	35,100.16	0%	Active
WBS R-A1.11039	**2012 Gate & Tapping Valves & Sleeves**	**-**	**549,006.90**	**549,006.90**	**-**	**-**	**549,006.90**	**0%**	**Active**
WBS R-A1.11039-21	2012 Gate, Tap Valves & Sleeves - Cont	-	200,000.00	200,000.00	-	-	200,000.00	0%	Active
WBS R-A1.11039-22	2012 Gate, Tap Valves & Sleeves - Cont	-	200,000.00	200,000.00	-	-	200,000.00	0%	Active
WBS R-A1.11039-23	2012 Gate, Tap Valves & Sleeves - Cont	-	2,137.02	2,137.02	-	-	2,137.02	0%	Active
WBS R-A1.11039-24	2012 Gate, Tap Valves & Sleeves - Cont	-	59,986.35	59,986.35	-	-	59,986.35	0%	Active
WBS R-A1.11039-25	2012 Gate, Tap Valves & Sleeves - Cont	-	38,559.55	38,559.55	-	-	38,559.55	0%	Active
WBS R-A1.11039-26	2012 Gate, Tap Valves & Sleeves - Cont	-	48,323.98	48,323.98	-	-	48,323.98	0%	Active
TOTAL		**9,300,000.00**	**15,910,781.36**	**25,210,781.36**	**13,779,145.88**	**12,485,770.48**	**12,725,010.88**		

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
STATUS AS OF DECEMBER 31, 2011

A2 WATER - PUMPING AND STORAGE

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS R-A2.07019-11-2008	**Switchgear Upgrade - Engineering**	**-**	**52,056.32**	**52,056.32**	**-**	**52,056.32**	**-**	**100%**	**Complete**
WBS R-A2.07019-12-2008	**Switchgear Upgrade - CM**	**135,000.00**	**25,000.00**	**160,000.00**	**-**	**127,493.54**	**32,506.46**	**80%**	**Active**
WBS R-A2.07019-13-2008	**Switchgear Upgrade - ENG for CONST**	**-**	**54,000.00**	**54,000.00**	**-**	**51,351.25**	**2,648.75**	**0%**	**Active**
WBS R-A2.07019-21-2008	**Switchgear Upgrade - Construction**	**1,365,000.00**	**783,598.00**	**2,148,598.00**	**343,764.19**	**1,906,383.50**	**242,214.50**	**89%**	**Active**
WBS R-A2.08012	**Brashear Tanks Rehabilitation**	**-**	**1,992,000.00**	**1,992,000.00**	**40,290.01**	**1,904,079.56**	**87,920.44**	**96%**	**Active**
WBS R-A2.08012-12	Brashear Tanks Rehabilitation - CM	-	270,000.00	270,000.00	-	194,739.56	75,260.44	72%	Active
WBS R-A2.08012-21	Brashear Tanks Rehabilitation	-	1,722,000.00	1,722,000.00	40,290.01	1,709,340.00	12,660.00	99%	Active
WBS R-A2.08014-12	**Howard Pumps #6 & 7 - CM**	**-**	**115,500.00**	**115,500.00**	**-**	**115,590.58**	**(90.58)**	**100%**	**Active**
WBS R-A2.08105	**Howard and Lincoln Pump Station**	**900,000.00**	**(50,480.00)**	**849,520.00**	**20,104.51**	**764,273.51**	**85,246.49**	**90%**	**Active**
WBS R-A2.08105-01	Howard and Lincoln Pump Station	900,000.00	(834,858.00)	65,142.00	-	-	65,142.00	0%	Active
WBS R-A2.08105-12	Howard Pump Station 6 & 7 - CM	-	-	-	-	-	-		Complete
WBS R-A2.08105-21	Howard Pump Station 6 & 7 - Const	-	784,378.00	784,378.00	20,104.51	764,273.51	20,104.49	97%	Active
WBS R-A2.08106	**Water System Modeling Support**	**150,000.00**	**(50,000.00)**	**100,000.00**	**-**	**42,308.63**	**57,691.37**	**42%**	**Active**
WBS R-A2.08106-11	Water System Modeling Support	150,000.00	(50,000.00)	100,000.00	-	42,308.63	57,691.37	42%	Active
WBS R-A2.08107	**Water Tank Painting and Improvements**	**3,000,000.00**	**(3,000,000.00)**	**-**	**-**	**-**	**-**		**Active**
WBS R-A2.08107-01	Water Tank Painting and Improvements	3,000,000.00	(3,000,000.00)	-	-	-	-		Active
WBS R-A2.08108	**Highland No. 2 Cover**	**3,000,000.00**	**526,236.04**	**3,526,236.04**	**124,226.75**	**3,459,960.78**	**66,275.26**	**98%**	**Active**
WBS R-A2.08108-11	Highland No. 2 Cover - Engineering	200,000.00	(200,000.00)	-	-	-	-		Complete
WBS R-A2.08108-12	Highland No. 2 Cover - CM	200,000.00	-	200,000.00	-	148,507.34	51,492.66	74%	Active
WBS R-A2.08108-21	Highland No. 2 Cover - Construction	2,600,000.00	726,236.04	3,326,236.04	124,226.75	3,311,453.44	14,782.60	100%	Active
WBS R-A2.08109	**H.H. Pump Station Main Replacement**	**750,000.00**	**(397,766.77)**	**352,233.23**	**-**	**352,233.23**	**-**	**100%**	**Complete**
WBS R-A2.08109-11	H.H. Pump Station Main - Engineering	62,500.00	11,145.16	73,645.16	-	73,645.16	-	100%	Complete
WBS R-A2.08109-12	H.H. Pump Station Main - CM	62,500.00	(31,736.87)	30,763.13	-	30,763.13	-	100%	Complete
WBS R-A2.08109-21	H.H. Pump Station Main - Construction	625,000.00	(377,175.06)	247,824.94	-	247,824.94	-	100%	Complete
WBS R-A2.08144	**Pump and Motor Rehabilitiation**	**-**	**757,837.94**	**757,837.94**	**-**	**757,837.94**	**-**	**100%**	**Complete**
WBS R-A2.08144-12	Pump and Motor Rehabilitation	-	48,904.94	48,904.94	-	48,904.94	-	100%	Complete
WBS R-A2.08144-21	Pump and Motor Rehabilitation	-	708,933.00	708,933.00	-	708,933.00	-	100%	Complete
WBS R-A2.09021	**Howard PS Emergency Pumping Plan**	**-**	**18,723.00**	**18,723.00**	**-**	**18,723.00**	**-**	**100%**	**Complete**
WBS R-A2.09021-11	Howard PS Emergency Pumping Plan	-	18,723.00	18,723.00	-	18,723.00	-	100%	Complete
WBS R-A2.09022	**MFP 2nd Electrical Feed**	**-**	**49,187.60**	**49,187.60**	**-**	**49,187.60**	**-**	**100%**	**Complete**
WBS R-A2.09022-21	MFP 2nd Electrical Feed	-	49,187.60	49,187.60	-	49,187.60	-	100%	Complete
WBS R-A2.10013	**Mission Pump Station Floor Inspection**	**-**	**903,816.00**	**903,816.00**	**-**	**26,353.56**	**877,462.44**	**3%**	**Active**
WBS R-A2.10013-11	Mission Pump Station Floor Insp - ENG	-	3,816.00	3,816.00	-	2,974.56	841.44	78%	Active
WBS R-A2.10013-12	Mission Pump Station Floor Rehab-ENG	-	75,000.00	75,000.00	-	23,379.00	51,621.00	31%	Active
WBS R-A2.10013-13	Mission Pump Station Floor Rehab-CM	-	75,000.00	75,000.00	-	-	75,000.00	0%	Active
WBS R-A2.10013-21	Mission Pump Station Floor Rehab-CONST	-	750,000.00	750,000.00	-	-	750,000.00	0%	Active
WBS R-A2.11017	**Motor and Pump Rehabilitation**	**-**	**773,469.00**	**773,469.00**	**-**	**1,179.54**	**772,289.46**	**0%**	**Active**
WBS R-A2.11017-11	Motor and Pump Rehabilitation - CM	-	70,000.00	70,000.00	-	1,179.54	68,820.46	2%	Active
WBS R-A2.11017-21	Motor and Pump Rehabilitation - Const	-	703,469.00	703,469.00	-	-	703,469.00	0%	Active
WBS R-A2.98001-12-2008	**Highland #1 MFP - CM**	**-**	**50,000.00**	**50,000.00**	**-**	**18,620.54**	**31,379.46**	**37%**	**Active**
WBS R-A2.98001-27-2008	**HIGHLAND NO. 1 MFP - FILTER ELEMENTS**	**-**	**2,500,000.00**	**2,500,000.00**	**625,500.00**	**1,514,200.00**	**985,800.00**	**61%**	**Active**
WBS R-A2.98001-43-2008	**HIGHLAND NO. 1 MFP - Air Handler Rehab**	**-**	**919.80**	**919.80**	**-**	**919.80**	**-**	**100%**	**Complete**
TOTAL		**9,300,000.00**	**5,104,096.93**	**14,404,096.93**	**1,153,885.46**	**11,162,752.88**	**3,241,344.05**		

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
STATUS AS OF DECEMBER 31, 2011

A3 WATER - TREATMENT PLANT

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS R-A3.05006-15-2008	**Filter Backwash / Clarification ENG**	**127,000.00**	**-**	**127,000.00**	**-**	**-**	**127,000.00**	**0%**	**Active**
WBS R-A3.05006-16-2008	**Filter Backwash / Clarification CM**	**1,095,000.00**	**(684,375.00)**	**410,625.00**	**-**	**-**	**410,625.00**	**0%**	**Active**
WBS R-A3.05006-17-2008	**Filter Backwash Equalization - ENG**	**160,000.00**	**(160,000.00)**	**-**	**-**	**-**	**-**		**Active**
WBS R-A3.05006-18-2008	**Filter Backwash Equalization - CM**	**500,000.00**	**(500,000.00)**	**-**	**-**	**-**	**-**		**Active**
WBS R-A3.05006-24-2008	**Filter Backwash Equalization - CONST**	**18,615,000.00**	**(13,815,125.00)**	**4,799,875.00**	**-**	**-**	**4,799,875.00**	**0%**	**Active**
WBS R-A3.05006-25-2008	**Filter Backwash / Clarification ELECTR**	**3,285,000.00**	**(2,663,750.00)**	**621,250.00**	**-**	**-**	**621,250.00**	**0%**	**Active**
WBS R-A3.06007-13-2008	**SCADA - CM**	**190,000.00**	**-**	**190,000.00**	**-**	**-**	**190,000.00**	**0%**	**Active**
WBS R-A3.06007-14-2008	**SCADA Systems Upgrade Engineering**	**-**	**750,798.42**	**750,798.42**	**-**	**159,891.08**	**590,907.34**	**21%**	**Active**
WBS R-A3.06007-15-2008	**SCADA Aspinwall Workstation Upgrade**	**-**	**96,850.00**	**96,850.00**	**-**	**18,000.00**	**78,850.00**	**19%**	**Active**
WBS R-A3.06007-16-2008	**SCADA MFP Workstation Upgrade**	**-**	**96,850.00**	**96,850.00**	**-**	**-**	**96,850.00**	**0%**	**Active**
WBS R-A3.06007-21-2008	**SCADA - Const**	**1,810,000.00**	**-**	**1,810,000.00**	**-**	**-**	**1,810,000.00**	**0%**	**Active**
WBS R-A3.06007-22-2008	**SCADA Hardware/Software Purchase**	**-**	**26,000.00**	**26,000.00**	**-**	**15,622.39**	**10,377.61**	**60%**	**Active**
WBS R-A3.07018	**Rehab of Clarifiers**	**-**	**245,698.72**	**245,698.72**	**173,675.25**	**152,121.43**	**93,577.29**	**62%**	**Active**
WBS R-A3.07018-11	Rehab of Clariifers - CM	-	35,000.00	35,000.00	-	30,810.96	4,189.04	88%	**Active**
WBS R-A3.07018-21	Rehab of Clarifers - Construction	-	210,698.72	210,698.72	173,675.25	121,310.47	89,388.25	58%	**Active**
WBS R-A3.08110	**Bruecken Pump Station Standby Power**	**7,765,000.00**	**(7,765,000.00)**	**-**	**-**	**-**	**-**		**Complete**
WBS R-A3.08110-11	Bruecken Standby Power - Engineering	115,000.00	(115,000.00)	-	-	-	-		Complete
WBS R-A3.08110-12	Bruecken Standby Power - CM	250,000.00	(250,000.00)	-	-	-	-		Complete
WBS R-A3.08110-21	Bruecken Standby Power - Construction	7,400,000.00	(7,400,000.00)	-	-	-	-		Complete
WBS R-A3.08111	**Highland No. 1 Reservoir MFP Expansion**	**1,100,000.00**	**(1,100,000.00)**	**-**	**-**	**-**	**-**		**Active**
WBS R-A3.08111-12	Highland No. 1 MFP Expansion - CM	100,000.00	(100,000.00)	-	-	-	-		Active
WBS R-A3.08111-21	Highland No. 1 MFP Expansion - Const.	1,000,000.00	(1,000,000.00)	-	-	-	-		Active
WBS R-A3.08137	**WTP Chemical Containment Walls**	**-**	**112,630.99**	**112,630.99**	**17,723.50**	**111,992.92**	**638.07**	**99%**	**Active**
WBS R-A3.08137-11	WTP Chemical Containment Walls	-	8,928.49	8,928.49	-	8,928.49	-	100%	Active
WBS R-A3.08137-12	WTP Chemical Containment Walls - CM	-	20,000.00	20,000.00	-	19,361.93	638.07	97%	Active
WBS R-A3.08137-21	WTP Chemical Containment Walls - Const	-	83,702.50	83,702.50	17,723.50	83,702.50	-	100%	Active
WBS R-A3.10010	**Clarifiers 1, 2 & 3 - Joint Rehab.**	**-**	**457,855.00**	**457,855.00**	**-**	**457,825.00**	**30.00**	**100%**	**Complete**
WBS R-A3.10010-21	Clarifiers 1, 2 & 3 - Joint Rehab.	-	457,855.00	457,855.00	-	457,825.00	30.00	100%	Complete
WBS R-A3.10012	**Clearwell Drain Separation at Outfall**	**-**	**974,813.15**	**974,813.15**	**876,950.00**	**7,863.15**	**966,950.00**	**1%**	**Complete**
WBS R-A3.10012-10	Clearwell Drain Separation - Survey	-	7,863.15	7,863.15	-	7,863.15	-	100%	Complete
WBS R-A3.10012-11	Clearwell Drain Separation - CM	-	90,000.00	90,000.00	-	-	90,000.00		
WBS R-A3.10012-21	Clearwell Drain Separation -Constructio	-	876,950.00	876,950.00	876,950.00	-	876,950.00		
WBS R-A3.10019	**Relocation of 500 KV Ductbank WTP**	**-**	**102,543.00**	**102,543.00**	**-**	**102,543.00**	**-**	**100%**	**Complete**
WBS R-A3.10019-21	Relocation of 500 KV Ductbank WTP	-	102,543.00	102,543.00	-	102,543.00	-	100%	Complete
WBS R-A3.10020	**WTP Operations Bldg Ceiling Replacement**	**-**	**41,147.90**	**41,147.90**	**-**	**41,147.90**	**-**	**100%**	**Complete**
WBS R-A3.10020-21	WTP Operations Bldg 2nd Flr Ceiling	-	41,147.90	41,147.90	-	41,147.90	-	100%	Complete
WBS R-A3.10021	**WTP HVAC Upgrades**	**-**	**44,053.08**	**44,053.08**	**-**	**-**	**44,053.08**	**0%**	**Active**
WBS R-A3.10021-21	WTP Automatic Temperature Control Renov	-	44,053.08	44,053.08	-	-	44,053.08	0%	Active
WBS R-A3.10022	**WTP Gas Chromatograph**	**-**	**27,830.00**	**27,830.00**	**-**	**27,830.00**	**-**	**100%**	**Complete**
WBS R-A3.10022-21	WTP Gas Chromatograph	-	27,830.00	27,830.00	-	27,830.00	-	100%	Complete
WBS R-A3.10027	**Automated Gate System Contract**	**-**	**51,893.54**	**51,893.54**	**-**	**51,893.54**	**-**	**100%**	**Complete**
WBS R-A3.10027-21	Automated Gate System Contract - CONST	-	51,893.54	51,893.54	-	51,893.54	-	100%	Complete
TOTAL		**34,647,000.00**	**(23,659,286.20)**	**10,987,713.80**	**1,068,348.75**	**1,146,730.41**	**9,840,983.39**		

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
STATUS AS OF DECEMBER 31, 2011

B2 SEWER - COMBINED SEWER

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS R-B2.05018-14	**Sheraden Park - Phase II**	**-**	**18,560.63**	**18,560.63**	**-**	**18,560.63**	**-**	**100%**	**Complete**
WBS R-B2.05019-11-2008	**CSO Project - Region One - 2008**	**-**	**181,421.15**	**181,421.15**	**-**	**-**	**181,421.15**	**0%**	**Active**
WBS R-B2.05020-11-2008	**CSO Project - Region Two (Baker)**	**-**	**20,000.00**	**20,000.00**	**-**	**-**	**20,000.00**	**0%**	**Active**
WBS R-B2.05023-12-2008	**Jack's Run Belguim - CM**	**-**	**-**	**-**	**-**	**1,441.36**	**(1,441.36)**		**Active**
WBS R-B2.06001-11-2008	**COA PM Contract 1**	**-**	**109,348.95**	**109,348.95**	**-**	**63,521.35**	**45,827.60**	**58%**	**Active**
WBS R-B2.06001-12-2008	**COA PM Contract 2**	**-**	**178,035.41**	**178,035.41**	**-**	**147,236.83**	**30,798.58**	**83%**	**Active**
WBS R-B2.08112	**COA Sewer Televising and Cleaning**	**2,250,000.00**	**(1,865,555.13)**	**384,444.87**	**60,379.65**	**374,745.71**	**9,699.16**	**97%**	**Active**
WBS R-B2.08112-01	COA Sewer Televising and Cleaning	2,250,000.00	(2,238,470.07)	11,529.93	-	-	11,529.93	0%	Active
WBS R-B2.08112-11	COA Sewer Televising & Cleaning - Eng	-	3,470.07	3,470.07	-	3,470.07	-	100%	Complete
WBS R-B2.08112-12	COA Sewer Televising & Cleaning - CM	-	185,000.00	185,000.00	-	186,563.01	(1,563.01)	101%	Active
WBS R-B2.08112-21	COA Sewer Televising & Cleaning - Const	-	184,444.87	184,444.87	60,379.65	184,712.63	(267.76)	100%	Active
WBS R-B2.08113	**CSO / COA Management**	**750,000.00**	**(488,805.51)**	**261,194.49**	**-**	**-**	**261,194.49**	**0%**	**Active**
WBS R-B2.08113-01	CSO / COA Management	750,000.00	(488,805.51)	261,194.49	-	-	261,194.49	0%	Active
WBS R-B2.08114	**MH CB & Sewer Line Point Repair**	**2,250,000.00**	**(693,313.65)**	**1,556,686.35**	**411,541.16**	**1,546,561.65**	**10,124.70**	**99%**	**Active**
WBS R-B2.08114-01	MH CB & Sewer Line Point Repair	2,250,000.00	(2,250,000.00)	-	-	-	-		Complete
WBS R-B2.08114-02	MH CB & Sewer Line Point Repair - Eng	-	2,366.33	2,366.33	-	2,366.33	-	100%	Complete
WBS R-B2.08114-11	MH CB & Sewer Line Point Repair - CM	-	261,361.24	261,361.24	-	254,757.04	6,604.20	97%	Active
WBS R-B2.08114-12	Solar Street Point Repair	-	1,272.43	1,272.43	-	1,272.43	-	100%	Complete
WBS R-B2.08114-21	MH CB & Sewer Line Point Repair - Const	-	1,273,544.80	1,273,544.80	411,541.16	1,270,024.30	3,520.50	100%	Active
WBS R-B2.08114-22	Solar Street Point Repair	-	18,141.55	18,141.55	-	18,141.55	-	100%	Complete
WBS R-B2.08115	**Sewer Rehabilitation - Gunite**	**750,000.00**	**(462,835.23)**	**287,164.77**	**-**	**287,164.77**	**-**	**100%**	**Complete**
WBS R-B2.08115-01	Sewer Rehabilitation - Gunite	750,000.00	(750,000.00)	-	-	-	-		Complete
WBS R-B2.08115-02	Science Ctr Sewer Repair - Engineering	-	10,649.84	10,649.84	-	10,649.84	-	100%	Complete
WBS R-B2.08115-11	Science Ctr Sewer Repair - CM	-	41,094.53	41,094.53	-	41,094.53	-	100%	Complete
WBS R-B2.08115-21	Science Ctr Sewer Repair - Construction	-	235,420.40	235,420.40	-	235,420.40	-	100%	Complete
WBS R-B2.08116	**Sewer Rehabilitation - Lining**	**650,000.00**	**(588,340.00)**	**61,660.00**	**-**	**-**	**61,660.00**	**0%**	**Active**
WBS R-B2.08116-01	Sewer Rehabilitation - Lining	650,000.00	(650,000.00)	-	-	-	-		Active
WBS R-B2.08116-11	Sewer Rehabilitation - CM	-	5,000.00	5,000.00	-	-	5,000.00		Active
WBS R-B2.08116-21	Sewer Rehabilitation - CONST	-	56,660.00	56,660.00	-	-	56,660.00		Active
WBS R-B2.08117	**Sewer Improvements - Planned**	**1,050,000.00**	**479,533.99**	**1,529,533.99**	**22,850.02**	**1,529,533.99**	**-**	**100%**	**Active**
WBS R-B2.08117-01	Sewer Improvements - Planned	1,050,000.00	(1,050,000.00)	-	-	-	-		Active
WBS R-B2.08117-05	S 22nd St Sewer Const - Eng	-	7,304.97	7,304.97	-	7,304.97	-	100%	Complete
WBS R-B2.08117-11	Sewer Improvement Contract - CM	-	189,207.50	189,207.50	-	189,207.50	-	100%	Active
WBS R-B2.08117-21	Sewer Improvement Contract - CONST	-	1,333,021.52	1,333,021.52	22,850.02	1,333,021.52	-	100%	Active
WBS R-B2.08118	**MS4 Stormwater Compliance**	**400,000.00**	**(300,000.00)**	**100,000.00**	**-**	**-**	**100,000.00**	**0%**	**Active**
WBS R-B2.08118-01	MS4 Stormwater Compliance	400,000.00	(300,000.00)	100,000.00	-	-	100,000.00	0%	Active
WBS R-B2.08119	**Sewer Flow Monitoring**	**45,000.00**	**-**	**45,000.00**	**-**	**35,936.00**	**9,064.00**	**80%**	**Active**
WBS R-B2.08119-01	Sewer Flow Monitoring	45,000.00	(35,936.00)	9,064.00	-	-	9,064.00	0%	Active
WBS R-B2.08119-11	5th Ave - 96" Sewer Crawford to Diamond	-	26,336.00	26,336.00	-	26,336.00	-	100%	Complete
WBS R-B2.08119-12	Bryant St - 24" Sewer Highland to Mello	-	9,600.00	9,600.00	-	9,600.00	-	100%	Complete
WBS R-B2.08120	**Coby Chapin Sewer Extension**	**200,000.00**	**21,138.45**	**221,138.45**	**-**	**215,785.83**	**5,352.62**	**98%**	**Complete**
WBS R-B2.08120-10	Coby Chapin Sewer Extension Easement	10,000.00	(5,200.00)	4,800.00	-	-	4,800.00	0%	Active
WBS R-B2.08120-11	Coby Chapin Sewer Extension Engineering	12,000.00	(12,000.00)	-	-	-	-		Complete
WBS R-B2.08120-12	Coby Chapin Sewer Extension - CM	15,000.00	9,000.00	24,000.00	-	23,447.38	552.62	98%	Complete
WBS R-B2.08120-21	Coby Chapin Sewer Extension - CONST	163,000.00	29,338.45	192,338.45	-	192,338.45	-	100%	Complete
WBS R-B2.08136	**SR 28 Reconstruction - Sewer Reloc**	**-**	**500,000.00**	**500,000.00**	**-**	**45,763.83**	**454,236.17**	**9%**	**Active**
WBS R-B2.08136-01	SR 28 Reconstruction Sewer Reloc	-	458,700.00	458,700.00	-	-	458,700.00	0%	Active
WBS R-B2.08136-11	SR 28 Reconstruction Sewer Reloc	-	41,300.00	41,300.00	-	45,763.83	(4,463.83)	111%	Active

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
STATUS AS OF DECEMBER 31, 2011

B2 SEWER - COMBINED SEWER

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS R-B2.10007	**Catch Basin Replacment**	**-**	**633,084.29**	**633,084.29**	**212,070.23**	**637,598.95**	**(4,514.66)**	**101%**	**Active**
WBS R-B2.10007-11	Catch Basin Replacement - CM	-	62,000.00	62,000.00	-	66,514.66	(4,514.66)	107%	Active
WBS R-B2.10007-21	Catch Basin Replacement - Const	-	571,084.29	571,084.29	212,070.23	571,084.29	-	100%	Active
WBS R-B2.10018	**2010-2011 Sewer Rehabilitation Gunite**	**-**	**1,798,236.00**	**1,798,236.00**	**363,952.93**	**1,769,773.71**	**28,462.29**	**98%**	**Active**
WBS R-B2.10018-11	2010-2011 Sewer Rehab Gunite - ENG	-	10,000.00	10,000.00	-	-	10,000.00	0%	Active
WBS R-B2.10018-12	2010-2011 Sewer Rehab Gunite - CM	-	150,000.00	150,000.00	-	131,597.36	18,402.64	88%	Active
WBS R-B2.10018-21	2010-2011 Sewer Rehab Gunite - CONST	-	1,638,236.00	1,638,236.00	363,952.93	1,638,176.35	59.65	100%	Active
WBS R-B2.10023	**2010-2011 Sewer Improvement Contract**	**-**	**1,315,136.25**	**1,315,136.25**	**466,267.61**	**1,279,476.49**	**32,652.30**	**97%**	**Active**
WBS R-B2.10023-11	2010-2011 Sewer Improvement - CM	-	140,000.00	140,000.00	-	136,992.54	3,007.46	98%	Active
WBS R-B2.10023-12	South 26th - CSX Inspection Fees	-	10,111.25	10,111.25	-	10,111.25	-	100%	Active
WBS R-B2.10023-21	2010-2011 Sewer Improvement - CONST	-	1,165,025.00	1,165,025.00	466,267.61	1,132,372.70	32,652.30	97%	Active
WBS R-B2.10025	**2010-2011 Catch Basin Replacement**	**-**	**946,942.50**	**946,942.50**	**266,962.18**	**902,643.35**	**44,299.15**	**95%**	**Active**
WBS R-B2.10025-11	2010-2011 Catch Basin Replacement - CM	-	100,000.00	100,000.00	-	100,227.58	(227.58)	100%	Active
WBS R-B2.10025-21	2010-2011 Catch Basin Replacement -CONS	-	846,942.50	846,942.50	266,962.18	802,415.77	44,526.73	95%	Active
WBS R-B2.10033	**Sewer Improvements (09017ESOR)**	**-**	**202,022.27**	**202,022.27**	**-**	**202,022.27**	**-**	**100%**	**Complete**
WBS R-B2.10033-21	SI - Denora at Beckfield	-	39,629.30	39,629.30	-	39,629.30	-	**100%**	Complete
WBS R-B2.10033-22	SI - Bradish St btwn 10th & 11th Street	-	60,669.70	60,669.70	-	60,669.70	-	**100%**	Complete
WBS R-B2.10033-23	SI - Hobart St 5900 Block	-	25,571.55	25,571.55	-	25,571.55	-	**100%**	Complete
WBS R-B2.10033-24	SI - Stetson St btwn Pioneer - Plainvie	-	36,947.97	36,947.97	-	36,947.97	-	**100%**	Complete
WBS R-B2.10033-25	SI - Mellon Terrace at Mellon	-	39,203.75	39,203.75	-	39,203.75	-	**100%**	Complete
WBS R-B2.11005	**PVC Sewer Pipe**	**-**	**36,691.75**	**36,691.75**	**147,901.63**	**11,965.47**	**24,726.28**	**33%**	**Active**
WBS R-B2.11005-21	PVC Sewer Pipe - Contract 1	-	12,243.00	12,243.00	23,020.88	4,222.12	8,020.88	34%	Active
WBS R-B2.11005-22	PVC Sewer Pipe - Contract 2	-	24,448.75	24,448.75	124,880.75	7,743.35	16,705.40	32%	Active
WBS R-B2.11009	**Manhole, Catch Basin & Point Repair**	**-**	**1,439,895.00**	**1,439,895.00**	**533,544.28**	**1,082,823.51**	**357,071.49**	75%	Active
WBS R-B2.11009-11	Manhole, Catch Basin & Point Repair - C	-	220,000.00	220,000.00	-	231,309.46	(11,309.46)	105%	Active
WBS R-B2.11009-21	Manhole, Catch Basin & Point Repair	-	1,219,895.00	1,219,895.00	533,544.28	851,514.05	368,380.95	70%	Active
WBS R-B2.11018	**Sewer Point Lining**	**-**	**653,340.00**	**653,340.00**	**516,990.00**	**135,846.11**	**517,493.89**	21%	Active
WBS R-B2.11018-11	Sewer Point Lining - CM	-	60,000.00	60,000.00	-	26,826.11	33,173.89	45%	Active
WBS R-B2.11018-21	Sewer Point Lining - Construction	-	593,340.00	593,340.00	516,990.00	109,020.00	484,320.00	18%	Active
WBS R-B2.11023	**COA Sewer Inspection**	**-**	**491,432.00**	**491,432.00**	**391,432.00**	**36,738.73**	**454,693.27**	**7%**	**Active**
WBS R-B2.11023-11	COA Sewer Inspection	-	100,000.00	100,000.00	-	36,738.73	63,261.27	37%	Active
WBS R-B2.11023-21	COA Sewer Inspection	-	391,432.00	391,432.00	391,432.00	-	391,432.00	0%	Active
WBS R-B2.11024	**Catch Basin Repair and Replacement**	**-**	**1,046,965.00**	**1,046,965.00**	**865,112.93**	**106,279.82**	**940,685.18**	**10%**	**Active**
WBS R-B2.11024-11	Catch Basin Repair and Replacement- CM	-	95,000.00	95,000.00	-	14,450.37	80,549.63	15%	Active
WBS R-B2.11024-21	Catch Basin Repair and Replacement - Constr	-	951,965.00	951,965.00	865,112.93	91,829.45	860,135.55	10%	Active
WBS R-B2.11026	**2011 Sewer Improvement Contract**	**-**	**1,594,444.44**	**1,594,444.44**	**1,144,444.44**	**-**	**1,594,444.44**	**0%**	**Active**
WBS R-B2.11026-11	2011 Sewer Improvement Contract - CM	-	150,000.00	150,000.00	-	-	150,000.00	0%	Active
WBS R-B2.11026-21	2011 Sewer Improvement Contract - Const	-	1,444,444.44	1,444,444.44	1,144,444.44	-	1,444,444.44	0%	Active
WBS R-B2.11028	**2011-2012 Sewer Rehab Gunite**	**-**	**2,281,663.00**	**2,281,663.00**	**-**	**-**	**2,281,663.00**	**0%**	**Active**
WBS R-B2.11028-11	2011-2012 Sewer Rehab Gunite-CM	-	210,000.00	210,000.00	-	-	210,000.00	0%	Active
WBS R-B2.11028-21	2011-2012 Sewer Rehab Gunite-Constr	-	2,071,663.00	2,071,663.00	-	-	2,071,663.00	0%	Active
WBS R-B2.11040	**2012 PVC Sewer Pipe**	**-**	**129,257.76**	**129,257.76**	**-**	**-**	**129,257.76**	**0%**	**Active**
WBS R-B2.11040-21	2012 PVC Sewer Pipe - Contract 1	-	27,691.44	27,691.44	-	-	27,691.44	0%	Active
WBS R-B2.11040-22	2012 PVC Sewer Pipe - Contract 2	-	100,000.00	100,000.00	-	-	100,000.00	0%	Active
WBS R-B2.11040-23	2012 PVC Sewer Pipe - Contract 3	-	1,566.32	1,566.32	-	-	1,566.32	0%	Active
TOTAL		**8,345,000.00**	**9,678,299.32**	**18,023,299.32**	**5,403,449.06**	**10,431,420.36**	**7,588,871.50**		

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
STATUS AS OF DECEMBER 31, 2011

B4 SEWER - PUMP STATION

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS R-B4.05001-01-2008	Sewage Pump Station Improvements	3,360,000.00	(2,860,000.00)	500,000.00	-	-	500,000.00	0%	Active
WBS R-B4.05001-26-2008	Brown's Hill Rd Sewer Separation - CONS	90,000.00	(90,000.00)	-	-	-	-		Active
WBS R-B4.05001-17-2008	Brown's Hill Rd Sewer Separation - CM	10,000.00	(10,000.00)	-	-	-	-		Active
TOTAL		3,460,000.00	(2,960,000.00)	500,000.00	-	-	500,000.00		

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
STATUS AS OF DECEMBER 31, 2011

C1 CITY / URA / SEA / PORT AUTHORITY

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS R-C1.06501-21-2008	**URA - Liberty Park Phase 2 - Constructi**	**-**	**156,907.27**	**156,907.27**	**-**	**-**	**156,907.27**	**0%**	**Active**
WBS R-C1.06501-13-2008	**URA Liberty Park - CM**	**-**	**25,459.99**	**25,459.99**	**-**	**-**	**25,459.99**	**0%**	**Active**
WBS R-C1.06501-14-2008	**URA Liberty Park Phase 2 Design**	**-**	**7,632.74**	**7,632.74**	**-**	**-**	**7,632.74**	**0%**	**Active**
WBS R-C1.08501	**Manchester Housing**	**200,000.00**	**(45,000.00)**	**155,000.00**	**-**	**124,000.00**	**31,000.00**	**80%**	**Active**
WBS R-C1.08501-01	Manchester Housing	200,000.00	(200,000.00)	-	-	-	-		Active
WBS R-C1.08501-21	Manchester Housing - Construction	-	155,000.00	155,000.00	-	124,000.00	31,000.00	80%	Active
WBS R-C1.08502	**Proposed Development Projects**	**875,000.00**	**(875,000.00)**	**-**	**-**	**-**	**-**		**Complete**
WBS R-C1.08502-01	Proposed Development Projects	875,000.00	(875,000.00)	-	-	-	-		Complete
WBS R-C1.08503	**Garfield Housing**	**4,000,000.00**	**(2,590,945.19)**	**1,409,054.81**	**-**	**1,274,416.45**	**134,638.36**	**90%**	**Active**
WBS R-C1.08503-01	Garfield Housing	4,000,000.00	(3,866,202.59)	133,797.41	-	-	133,797.41	0%	Active
WBS R-C1.08503-02	Garfield Housing - Administrative	-	34,887.53	34,887.53	-	34,046.58	840.95	98%	Active
WBS R-C1.08503-11	Garfield Housing - Design	-	88,203.00	88,203.00	-	88,203.00	-	100%	Complete
WBS R-C1.08503-21	Garfield Housing - Construction	-	949,666.87	949,666.87	-	949,666.87	-	100%	Active
WBS R-C1.08503-22	Garfield Housing Phase 2 - Const.	-	202,500.00	202,500.00	-	202,500.00	-	100%	Active
WBS R-C1.08504	**Pittsburgh Technology Center**	**1,350,000.00**	**(1,350,000.00)**	**-**	**-**	**-**	**-**		**Complete**
WBS R-C1.08504-01	Pittsburgh Technology Center	1,350,000.00	(1,350,000.00)	-	-	-	-		Complete
WBS R-C1.10034	**Market Square (PWSA Infrastructure)**	**-**	**83,853.03**	**83,853.03**	**-**	**83,853.03**	**-**	100%	**Complete**
WBS R-C1.10034-21	Market Square (PWSA Infrastructure)	-	83,853.03	83,853.03	-	83,853.03	-	100%	Complete
WBS R-C1.10401-11	**City Web Base Permitting**	**-**	**125,000.00**	**125,000.00**	**-**	**125,000.00**	**-**	**100%**	**Complete**
WBS R-C1.10501	**Oak Hill Phase II**	**-**	**1,388,000.00**	**1,388,000.00**	**-**	**1,288,922.17**	**99,077.83**	**93%**	**Active**
WBS R-C1.10501-11	Oak Hill Phase II - Engineering	-	120,000.00	120,000.00	-	109,682.17	10,317.83	91%	Active
WBS R-C1.10501-21	Oak Hill Phase II - Construction	-	1,268,000.00	1,268,000.00	-	1,179,240.00	88,760.00	93%	Active
WBS R-C1.91501-21-2008	**NINE MILE RUN REDEVELOPMENT**	**4,450,000.00**	**(2,450,000.00)**	**2,000,000.00**	**-**	**376,125.55**	**1,623,874.45**	**19%**	**Active**
WBS R-C1.95502-21-2008	**SOUTH SIDE RIVERFRONT HOUSING**	**-**	**93,348.08**	**93,348.08**	**-**	**93,348.08**	**-**	**100%**	**Complete**
WBS R-C1.96482-21-2008	**ALLEQUIPPA TERRACE**	**3,750,000.00**	**(3,388,000.00)**	**362,000.00**	**-**	**108,158.00**	**253,842.00**	**30%**	**Active**
WBS R-C1.98501-21-2008	**S.S. INDUSTRIAL DEVELOPMENT**	**1,600,000.00**	**1,337,610.52**	**2,937,610.52**	**-**	**2,937,610.52**	**-**	**100%**	**Active**
WBS R-C1.98501-22-2008	**S.S. INDUSTRIAL DEVELOPMENT**	**-**	**62,568.35**	**62,568.35**	**-**	**62,568.35**	**-**	**100%**	**Active**
TOTAL		**16,225,000.00**	**(7,418,565.21)**	**8,806,434.79**	**-**	**6,474,002.15**	**2,332,432.64**		

D1 ENGINEERING

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS I-D1.05031-2008-13	**Sewer Construction Cassabill Drive**	**-**	**10,000.00**	**10,000.00**	**-**	**7,861.06**	**2,138.94**	**79%**	**Active**
WBS I-D1.08123-2008	**Misc Engineering Services - 2008 CF**	**1,250,000.00**	**(1,250,000.00)**	**-**	**-**	**-**	**-**		**Complete**
WBS R-D1.08121	**Surveys**	**175,000.00**	**(165,687.05)**	**9,312.95**	**-**	**-**	**9,312.95**	**0%**	**Active**
WBS R-D1.08121-01	Surveys	175,000.00	(165,687.05)	9,312.95	-	-	9,312.95	0%	Active
WBS R-D1.08122	**CM for Private Development**	**435,000.00**	**(64,343.04)**	**370,656.96**	**-**	**327,465.97**	**43,190.99**	**88%**	**Active**
WBS R-D1.08122-01	CM for Private Development	435,000.00	(402,691.08)	32,308.92	-	-	32,308.92	0%	Active
WBS R-D1.08122-11	Forbes 5th Relocation W&S Facilities	-	15,448.87	15,448.87	-	15,448.87	-	100%	Complete
WBS R-D1.08122-12	N.S. Fred Rogers Memorial	-	2,489.88	2,489.88	-	2,489.88	-	100%	Complete
WBS R-D1.08122-13	Western Ave Street Scape	-	16,902.22	16,902.22	-	16,902.22	-	100%	Complete
WBS R-D1.08122-14	5th Ave Waterline 3 PNC/Market Sq Pl	-	7,481.11	7,481.11	-	7,481.11	-	100%	Complete
WBS R-D1.08122-15	PAT N.S. Connector	-	260,000.00	260,000.00	-	252,660.11	7,339.89	97%	Active
WBS R-D1.08122-16	Plymouth St Inlet Reconstruction	-	1,691.56	1,691.56	-	1,691.56	-	100%	Complete
WBS R-D1.08122-17	57th St - Hydrant & CB Relocation	-	618.43	618.43	-	618.43	-	100%	Complete
WBS R-D1.08122-19	North Shore Hyatt Fire Hydrant Reloc.	-	-	-	-	-	-		Complete
WBS R-D1.08122-20	Sweetbriar Homes - WL & MH Construction	-	14,773.62	14,773.62	-	14,773.62	-	100%	Active
WBS R-D1.08122-21	Pitt Olympic Sports Complex	-	-	-	-	-	-		Complete
WBS R-D1.08122-22	Bakery Square W&S Reconstruction	-	10,000.00	10,000.00	-	8,946.82	1,053.18	89%	Active
WBS R-D1.08122-25	Aldi Store Sussex Ave Sewer Relocation	-	6,453.35	6,453.35	-	6,453.35	-	100%	Complete
WBS R-D1.08122-26	YMCA 2114 Centre Ave - Sewer Lining	-	2,489.00	2,489.00	-	-	2,489.00	0%	Active
WBS R-D1.08124	**2008 CF Temp Staffing**	**1,800,000.00**	**1,370,000.00**	**3,170,000.00**	**-**	**3,176,325.86**	**(6,325.86)**	**100%**	**Active**
WBS R-D1.08124-11	2008 CF Temp Staffing - Chester Eng	800,000.00	371,448.77	1,171,448.77	-	1,171,448.77	-	100%	Complete
WBS R-D1.08124-12	2008 CF Temp Staffing - Kimball	464,000.00	210,862.96	674,862.96	-	674,862.96	-	100%	Complete
WBS R-D1.08124-13	2008 CF Temp Staffing - URS	536,000.00	(66,543.98)	469,456.02	-	469,456.02	-	100%	Complete
WBS R-D1.08124-14	2011 CF Temp Staffing - Chester Enginee	-	538,551.23	538,551.23	-	548,868.70	(10,317.47)	102%	Active
WBS R-D1.08124-15	2011 CF Temp Staffing - Kimball	-	164,137.04	164,137.04	-	157,753.90	6,383.14	96%	Active
WBS R-D1.08124-16	2011 CF Temp Staffing - URS	-	151,543.98	151,543.98	-	153,935.51	(2,391.53)	102%	Active
WBS R-D1.08125	**Developer Reviews**	**295,000.00**	**71,790.65**	**366,790.65**	**-**	**343,733.98**	**23,056.67**	**94%**	**Active**
WBS R-D1.08125-11	Developer Reviews	295,000.00	(196,450.15)	98,549.85	-	98,549.85	-	100%	Complete
WBS R-D1.08125-12	Developer Reviews - 2009	-	118,240.80	118,240.80	-	118,240.80	-	100%	Complete
WBS R-D1.08125-13	Developer Reviews - 2010	-	79,019.73	79,019.73	-	79,019.73	-	100%	Complete
WBS R-D1.08125-14	Developer Reviews - 2011	-	70,980.27	70,980.27	-	47,923.60	23,056.67	0%	Active
WBS R-D1.08126	**Consulting Engineer Additonal Services**	**350,000.00**	**(84,643.71)**	**265,356.29**	**-**	**175,134.89**	**90,221.40**	**66%**	**Active**
WBS R-D1.08126-01	Consulting Engineer Additonal Services	125,000.00	(116,000.00)	9,000.00	-	-	9,000.00	0%	Active
WBS R-D1.08126-11	CE - Miscellaneous Design	70,000.00	(45,049.53)	24,950.47	-	24,950.47	-	100%	Complete
WBS R-D1.08126-12	CE - SAP Setup and Testing	40,000.00	(34,643.71)	5,356.29	-	5,356.29	-	100%	Complete
WBS R-D1.08126-13	CE - Meeting Attendance	15,000.00	25,090.27	40,090.27	-	40,090.27	-	100%	Complete
WBS R-D1.08126-14	CE - Preparation of Monthly Reports	100,000.00	(38,323.22)	61,676.78	-	61,676.78	-	100%	Complete
WBS R-D1.08126-15	2011 CE - Miscellaneous Design	-	45,049.53	45,049.53	-	2,072.00	42,977.53	5%	Active
WBS R-D1.08126-16	2011 CE - Meeting Attendance	-	20,909.73	20,909.73	-	18,315.88	2,593.85	88%	Active
WBS R-D1.08126-17	2011 CE - Preparation of Monthly Report	-	38,323.22	38,323.22	-	17,741.16	20,582.06	46%	Active
WBS R-D1.08126-18	2011 CE - Cogsdale Implentation Trainin	-	20,000.00	20,000.00	-	4,932.04	15,067.96	25%	Active

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
STATUS AS OF DECEMBER 31, 2011

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS R-D1.08127	**Construction Manager Additional Service**	**210,000.00**	**(50,000.00)**	**160,000.00**	**-**	**106,916.67**	**53,083.33**	**67%**	**Active**
WBS R-D1.08127-01	Construction Manager Additional Service	85,000.00	(57,000.00)	28,000.00	-	-	28,000.00	0%	Active
WBS R-D1.08127-11	CM - Meetings	25,000.00	(7,548.70)	17,451.30	-	17,451.30	-	100%	Complete
WBS R-D1.08127-12	CM-SAP Purchase Requisition Preparation	50,000.00	(13,629.05)	36,370.95	-	36,370.95	-	100%	Complete
WBS R-D1.08127-13	CM - Miscellaneous Design	50,000.00	(32,833.54)	17,166.46	-	17,166.46	-	100%	Complete
WBS R-D1.08127-14	2011 CM - Meetings	-	9,548.70	9,548.70	-	8,928.08	620.62	94%	Active
WBS R-D1.08127-15	2011 CM - SAP Purchase Requisition Prep	-	18,629.05	18,629.05	-	15,565.33	3,063.72	84%	Active
WBS R-D1.08127-16	2011 CM - Miscellaneous Design	-	32,833.54	32,833.54	-	1,547.04	31,286.50	5%	Active
WBS R-D1.08127-17	Washington Blvd Flood Conceptual Design	-	-	-	-	9,887.51	(9,887.51)		Complete
WBS R-D1.08128	**Construction Management for URA Project**	**700,000.00**	**526,470.87**	**1,226,470.87**	**-**	**940,069.10**	**286,401.77**	**77%**	**Active**
WBS R-D1.08128-01	Construction Management for URA Project	340,000.00	(331,886.95)	8,113.05	-	-	8,113.05	0%	Active
WBS R-D1.08128-11	CM - S.S. Industrial Development	100,000.00	(10,000.00)	90,000.00	-	78,935.32	11,064.68	88%	Active
WBS R-D1.08128-12	CM - Nine Mile Run Development	100,000.00	-	100,000.00	-	14,071.87	85,928.13	14%	Active
WBS R-D1.08128-13	CM - Bedford Dwellings	10,000.00	-	10,000.00	-	6,923.09	3,076.91	69%	Active
WBS R-D1.08128-14	CM - Allequippa Terrace	100,000.00	(50,000.00)	50,000.00	-	-	50,000.00	0%	Active
WBS R-D1.08128-15	CM - Pittsburgh Technology Center	50,000.00	69,901.33	119,901.33	-	119,901.33	-	100%	Complete
WBS R-D1.08128-16	CM - Susquehanna Street	-	32,564.42	32,564.42	-	32,564.42	-	100%	Complete
WBS R-D1.08128-17	CM - Federal Hill Housing	-	102,257.86	102,257.86	-	102,257.86	-	100%	Complete
WBS R-D1.08128-18	CM - Garfield Heights	-	90,000.00	90,000.00	-	84,094.43	5,905.57	93%	Active
WBS R-D1.08128-19	CM - Carson St Widening	-	324,200.00	324,200.00	-	322,066.45	2,133.55	99%	Active
WBS R-D1.08128-20	CM - Browns Hill Rd Intersection Recon	-	40,973.20	40,973.20	-	40,973.20	-	100%	Complete
WBS R-D1.08128-21	CM - Market Square Water Facilities	-	12,470.87	12,470.87	-	12,470.87	-	100%	Complete
WBS R-D1.08128-22	CM - Garfield Heights Phase 2	-	38,084.74	38,084.74	-	38,084.74	-	100%	Complete
WBS R-D1.08128-23	CM - North Shore Underpasses	-	65.39	65.39	-	65.39	-	100%	Complete
WBS R-D1.08128-24	CM - Oak Hill As Built Drawings	-	25,159.01	25,159.01	-	16,724.96	8,434.05	66%	Active
WBS R-D1.08128-25	CM - Garfield Heights Phase 3	-	26,500.00	26,500.00	-	25,622.92	877.08	97%	Active
WBS R-D1.08128-26	CM - Liberty Park Phase 2	-	50,000.00	50,000.00	-	31,540.38	18,459.62	63%	Active
WBS R-D1.08128-27	CM - SEA North Shore Roadway Improvemen	-	15,000.00	15,000.00	-	13,771.87	1,228.13	92%	Active
WBS R-D1.08128-28	CM - Columbus Square	-	91,181.00	91,181.00	-	-	91,181.00	0%	Active
WBS R-D1.08129	**Engineering Department Reimbursement**	**4,000,000.00**	**494,975.00**	**4,494,975.00**	**-**	**4,494,975.00**	**-**	**100%**	**Active**
WBS R-D1.08129-11	2008 Engineering Dept Reimbursement	1,000,000.00	461,395.00	1,461,395.00	-	1,461,395.00	-	100%	Complete
WBS R-D1.08129-12	2009 Engineering Dept Reimbursement	1,000,000.00	250,341.00	1,250,341.00	-	1,250,341.00	-	100%	Complete
WBS R-D1.08129-13	2010 Engineering Dept Reimbursement	1,000,000.00	(1,000,000.00)	-	-	-	-		Active
WBS R-D1.08129-14	2011 Engineering Dept Reimbursement	1,000,000.00	783,239.00	1,783,239.00	-	1,783,239.00	-	100%	Active
WBS R-D1.08139	**Mobile Map Application Upgrade**	**-**	**1,039.14**	**1,039.14**	**-**	**1,039.14**	**-**	**100%**	**Complete**
WBS R-D1.08139-11	Mobile Map Application Upgrade	-	1,039.14	1,039.14	-	1,039.14	-	100%	Complete
WBS R-D1.08140	**IT Support Services**	**-**	**8,000.00**	**8,000.00**	**-**	**8,066.59**	**(66.59)**	**101%**	**Active**
WBS R-D1.08140-11	IT Support Services	-	8,000.00	8,000.00	-	8,066.59	(66.59)	101%	Active
WBS R-D1.08141	**Bond Financing Legal Fees**	**-**	**400,000.00**	**400,000.00**	**-**	**59,469.68**	**340,530.32**	**15%**	**Active**
WBS R-D1.08141-01	Bond Financing Legal Fees	-	400,000.00	400,000.00	-	59,469.68	340,530.32	15%	Active
WBS R-D1.08142	**Bedford Dwellings**	**-**	**5,596.00**	**5,596.00**	**-**	**5,596.00**	**-**	**100%**	**Complete**
WBS R-D1.08142-11	Bedford Dwellings - As Built	-	5,596.00	5,596.00	-	5,596.00	-	100%	Complete
WBS R-D1.10015	**40 Year Capital Plan**	**-**	**235,875.39**	**235,875.39**	**-**	**156,740.83**	**79,134.56**	**66%**	**Active**
WBS R-D1.10015-01	40 Year Capital Plan	-	235,875.39	235,875.39	-	156,740.83	79,134.56	66%	Active
WBS R-D1.11010	**Stormwater Management Rate Study**	**-**	**149,527.00**	**149,527.00**	**-**	**-**	**149,527.00**	0%	Active
WBS R-D1.11010-01	Stormwater Management Rate Study	-	149,527.00	149,527.00	-	-	149,527.00	0%	Active
TOTAL		**9,215,000.00**	**1,658,600.25**	**10,873,600.25**	**-**	**9,803,394.77**	**1,070,205.48**		

E1 TOOLS AND EQUIPMENT

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS R-E1.08130	**Street Repaving Sewer Risers and Lids**	**1,200,000.00**	**(662,224.29)**	**537,775.71**	**-**	**518,725.71**	**19,050.00**	**96%**	**Complete**
WBS R-E1.08130-01	Water and Sewer Castings	1,200,000.00	(1,200,000.00)	-	-	-	-		Complete
WBS R-E1.08130-21	Contract 1 - East Jordan	-	393,505.21	393,505.21	-	393,505.21	-	100%	Complete
WBS R-E1.08130-22	Contract 2 - Bingham & Taylor	-	76,278.50	76,278.50	-	76,278.50	-	100%	Complete
WBS R-E1.08130-23	Contract 3 - Neenah	-	67,992.00	67,992.00	-	48,942.00	19,050.00	72%	Complete
WBS R-E1.08131	**Purchase Water Meters / UMEs**	**750,000.00**	**(750,000.00)**	**-**	**-**	**-**	**-**		**Complete**
WBS R-E1.08131-01	Purchase Water Meters / UMEs	750,000.00	(750,000.00)	-	-	-	-		Complete
WBS R-E1.08132	**Vehicles**	**2,100,000.00**	**(1,280,678.95)**	**819,321.05**	**-**	**819,321.05**	**-**	**100%**	**Complete**
WBS R-E1.08132-01	Vehicles	2,100,000.00	(2,100,000.00)	-	-	-	-		Complete
WBS R-E1.08132-21	Vehicles - 09 SPEC 7300 Dump Truck	-	91,973.00	91,973.00	-	91,973.00	-	100%	Complete
WBS R-E1.08132-22	Vehicles - Four Dump Trucks	-	220,085.40	220,085.40	-	220,085.40	-	100%	Complete
WBS R-E1.08132-23	Vehicles - Water Distrubution Crew	-	197,896.50	197,896.50	-	197,896.50	-	100%	Complete
WBS R-E1.08132-24	Vehicles - Vactor Truck	-	309,366.15	309,366.15	-	309,366.15	-	100%	Complete
WBS R-E1.08133	**Warehouse / Facility Improv / Fencing**	**1,500,000.00**	**(1,500,000.00)**	**-**	**-**	**-**	**-**		**Complete**
WBS R-E1.08133-01	Warehouse / Facility Improv / Fencing	1,500,000.00	(1,500,000.00)	-	-	-	-		Complete
WBS R-E1.08138	**Purchase of Trench Shoring Equipment**	**-**	**29,095.00**	**29,095.00**	**-**	**29,095.00**	**-**	**100%**	**Complete**
WBS R-E1.08138-21	Purchase of Trench Shoring Equipment	-	29,095.00	29,095.00	-	29,095.00	-	100%	Complete
WBS R-E1.10014	**Small Meters & Residental Fire Meters**	**-**	**503.97**	**503.97**	**-**	**503.97**	**-**	**100%**	**Complete**
WBS R-E1.10014-11	Small Meters & Residental Fire Meter ENG	-	503.97	503.97	-	503.97	-	100%	Complete
WBS R-E1.10026	**Water & Sewer Castings**	**-**	**1,399,563.25**	**1,399,563.25**	**1,211,717.75**	**328,554.80**	**1,071,008.45**	**23%**	**Active**
WBS R-E1.10026-01	Water & Sewer Castings	-	-	-	-	-	-		Active
WBS R-E1.10026-21	Water & Sewer Castings - Contract 1	-	353,155.75	353,155.75	280,665.25	178,289.80	174,865.95	50%	Active
WBS R-E1.10026-22	Water & Sewer Castings - Contract 2	-	419,950.00	419,950.00	343,600.00	91,125.00	328,825.00	22%	Active
WBS R-E1.10026-23	Water & Sewer Castings - Contract 3	-	626,457.50	626,457.50	587,452.50	59,140.00	567,317.50	9%	Active
WBS R-E1.11011	**Purchase Digital Leak Detection Equip,**	**-**	**43,640.00**	**43,640.00**	**-**	**43,564.12**	**75.88**	100%	Active
WBS R-E1.11011-21	Purchase Digital Leak Detection Equip.	-	43,640.00	43,640.00	-	43,564.12	75.88	100%	Active
WBS R-E1.11012	**Purchase Large Meters**	**-**	**1,961,990.00**	**1,961,990.00**	**3,646,443.16**	**65,546.84**	**1,896,443.16**	3%	Active
WBS R-E1.11012-21	Purchase Large Meters - Contract 1	-	1,192,920.20	1,192,920.20	1,934,129.82	8,790.38	1,184,129.82	1%	Active
WBS R-E1.11012-22	Purchase Large Meters - Contract 2	-	602,469.80	602,469.80	1,305,673.34	46,796.46	555,673.34	8%	Active
WBS R-E1.11012-23	Purchase Large Meters - Contract 3	-	166,600.00	166,600.00	406,640.00	9,960.00	156,640.00	6%	Active
WBS R-E1.11013	**Purchase UME's Contract**	**-**	**822,300.00**	**822,300.00**	**804,900.00**	**17,400.00**	**804,900.00**	2%	Active
WBS R-E1.11013-21	Purchase UME's Contract	-	822,300.00	822,300.00	804,900.00	17,400.00	804,900.00	2%	Active
TOTAL		**5,550,000.00**	**64,188.98**	**5,614,188.98**	**5,663,060.91**	**1,822,711.49**	**3,791,477.49**		

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
STATUS AS OF DECEMBER 31, 2011

F1 IT / GIS

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS R-F1.10030	**Cogsdale Implementation**	**-**	**3,984,670.00**	**3,984,670.00**	**-**	**2,673,263.80**	**1,311,406.20**	**67%**	**Active**
WBS R-F1.10030-11	Cogsdale - EA Data Cleansing	-	225,000.00	225,000.00	-	188,542.50	36,457.50	84%	Active
WBS R-F1.10030-12	Cogsdale - ERP Software	-	1,801,770.00	1,801,770.00	-	960,219.54	841,550.46	53%	Active
WBS R-F1.10030-13	Cogsdale - PWSA Personnel & Consulting	-	1,612,400.00	1,612,400.00	-	1,194,787.57	417,612.43	74%	Active
WBS R-F1.10030-14	Cogsdale - Infrastructure	-	176,853.57	176,853.57	-	176,853.57	-	100%	Complete
WBS R-F1.10030-15	Cogsdale - Training	-	21,500.00	21,500.00	-	16,303.16	5,196.84	76%	Active
WBS R-F1.10030-16	Cogsdale - Associated Software	-	112,757.35	112,757.35	-	102,168.38	10,588.97	91%	Active
WBS R-F1.10030-17	Cogsdale - Miscellaneous	-	34,389.08	34,389.08	-	34,389.08	-	100%	Complete
TOTAL		**-**	**3,984,670.00**	**3,984,670.00**	**-**	**2,673,263.80**	**1,311,406.20**		

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
2008 CONSTRUCTION FUND
STATUS AS OF DECEMBER 31, 2011

Z1 CONTINGENCY

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS I-Z1.50000-2008	CONTINGENCY BOND 2008	2,008,166.58	(1,981,520.76)	26,645.82	-	-	26,645.82	0%	Active
TOTAL		2,008,166.58	(1,981,520.76)	26,645.82	-	-	26,645.82		

EXHIBIT D
PENNVEST PROGRAM STATUS REPORT
AS OF DECEMBER 31, 2011

THE PITTSBURGH WATER AND SEWER AUTHORITY

CAPITAL IMPROVEMENT PROGRAM

PENNVEST

STATUS AS OF DECEMBER 31, 2011

	AMOUNT BUDGETED	COMPLETED CONTRACTS	ACTUAL COST ACTIVE CONTRACTS	TOTAL COMPLETE AND ACTIVE	RETAINAGE HELD	REIMBURSEMENTS	AMOUNT REQUISITIONED
WATER SYSTEM							
A1 Water - Distribution System	$ 6,340,706.24	$ 26,217.00	$ 5,588,097.18	$ 5,614,314.18	$ 98,589.59	$ -	$ 5,515,724.59
A2 Water - Pumping & Storage	1,459,007.76	-	429,057.52	429,057.52	27,245.47	-	401,812.05
A3 Water - Treatment Plant	8,185,889.00	-	8,109,271.46	8,109,271.46	358,173.62	-	7,751,097.84
TOTAL WATER SYSTEM	**$ 15,985,603.00**	**$ 26,217.00**	**$ 14,126,426.16**	**$ 14,152,643.16**	**$ 484,008.68**	**$ -**	**$ 13,668,634.48**
SEWER SYSTEM							
B1 Sewer - Sanitary Sewer	$ -	$ -	$ -	$ -	$ -	$ -	$ -
B2 Sewer - Combined Sewer	17,452,050.90	2,217,381.22	13,085,861.53	15,303,242.75	318,461.82		14,984,780.93
B4 Sewer - Pump Station	-	-	-	-	-	-	-
B5 Sewer - CSO	-	-	-	-	-	-	-
TOTAL SEWER SYSTEM	**$ 17,452,050.90**	**$ 2,217,381.22**	**$ 13,085,861.53**	**$ 15,303,242.75**	**$ 318,461.82**	**$ -**	**$ 14,984,780.93**
C1 CITY/URA/SEA/PORT AUTHORITY	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
D1 ENGINEERING	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**		**$ -**
E1 TOOLS AND EQUIPMENT	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
F1 IT/GIS	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**	**$ -**
Z1 CONTINGENCY	**$ 3,371,643.10**	**$ -**	**$ -**				
TOTAL PENNVEST	**$ 36,809,297.00**	**$ 2,243,598.22**	**$ 27,212,287.69**	**$ 29,455,885.91**	**$ 802,470.50**	**$ -**	**$ 28,653,415.41**

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
PENNVEST
STATUS AS OF DECEMBER 31, 2011

A1 WATER - DISTRIBUTION SYSTEM

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS P-A1.09005	**Pennvest Water Phase 5**	**4,200,045.00**	**-**	**4,200,045.00**	**219,220.32**	**4,182,789.17**	**17,255.83**	**100%**	**Active**
WBS P-A1.09005-01	Pennvest Water 5 - Administration	5,000.00	-	5,000.00	-	-	5,000.00	0%	Active
WBS P-A1.09005-02	Pennvest Water 5 - Legal Fees	63,000.00	-	63,000.00	-	-	63,000.00	0%	Active
WBS P-A1.09005-03	Pennvest Water 5 - Interest During Cons	35,300.00	-	35,300.00	-	-	35,300.00	0%	Active
WBS P-A1.09005-10	Pennvest Water 5 - Engineering	375,213.02	-	375,213.02	-	51,672.12	323,540.90	14%	Active
WBS P-A1.09005-11	Pennvest Water 5 - 60" Main - Engineeri	31,216.98	-	31,216.98	-	26,217.00	4,999.98	84%	Complete
WBS P-A1.09005-12	Pennvest Water 5 - 60" Main - CM	251,200.00	-	251,200.00	-	340,650.71	(89,450.71)	136%	Active
WBS P-A1.09005-21	Pennvest Water 5 - 60" Main - Const	3,439,115.00	-	3,439,115.00	219,220.32	3,764,249.34	(325,134.34)	109%	Active
WBS P-A1.09018	**Pennvest Water Phase 6**	**2,140,661.24**	**-**	**2,140,661.24**	**436,063.70**	**1,431,525.01**	**709,136.23**	**67%**	**Active**
WBS P-A1.09018-01	Pennvest Water 6 - Administration	2,000.00	-	2,000.00	-	-	2,000.00	0%	Active
WBS P-A1.09018-02	Pennvest Water 6 - Legal Fees	65,000.00	-	65,000.00	-	-	65,000.00	0%	Active
WBS P-A1.09018-03	Pennvest Water 6 - Interest During Cons	38,000.00	-	38,000.00	-	-	38,000.00	0%	Active
WBS P-A1.09018-10	Pennvest Water 6 - Engineering	503,541.24	-	503,541.24	-	48,141.62	455,399.62	10%	Active
WBS P-A1.09018-11	Pennvest Water 6 - Valve & Hydrant - CM	136,900.00	-	136,900.00	-	164,441.46	(27,541.46)	120%	Active
WBS P-A1.09018-21	Pennvest Water 6 - Valve & Hydrant - Co	1,395,220.00	-	1,395,220.00	436,063.70	1,218,941.93	176,278.07	87%	Active
TOTAL		**6,340,706.24**	**-**	**6,340,706.24**	**655,284.02**	**5,614,314.18**	**726,392.06**		

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
PENNVEST
STATUS AS OF DECEMBER 31, 2011

A2 WATER - PUMPING AND STORAGE

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS P-A2.09007	**Pennvest Water 5 - Squirrel Hill Tank**	**792,899.00**	**-**	**792,899.00**	**680,999.00**	**1,234.32**	**791,664.68**	**0%**	**Active**
WBS P-A2.09007-11	Pennvest Water 5-Squirrel Hill Tank - C	111,900.00	-	111,900.00	-	1,234.32	110,665.68	1%	Active
WBS P-A2.09007-21	Pennvest Water 5-Squirrel Hill Tank-Con	680,999.00	-	680,999.00	680,999.00	-	680,999.00	0%	Active
WBS P-A2.09015	**Pennvest Water 6 - Herron Hill Tank**	**666,108.76**	**-**	**666,108.76**	**387,900.00**	**427,823.20**	**238,285.56**	**64%**	**Active**
WBS P-A2.09015-10	Pennvest Water 6 - HerronHill Tank - En	5,158.76	-	5,158.76	-	5,094.45	64.31	99%	Active
WBS P-A2.09015-11	Pennvest Water 6 - HerronHill Tank - CM	112,000.00	-	112,000.00	-	150,274.07	(38,274.07)	134%	Active
WBS P-A2.09015-21	Pennvest Water 6 - HerronHill Tank - Co	548,950.00	-	548,950.00	387,900.00	272,454.68	276,495.32	50%	Active
TOTAL		**1,459,007.76**	**-**	**1,459,007.76**	**1,068,899.00**	**429,057.52**	**1,029,950.24**		

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
PENNVEST
STATUS AS OF DECEMBER 31, 2011

A3 WATER - TREATMENT PLANT

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS P-A3.09008	**Pennvest Water 5 - WTP Clarifiers 1,2,3**	**2,941,489.00**	**-**	**2,941,489.00**	**121,939.27**	**2,871,618.00**	**69,871.00**	**98%**	**Active**
WBS P-A3.09008-11	Pennvest Water 5 - WTP Clarifiers - CM	270,470.00	-	270,470.00	-	209,608.22	60,861.78	77%	Active
WBS P-A3.09008-21	Pennvest 5 - WTP Clarifiers - Gen Const	2,263,788.00	-	2,263,788.00	120,939.27	2,177,438.73	86,349.27	96%	Active
WBS P-A3.09008-22	Pennvest 5 - WTP Clarifiers - Elec Cons	407,231.00	-	407,231.00	1,000.00	484,571.05	(77,340.05)	119%	Active
WBS P-A3.09014	**Pennvest Water 6 - Filter Backwash**	**5,244,400.00**	**-**	**5,244,400.00**	**530,175.00**	**5,237,653.46**	**6,746.54**	**100%**	**Active**
WBS P-A3.09014-11	Pennvest Water 6 - Filter Backwash - CM	342,400.00	-	342,400.00	-	405,345.93	(62,945.93)	118%	Active
WBS P-A3.09014-21	PV Water 6 - Backwash - Gen/Mec - Const	4,569,000.00	-	4,569,000.00	253,987.00	4,775,495.53	(206,495.53)	105%	Active
WBS P-A3.09014-22	PV Water 6 - Backwash - Electric - Cons	333,000.00	-	333,000.00	276,188.00	56,812.00	276,188.00	17%	Active
TOTAL		**8,185,889.00**	**-**	**8,185,889.00**	**652,114.27**	**8,109,271.46**	**76,617.54**		

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
PENNVEST
STATUS AS OF DECEMBER 31, 2011

B2 SEWER - COMBINED SEWER

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS P-B2.08034	**Sewer System Improvements**	**4,302,373.00**	**-**	**4,302,373.00**	**1,447,976.69**	**3,242,207.90**	**1,060,165.10**	**75%**	**Active**
WBS P-B2.08034-01	Pennvest Sewer 1 Legal Fees	46,000.00	-	46,000.00	-	-	46,000.00	0%	Active
WBS P-B2.08034-02	Pennvest Sewer 1 Interest During Const.	25,000.00	-	25,000.00	-	-	25,000.00	0%	Active
WBS P-B2.08034-03	Pennvest Sewer 1 Administration	1,000.00	-	1,000.00	-	-	1,000.00	0%	Active
WBS P-B2.08034-10	Engineering - Semple Street Survey	7,000.00	-	7,000.00	-	7,000.00	-	100%	Complete
WBS P-B2.08034-11	Pennvest Sewer 1 Engineering	219,000.00	-	219,000.00	-	42,523.00	176,477.00	19%	Active
WBS P-B2.08034-12	Sewer Gunite Contract - CM	112,000.00	-	112,000.00	-	129,915.47	(17,915.47)	116%	Complete
WBS P-B2.08034-13	Sewer Lining Contract - CM	94,000.00	-	94,000.00	-	26,390.27	67,609.73	28%	Active
WBS P-B2.08034-14	Sewer Improvement Contract - CM	98,000.00	-	98,000.00	-	120,328.17	(22,328.17)	123%	Active
WBS P-B2.08034-21	Sewer Gunite Contract - Construction	1,559,803.00	-	1,559,803.00	-	2,024,157.63	(464,354.63)	130%	Complete
WBS P-B2.08034-22	Sewer Lining Contract - Construction	1,193,175.00	-	1,193,175.00	1,098,823.80	94,983.00	1,098,192.00	8%	Active
WBS P-B2.08034-23	Sewer Improvement Contract -Constructio	947,395.00	-	947,395.00	349,152.89	796,910.36	150,484.64	84%	Active
WBS P-B2.09006	**Pennvest Sewer Phase 2**	**8,640,847.90**	**-**	**8,640,847.90**	**3,043,284.47**	**8,594,571.07**	**46,276.83**	**99%**	**Active**
WBS P-B2.09006-01	Pennvest Sewer Phase 2 - Administration	5,000.00	-	5,000.00	-	-	5,000.00	0%	Active
WBS P-B2.09006-02	Pennvest Sewer Phase 2 - Legal Fees	63,000.00	-	63,000.00	-	-	63,000.00	0%	Active
WBS P-B2.09006-03	Pennvest Sewer 2 - Interest During Cons	50,000.00	-	50,000.00	-	-	50,000.00	0%	Active
WBS P-B2.09006-04	Pennvest Sewer PADOT Insp Fee Mifflin R	-	-	-	-	2,062.88	(2,062.88)		Complete
WBS P-B2.09006-10	Pennvest Sewer 2 - Engineering	24,000.00	-	24,000.00	-	82,413.59	(58,413.59)	343%	Active
WBS P-B2.09006-11	COA Critical Sewer Inspection #1 - CM	71,000.00	-	71,000.00	-	165,178.47	(94,178.47)	233%	Active
WBS P-B2.09006-12	COA Critical Sewer Inspection #2 - CM	71,000.00	-	71,000.00	-	160,681.87	(89,681.87)	226%	Active
WBS P-B2.09006-13	COA Non-Critical Sewer Inspection #1-CM	126,000.00	-	126,000.00	-	306,715.77	(180,715.77)	243%	Active
WBS P-B2.09006-14	COA Non-Critical Sewer Inspection #2-CM	126,000.00	-	126,000.00	-	251,481.30	(125,481.30)	200%	Active
WBS P-B2.09006-15	MH CB & Point Repair - CM	147,000.00	-	147,000.00	-	297,714.21	(150,714.21)	203%	Active
WBS P-B2.09006-16	Sewer Lining Contract - CM	70,000.00	-	70,000.00	-	55,915.69	14,084.31	80%	Active
WBS P-B2.09006-17	Sewer Rehab Gunite Contract - CM	131,000.00	-	131,000.00	-	90,541.05	40,458.95	69%	Active
WBS P-B2.09006-18	Sewer Improvement McBride - CM	106,000.00	-	106,000.00	-	124,890.81	(18,890.81)	118%	Active
WBS P-B2.09006-19	Sewer Improvement Browns Hill - CM	25,000.00	-	25,000.00	-	54,245.24	(29,245.24)	217%	Complete
WBS P-B2.09006-20	Sewer Improvement 44th/Davison - CM	103,000.00	-	103,000.00	-	126,487.18	(23,487.18)	123%	Active
WBS P-B2.09006-21	COA Critical Sewer Inspection #1 - Cons	218,852.50	-	218,852.50	72,705.64	190,969.44	27,883.06	87%	Active
WBS P-B2.09006-22	COA Critical Sewer Inspection #2 - Cons	228,568.50	-	228,568.50	78,951.51	196,939.66	31,628.84	86%	Active
WBS P-B2.09006-23	COA NonCritical Sewer Inspection 1-Cons	441,850.00	-	441,850.00	122,885.33	482,545.92	(40,695.92)	109%	Active
WBS P-B2.09006-24	COA NonCritical Sewer Inspection 2-Cons	433,880.00	-	433,880.00	122,016.95	442,915.16	(9,035.16)	102%	Active
WBS P-B2.09006-25	MH CB & Point Repair - Construction	1,476,395.00	-	1,476,395.00	753,281.39	2,460,023.19	(983,628.19)	167%	Active
WBS P-B2.09006-26	Sewer Lining Contract - Construction	693,474.00	-	693,474.00	637,539.85	55,934.15	637,539.85	8%	Active
WBS P-B2.09006-27	Sewer Rehab Gunite Contract-Constructio	1,207,445.00	-	1,207,445.00	4.46	1,283,611.31	(76,166.31)	106%	Active
WBS P-B2.09006-28	Sewer Improvement McBride - Constructio	1,507,777.90	-	1,507,777.90	365,574.78	1,331,058.04	176,719.86	88%	Active
WBS P-B2.09006-29	Sewer Improvement Browns Hill - Const	237,720.00	-	237,720.00	1.05	240,233.50	(2,513.50)	101%	Active
WBS P-B2.09006-30	Sewer Improvement 44th/Davison - Const	1,076,885.00	-	1,076,885.00	890,323.51	192,012.64	884,872.36	18%	Active
WBS P-B2.09011	**Pennvest Sewer Phase 3**	**4,508,830.00**	**-**	**4,508,830.00**	**1,325,816.93**	**3,466,463.78**	**1,042,366.22**	**77%**	**Active**
WBS P-B2.09011-01	Pennvest Sewer 3 - Administration	1,000.00	-	1,000.00	-	1,645.42	(645.42)	165%	Active
WBS P-B2.09011-02	Pennvest Sewer 3 - Legal Fees	60,000.00	-	60,000.00	-	-	60,000.00	0%	Active
WBS P-B2.09011-03	Pennvest Sewer 3 - Interest During Cons	30,000.00	-	30,000.00	-	-	30,000.00	0%	Active
WBS P-B2.09011-10	Pennvest Sewer 3 - Engineering	470,800.00	-	470,800.00	-	24,729.33	446,070.67	5%	Active
WBS P-B2.09011-11	Sewer Lining Contract - CM	150,600.00	-	150,600.00	-	109,921.07	40,678.93	73%	Active
WBS P-B2.09011-12	MH CB & Point Repair - CM	177,200.00	-	177,200.00	-	228,385.43	(51,185.43)	129%	Active
WBS P-B2.09011-13	Sewer Point Lining - CM	51,400.00	-	51,400.00	-	81,950.02	(30,550.02)	159%	Active
WBS P-B2.09011-21	Sewer Lining Contract - Construction	1,494,600.00	-	1,494,600.00	340,819.25	1,244,089.66	250,510.34	83%	Active
WBS P-B2.09011-22	MH CB & Point Repair - Construction	1,564,100.00	-	1,564,100.00	689,310.18	1,480,914.37	83,185.63	95%	Active
WBS P-B2.09011-23	Sewer Point Lining - Construction	509,130.00	-	509,130.00	295,687.50	294,828.48	214,301.52	58%	Active
TOTAL		**17,452,050.90**	**-**	**17,452,050.90**	**5,817,078.09**	**15,303,242.75**	**2,148,808.15**		

THE PITTSBURGH WATER AND SEWER AUTHORITY
CAPITAL IMPROVEMENT PROGRAM
PENNVEST
STATUS AS OF DECEMBER 31, 2011

Z1 CONTINGENCY

Project Number	Description	Original Budget	Budget Changes	Current Budget	Encumbrance	Actual	Balance Remaining	Percent Utilized	Status
WBS I-Z1.50000-SSI1	CONTINGENCY PENNVEST SSI PHASE 1	370,037.00	-	370,037.00	-	-	370,037.00	0%	Active
WBS I-Z1.50000-SSI2	CONTINGENCY PENNVEST SSI PHASE 2	1,623,402.10	-	1,623,402.10	-	-	1,623,402.10	0%	Active
WBS I-Z1.50000-SSI3	CONTINGENCY PENNVEST SSI PHASE 3	356,783.00	-	356,783.00	-	-	356,783.00	0%	Active
WBS I-Z1.50000-WSI5	CONTINGENCY PENNVEST WSI PHASE 5	679,113.00	-	679,113.00	-	-	679,113.00	0%	Active
WBS I-Z1.50000-WSI6	CONTINGENCY PENNVEST WSI PHASE 6	342,308.00	-	342,308.00	-	-	342,308.00	0%	Active
TOTAL		3,371,643.10	-	3,371,643.10	-	-	3,371,643.10		

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EXHIBIT E
FACILITIES INSPECTION REPORTS

Pittsburgh Water and Sewer Authority
Facilities Evaluation – 2011
Index
(Includes (37) Site Reports)

Water Pumping Stations

Aspinwall Pump Station
Bruecken (Brilliant) Pump Station
Herron Hill Pump Station
Herron Hill Tank Pump Station
Highland Pump Station
Howard Pump Station – Including Howard Sewer Division Facilities
Inline Pump Station (At Pacific & Coral)
Lincoln Pump Station
Millvale Pump Station
Mission Pump Station – Including Mission Sewer Division Facilities
Saline Pump Station

Water Storage Tanks and Reservoirs

Allentown Tanks
Bedford Tank
Brashear Tanks
Garfield Tank
Highland No. 1 Reservoir
Highland No. 2 Reservoir
Herron Hill Reservoir
Herron Hill Tank
Lanpher Reservoir
Lincoln Tank
McNaugher Reservoirs
Spring Hill Tanks
Squirrel Hill Tank

Water Treatment Plant Facilities

Clarifiers – Including Residual Sludge Distribution Chamber
Gatehouses – Including Inlet and Outlet Gatehouses, Fluoride Building and Filtered Water Reservoir (Clearwell)
Operations Building – Including the Operations Control Center and Laboratory
Rapid Sand Filters
Raw Water Intakes – Including East and West Intake Facilities and Backwash Retention Basin
Ross Pump Station and Chemical Facilities – Including the Boiler Heating Facilities and Sodium Hypochlorite Building and Facilities
Screen Room – Including Screening Equipment, Flash Mix Tanks, Carbon Facilities and 48-Inch Valve Vault
Sedimentation Basins
Site and Grounds

Miscellaneous Facilities

Brilliant Warehouse
Central Warehouse
Membrane Filtration Plant at Highland No. 1 Reservoir
Sewage Pump Stations – Including Lincoln Place, Rogers, Browns Hill, and Evergreen Road

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Aspinwall Pump Station (Including Fox Chapel Pump Station)

Condition	Recommendation
Pumping Equipment – All four pumps are in good condition and in operating service. The priming system works well.	
Interior Valves and Piping (includes pump isolation, control and surge valves) – The main shut-off valve on the east discharge header leaks water through valve stem packing. Main shut-off valve on west discharge header constantly leaks water through the seat. All four surge valves are not operational and are isolated from the system with closed isolation valves. The hydraulic control piping has been disconnected from one of the surge valves. The valves have been piped in a manner that requires them to be removed from the piping in order to service them. One of the two surge valves on each discharge header is mounted in an inverted position, whereby the operation may be compromised. One of the isolation valves on the surge piping on the west discharge header is broken resulting in water being discharged into the Clearwell suction line continuously. The other isolation gate valves on the surge piping are difficult to operate. Piping is rusted in the basement mainly due to the lack of heat and ventilation, causing damp and humid conditions. See "HVAC and Plumbing Systems". One of the surge valves in the basement that is serving one of the discharge mains outside is leaking water and the metal framing that supports it is badly deteriorated.	Repair/service main shut-off gate valves on the west and east discharge headers Resolve malfunctions of all four surge valves on the two discharge headers and evaluate orientation of two of them Repair/replace isolation valves on the surge on the two discharge headers Paint piping in basement Resolve leak at one of surge valves in basement that is serving one of the discharge mains outside, and replace metal support framing
Exterior Valves and Pits – The cover plates on the north, west and east valve vaults are in poor condition.	Replace valve pit cover plates
Instrumentation and SCADA System (includes flow meters and suction/discharge pressure transmitters) – Abandoned flow indicating meters and the electronic pressure indicating meters and flow chart recorder in the basement should be removed. The new discharge flow meter instrument has been wired with exposed wires and spliced connections. The bearing sensor	Remove abandoned flow and pressure meters and related instrumentation Install permanent wiring for the discharge flow meter

Condition	Recommendation
devices at the pumps are old and do not include a local readout temperature. Replacement of the SCADA System is proposed in a current project in the near future.	Evaluate operation of pump bearing sensor devices and consider replacing with a digital type unit that would include a local readout temperature Replace SCADA system in current project as planned
Access Road and Pavements – See "WTP - Site and Grounds" inspection report.	
Pump Station Building Interior (Structural/Architectural) – Paint is peeling on basement walls and ceiling support beams. Plaster walls and ceiling in vestibule are in need of repair/repainting. Front door glass and a few panes of corrugated glass around the station are broken. Ceiling insulation in the Workshop area and ceiling tiles in the Workshop Bathroom have been damaged by roof leaks. The leak that caused the Workshop ceiling insulation damage has been resolved. The cause of the leak damage to the Workshop Bathroom Ceiling tiles damage needs to be investigated. See "Pump Station Building Exterior (Structural/Architectural)". Water is leaking into the basement at the 8" water line wall penetration at the northeast corner. The concrete on the floor on the west half of the Workshop area is deteriorating badly and progressively getting worse. This is being caused from salt exposure from the vehicles entering and parking inside the building. The lumber storage racks were removed to provide a staging and work area for use by the plumbers, which are being set up.	Repaint basement walls and structural steel Repair/repaint vestibule walls Replace glass in front door and broken corrugated glass around station Repair/replace damaged ceiling insulation in Workshop area Replace damaged ceiling tiles in Workshop Bathroom after any active leaking is resolved Resolve leaking water problem at the wall penetration at the northwest corner of basement. Water should be tested to confirm source of water Repair concrete on the floor on the west half of the shop area as soon as possible and apply seal coating to eliminate further damage
Pump Station Building Exterior (Structural/Architectural) – An abandoned basement access pit on the northwest corner is presently open, as the cover plate is badly deteriorated. A leak is noted coming into the ceiling space above the bathroom in the Workshop area. Inspection after a light rain period did not uncover a cause. The cause of this leak needs to be further investigated. It may be due to water entering into the window framing next to the bathroom.	Cover the open pit at the northwest corner of pump station Investigate leak entering into the window framing next to the Workshop Bathroom

Condition	Recommendation
Electrical System (includes lighting and battery backup systems) – DC Battery system that serves the switchgear breakers is in good condition. Emergency power backup batteries, charger, and RTU inverter that serve the RTU/SCADA system and valve and pump status need to be replaced (planned under SCADA project). To maintain reliable operation, the switchgear system needs to be upgraded by replacing the field application control relays with Multi-Lin equipment, similar to the upgrade done at Bruecken Pump Station. Lighting fixtures in pump area were replaced with new metal halide light fixtures. Pump area basement and Pipe Tunnel lighting is in poor condition. Many of the lights in Shop Basement and Tunnel area are burned out. Emergency generator and transfer switch (serving the station lighting) in Workshop area are very old and inoperable. The cover is off of the telephone terminal panel at the northwest corner of pump area and the lighting panel and nearby junction box at the northeast corner. The electrical service wiring was replaced due to the deterioration of the existing wiring and conduit. Water entered into this service conduit and shorted out the wiring and transformer.	Replace backup batteries (NiCad), charger and RTU inverter that serve the RTD/SCADA system Upgrade switchgear system by replacing the field application control relays with Multi-Lin equipment Replace, repair or re-lamp lights in basement of pump and Workshop areas and Pipe Tunnel area Replace function of the emergency generator and transfer switch in Workshop area with battery powered emergency light fixtures and remove old generator equipment Reinstall cover on telephone terminal panel at northwest corner of pump area and the lighting panel and junction box at the northeast corner
HVAC & Plumbing Systems – The two heating units in basement are inoperable, whereby there is no heat in the basement, resulting in humid, damp conditions with lots of condensation formed. Two of the four heating units on first floor pump area are inoperable with defective coils. The heater above the east door in the Workshop area is malfunctioning. The abandoned flue pipe from a removed gas heater in the basement should be capped to reduce heat loss out of the building. All (6) ventilation fans on the roof are inoperable and currently electrically tagged "off". A leak is noted in plumbing lines inside the wall at the slop sink in Workshop. Leaks are noted at two places on the water service line in the northeast corner of the Pump Basement. Steam is discharged from the drain line of the condensate tank at the east side of the station basement. This creates very humid conditions in the basement.	Service/repair two heating units on first floor of pump area, two units in pump area basement, and the heater above the east door in the Workshop area Cap abandoned gas flue pipe in basement Replace the ventilation fans on the roof over the pump area and over the shop area (with grills added in the insulation ceiling) or remove and cap the three fans over the shop area and install new fans and louvers in the Workshop area below the suspended ceiling Repair leak in plumbing line inside the wall at the slop sink in Workshop Repair two leaks noted on the water service

Condition	Recommendation
	line in the northeast area of the pump area basement Evaluate a solution to eliminate discharge of steam from the drain line of the condensate tank in the basement
Auxiliary Systems – The fire alarm system is not in service. Its operation should be evaluated and the system upgraded as necessary to restore trouble-free service.	Evaluate fire alarm system and upgrade as necessary to restore trouble-free service
Roofing – In a previous roof inspection report some deficiencies were noted in the vestibule roof. Bricks from the abandoned chimney, located on the main roof, are lying inside the gutter next to the chimney. Vegetation is growing inside of this abandoned chimney. This abandoned chimney needs to be removed from the roof and capped. The leak on the main roof at the hatch cover was repaired. Insulation in the Workshop ceiling has been damaged from the previous leak.	Address deficiencies in the Vestibule roof and remove chimney and bricks and cap roof at the chimney Replace damaged insulation in the Workshop ceiling
Drainage System and Sump Pumps – Two main sump pumps are nonfunctional. All drainage water is now being pumped using the single backup vertical pump. All platform grating and support system over the main building sump is in poor condition. Check valve on discharge of backup vertical sump pump is in poor condition. The vertical sump pump is old and its replacement is warranted when the main sumps are replaced.	Restore pumping operations in the sump by replacing the two main pumps with submersible type pumps and replace all associated isolation and check valves Replace all platform grating and support system over the sump Evaluate replacement of the backup vertical sump pump with a submersible pump and replace check valve on the discharge of this pump
Site - The "Outfall Discharge" sign at the river bank is not legible and needs to be repainted or replaced. The grating is off of a catch basin at the southeast corner of the station. An underground sink hole was noted at the east side of the office area. Vegetation was removed from transformer area.	Repaint or replace the "Outfall Discharge" sign at the river bank Reinstall the grating on the catch basin at the southeast corner of the station Fill in the sink hole at the east side of the office area

Condition	Recommendation
Miscellaneous – Materials and old equipment are scattered throughout the pump area basement, Workshop area and outside the station. Overhead crane in pump area was inspected by a certified specialist. The inspection resulted in the crane being tagged out of service until it is serviced. Soffit, fascia and door on storage building south of pump station are in poor condition.	Consolidate and orderly store usable materials that are scattered inside and outside pump station and discard unusable equipment and materials Address repair recommendations in crane inspection report Cover soffit and fascia on storage building behind the pump station with aluminum and replace the door with an aluminum, maintenance-free door
Fox Chapel Pump Station – All four pumps and control check valves are operating well. New packing glands were installed in Pump No.'s 2 & 3 to address problem with excessive leaking through the shaft packing. Packing seal water is not contained or conveyed to the nearest drain at all pumps. Water is being discharged from the vent line at check valves directly onto the floor. The pump bases at Pump No.'s 1, 2 & 3 are badly rusted. A cover is off of an electrical junction box with wires hanging out at southwest corner of station next to the water heater. Coupling guards are off of Pump No.'s 1 and 2. The flowmeter was tested under the Water Audit project.	At all pumps convey seal water to nearest drain Direct the water being discharged from the vent lines at pump check valves to a nearest drain Recoat the pump bases Reinstall cover on electrical junction box at southwest corner of basement Reinstall coupling guards on Pump No.'s 1 and 2

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Bruecken Pump Station

Condition	Recommendation
Pumping Equipment – All pumps and motors except No. 4 are in good condition and operating well. Pump and motor at No. 4 will be rehabilitated in the near future under the current Motor and Pump Service Contract. Packing and bearing problems will be resolved under this contract. Pump No.'s 5, 6 & 7 are in service, as Highland Reservoir No. 2 has been placed back into service. At Pump No. 3 the first stage outboard bearing housing drain pipe is deteriorated with water discharging onto the pump base. Guard screens on the motors are very dirty, thereby restricting air flow to the motors.	Rehabilitate pump and motor at No. 4 as planned Replace deteriorated drain pipe at first stage outboard bearing housing at Pump No. 3 Clean motor guard screens
Interior Valves and Piping (includes pump isolation, control and surge valves) – The GA pump control check valves at all pumps, except Pump No. 4 are in good operating condition. The valve at Pump No 4 will be rehabilitated in the near future under the current Motor and Pump Service Contract. The packing at Suction Gate Valve No.'s 6 & 7 is leaking. Excessive water that had leaked from the pumps on the first floor has rusted piping and electrical conduits in the basement. See "Pump Station Building Interior (Structural/Architectural)".	Rehabilitate Pump No 4 pump control valve under the current Motor and Pump Service Contract Resolve leaking packing at Suction Gate Valve No.'s 6 and 7
Instrumentation and SCADA System (includes flow meters and suction/discharge pressure transmitters) – SCADA System equipment, including the UPS unit, will be replaced in the near future in the "Concept" phase of a current project. The bearing sensor devices at Pump No.'s 4, 5 and 7 are old and do not include a local readout temperature. The devices at Pump No 4 will be provided in the near future under the current Motor and Pump Service Contract. Flow meters on the Rising Mains are being evaluated and recalibrated as necessary under the Water Audit Project.	Replace SCADA system in the "Concept" phase of a current project Replace bearing sensor devices at Pump No.'s 4, 5 and 7 (motor and pump bearings) Evaluate and recalibrate flow meters under the Water Audit Project

Condition	Recommendation
Access Road and Pavements – Areas of the asphalt around the station are in poor condition. Vegetation is growing out of the joints in the Distribution Valve Vaults.	Restore deteriorated sections of concrete and asphalt pavement where necessary Remove vegetation that is growing out of the joints in the Distribution Valve Vaults
Site and Fencing – The fencing around the building is in poor condition and sections are damaged or missing on the south side of the building and toward the stockpile area. Since the pump station, along with the Brilliant Warehouse, is enclosed within a security fence around the perimeter of the entire site, the fencing and the numerous gates around the pump station may not be needed. The existing unused slide gates at the station may be able to be used at the Warehouse to replace existing swing gates. Pipe bollards would need to be installed along the south side of the station to keep vehicles from driving onto the valve vaults. See also "Equalization Chamber".	Repair/replace perimeter fencing around the combined pump station and warehouse site. Consider installing the unused slide gates from the pump station at the Warehouse to replace existing swing gates. See "Brilliant Warehouse – Fencing" Evaluation Report Install pipe bollards along south side of station
Pump Station Building Exterior (Structural/Architectural) – The Authority has been painting trim on the building exterior and the doors throughout the station. Some of the doors and frames are deteriorated. A exterior window well on the north side is open without a cover on it.	Complete painting of exterior window trim and doors as planned Repair and/or replace deteriorated exterior doors and frames in pump station building Cover the exterior window well on the north side
Pump Station Building Interior (Structural/Architectural) – The ceilings in the Electrical Room and adjacent office and bathroom areas are water-damaged, and the paint is badly peeling. Excessive water that had leaked from the pumps has rusted piping and electrical conduits in the basement.	Address repair and repainting of the ceilings in the Electrical Room and adjacent office and bathroom areas Paint rusted piping and electrical conduits in the basement
Electrical System (includes lighting and battery back-up systems) – Electrical switchgear requires servicing and cleaning. The operation of the Agastat and priming relays are unreliable and need replaced. Most of outside lighting fixtures are old mercury vapor type and unreliable. Some of the light fixtures in the south basement have had to be replaced with temporary lights due to water getting into the conduits and deteriorating the fixtures. Lighting conditions in the basement are poor despite having replaced the incandescent lamps with CFL type lamps. Emergency light fixtures are inoperable throughout the station. Emergency power backup	Inspect, clean, and evaluate need for renovation of switchgear. Replace Agastat and priming relays Replace exterior mercury vapor lights with metal halide fixtures Replace and/or re-lamp lighting fixtures in the basement (after the water infiltration problem

Condition	Recommendation
batteries, charger, and RTU inverter that serve the switchgear main and tie breakers, RTU/SCADA system and valve and pump status, need to be replaced. The electrical panel cover is off of the panel on the North Balcony wall. The junction box covers are off at Pump Control Valve No.'s 2, 3, 4 and 7. Covers are off of two receptacles next to Pump No. 6. Limitorque panel cover is off. The light switch in the Boiler Room is broken and some of the lighting fixtures are out. The emergency generator, serving the flood pumps, heating and ventilation systems and Limitorque valve actuators, does not function and is not exercise-ran weekly as recommended. Currently there is a hole in the exhaust system and the starter battery is dead. A "Transfer Switch" in the Electrical Room is not operable and its function is not apparent. Equipment was installed and tested under the Ross Switchgear Project to accommodate hook-up of Emergency Generators, which can be used to provide emergency backup power for Pump No.'s' 2, 3 and 6 (one pump) in the event of a power outage. PWSA is in the process of getting approval to purchase two generators to provide this back-up power expeditiously.	is resolved in the basement) Address malfunctions of the emergency light fixtures Replace all components of Battery backup system using NiCad batteries. Verify integrity of circuits feeding the battery packs Reinstall covers on electrical panel on the North Balcony wall, electrical junction boxes at several Pump Control Valves, receptacles at Pump No. 6, and at the Limitorque Valve Actuator panel Replace the light switch in the Boiler Room and re-lamp fixtures Address operational malfunctions of the emergency generator, including repair of the exhaust system leak and replacement of the starter battery, and restore the exercise-running program schedule Evaluate expanding the function of the generator to include serving the sump pumps and dedicated lighting circuits. A step down transformer may need to be provided Research function and address operational status of the "Transfer Switch" in the Electrical Room Finalize purchase agreement for emergency power generators

Condition	Recommendation
Heating and Ventilation Systems – The boilers and recirculation pumps are in good operating condition. Pump area ventilation intake damper and the exhaust fan damper were fixed to restore proper operation. Blower motors were replaced in (2) unit heaters to restore operation to all but one heater in the station.	Restore operation of one malfunctioning unit heater
Mechanical Systems (water, plumbing, sanitary) – Two first floor water fountains are in poor condition. Water serving the toilets, sinks and showers in the Locker Room has been shut off, as these facilities are presently not being used. The sewage ejector station, to where these fixtures would drain, is not operable. The toilet on the first floor is malfunctioning.	Replace two first floor water fountains or remove and cap utility lines Restore operation of sewage ejector station if Locker Room facilities are placed back into service Resolve problems with toilet on first floor
Auxiliary Systems – The fire alarm system is not in service. Its operation should be evaluated and the system upgraded as necessary to restore trouble-free service.	Evaluate fire alarm system and upgrade as necessary to restore trouble-free service
Roofing, Gutters, and Downspouts – Two of the interior roof drains lines inside the building (northeast and northwest corners) are deteriorated and leak.	Repair leaking roof drain lines
Drainage System and Sump Pumps – Emergency Flood Pumps should be test-operated to confirm reliable service. The pump seal water, bearing cooling water, and control valve seal leakage water is discharging into the basement with much of it discharging directly onto the floor. The sump pump(s) at the south half of the basement can not keep up with the inflow of water, whereby this area is constantly flooded, with water traveling through the perimeter trench drains and flowing into a sump on the north side of the basement. A supplemental sump pump was previously installed in the sump pit on the north side of the basement to handle the excess water coming from the south side of the basement. The drain pipe from the cooling water bearing housing at stage 1 of Pump No. 3 and stage 1 inboard bearing of Pump No. 5 are leaking directly into the basement. Drainage hoses from Pump No. 6 are discharging a considerable amount of water directly onto the basement floor. Excessive drainage water that is being discharged into the basement is getting into the lighting system conduits and deteriorating the fixtures. At times water backs up into the pump base trench drain from Pump No. 2.	Test-operate Emergency Flood Pumps to confirm reliable service Evaluate and modify station drain system to handle water flows from pump seal water, bearing cooling water, and control valve seal leakage water and convey the water directly to the sumps in the basement. Confirm proper operation of present sump pump(s) or consider installing larger or additional sump pump(s) on the south side of the basement

Condition	Recommendation
Discharge and Distribution Valves - The discharge gate valve on Pump No. 4 and the tie-gate valves between Pump No.'s 2 and 3 (with actuators) will be replaced soon under a repair contract. Restoration of the concrete vault is included. The tie-gate between Pump No.'s 3 and 4 leaks badly. This valve will need to be inspected when a shut is performed, while the above valves are replaced, to determine if the packing can be restored or a new shaft will need to be provided. Some of the pump discharge and tie-valves in front of station can not achieve a tight shut. Some valves have malfunctioning Limitorque actuators/controls, especially the tie-gate valve between Highland #1 and #2 Rising Mains, whereby operation of these valves is not reliable. It is noted that these valve pits have been flooded in the past. Packing in some of these valves leaks excessively. The existing surge valve on the discharge header at Rising Main No. 1 does not operate and is valved-off (out of service). This valve may need to be re-oriented to maintain proper operation. The concrete roof of the valve chamber at the discharge gate valve on Pump No. 4 was removed to access the valve. Plywood and planking was placed over the opening, but is not adequate to insure proper safety. Lids are off of some of the manholes on the Distribution Valve Vaults.	Replace valves and actuators under a present contract and note condition of adjacent tie gate valve Repair Limitorque actuators and distribution valves as required Repair, replace and/or reorient the malfunctioning surge valve on the discharge header at Rising Main No.1 Plywood and planking was placed over the opening, but is not adequate to insure proper safety. Provide proper barricades and reinstall manhole covers over the Distribution Valve Vault to insure proper safety
Equalization Chamber – West and East Chambers are in good condition, however both are flooded with several feet of water. Minor settlement is noted around chamber. Fence access gate is out of alignment, due to a displaced post, and the latch cannot be closed.	Pump water out of Equalization Chamber vaults Address minor settlement around Equalization Chamber Repair/realign fence access gate at Equalization Chamber
Miscellaneous – Overhead crane rail system and hoist are old, although in working condition. It was inspected by a certified specialist, who issued repair recommendations.	Address repair recommendations in crane inspection report

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Herron Hill Pump Station

Condition	Recommendation
Pumping Equipment – All six pumps are in good running condition. Pump No. 5 was rebuilt.	
Interior Valves and Piping (includes pump isolation, control and surge valves) – GA electric check valves at all the pumps are in good operating condition, but some of them exhibit some leakage at the piston stem seal. The valve at Pump No. 2 was rebuilt. All of the surge valves work satisfactorily. Paint on piping in the basement is peeling.	Paint piping in the basement
Instrumentation and SCADA System (includes flow meters, suction/discharge pressure transmitters) – RTD (bearing temperature sensing) units at all pumps are functioning, although the unit at Pump No. 6 is presently in an alarm state. The equipment at Pump No. 4 had been replaced. Replacement of entire SCADA System is being evaluated in an upcoming project.	Resolve alarm condition at Pump No. 6 RTD (bearing temperature sensing) unit Replace SCADA System in upcoming project
Pump Station Building Interior (Structural/Architectural) – Plaster was damaged on bathroom ceiling from previous roof leak (now resolved). Paint on basement walls is badly peeled and wall surface material is deteriorated from water infiltration. The paint is peeling on the floor around the pumps. The structural concrete roof support beams in Pump No. 5 Vault are showing signs of being overstressed, as evidenced from cracks noted in the concrete beams. The beam next to the door of the adjacent storage room has deflected, such that the door can not be fully opened. Water appears to be leaking into the ceiling of Pump No. 5 Vault and adjoining wall in the main pump room basement, possibly caused by a suspected leaking downspout in front of the station. See "Roofing, Gutters and Downspouts".	Repair damaged bathroom ceiling and repair and waterproof/coat basement walls Repaint the floor in the station Evaluate and address any concerns of overstressed structural concrete roof support beams in Pump No. 5 Vault
Pump Station Building Exterior (Structural/Architectural) – Stone face on lower portion of south wall is badly deteriorated due to weathering. Mortar joints are in poor condition where the downspout was previously missing at Boiler Room addition. Soffit and fascia are in poor condition at upper roof of pump building and sections are missing on the west side. New thresholds were installed at both front doors. A metal cover on an underground pit on the west	Repair, re-point and apply protective coating to the lower exterior south wall Re-point/restore mortar joints at southeast corner of Boiler Room

Condition	Recommendation
side of the building is deteriorated and surrounding cap stones are shifted, which presents an unsafe condition.	Repaint soffit and fascia or cover it with aluminum, and replace missing sections Replace a metal cover on an underground pit and reset cap stones on the west side of the building, or consider backfilling the pit and eliminate the need for a cover
Site Conditions – There is settlement in the lawn area in front of the station next to the driveway and along the side of the front steps. The concrete steps in front of the station are in poor condition and the top step is deteriorated. Vines and trees are growing along the east and north walls of the station and small trees are growing out of joints in the sidewalk on the west side of the building near Public Works Testing Lab. The retaining wall stones on the east side of Pump No. 5 Vault are collapsing.	Fill settlement in the lawn area in front of the station next to the driveway and along the side of the front steps Replace or repair the concrete steps in front of the station as needed Remove vines and trees growing along the east, west and north sides of the station Repair retaining wall stones on the east side of Pump No. 5 Vault
Electrical System (includes lighting and Battery Backup systems) – Switchgear system is old, but in fairly good operating condition, although it should be inspected, cleaned, tested and/or renovated as needed. The battery backup system, which serves the RTU/SCADA system, the pump and valve status, and electrical switches, is not operable and needs replaced. Lighting in basement is fair. Operations Staff is requesting that an automatic transfer switch be installed on the electrical services to avoid down time during periods of power outages. Heat tracing cable is scheduled to be installed on the flow meter sensing lines in the vault next to Pump No. 5 Vault .	Inspect, clean, test and/or renovate switchgear system Replace all Battery Backup system components with a UPS type system using NiCad batteries and replace RTU inverter unit Secure and/or conceal wires that are hanging from the back of the three of the four heaters in the pump area Install an automatic transfer switch on the two incoming electrical services as requested Install heat tracing cable on the flow meter sensing lines in the vault next to Pump No. 5 Vault as planned

Condition	Recommendation
Mechanical Systems (water, plumbing, sanitary) – The hot water tank was replaced. Drain lines were cut and left open in the basement (three places) that may discharge water onto the floor if surcharged.	Cap open drain lines in basement (three places)
Heating and Ventilation Systems – There is inadequate ventilation in pump area during the summer period. Ventilation damper in Pump No. 5 Vault is bent and stuck in an open position, the fan is in poor condition, and the thermostat control is deteriorated. The Boiler and Recirculation pumps work well. Operation of Heater No 2 in the pump area and malfunctioning heaters in the basement was restored.	Replace and/or supplement existing ventilation system Replace ventilation fan, damper and controls in Pump No. 5 Vault
Auxiliary Systems – The fire alarm system is not in service. Its operation should be evaluated and the system upgraded as necessary to restore trouble-free service.	Evaluate fire alarm system and upgrade as necessary to restore trouble-free service
Roofing, Gutters and Downspouts – Downspout is missing on the north side of the East Garage, which is causing water damage to the brick wall. The downspout at the north side of the Public Works Testing Lab is split and disconnected. The downspout near the southeast corner of the station may be partially blocked, which may be causing run-off water to leak through the asphalt driveway and enter into the ceiling of Pump No. 5 Room and adjacent main basement area. Inspect the roof over the Boiler Room Extension Building and remove any leaves, which are expected to have accumulated, as a large tree branch overhangs this building.	Replace missing downspout on the north side of the garage and replace the split and disconnected downspout at Testing Lab Evaluate and resolve any blockage of the downspout near the southeast corner of the station Inspect the roof over the Boiler Room Extension Building and remove any leaves, which are expected to have accumulated
Miscellaneous - Old unused Limitorque valve actuators are lying scattered in the basement and should be removed. Overhead crane in pump area was inspected by a certified specialist. See report for repair recommendations.	Remove old unused Limitorque valve actuators from the basement Address recommendations in crane inspection report

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Herron Hill Tank Pump Station

Condition	Recommendation
Pumping Equipment – Both pumps in good operating condition; although presently the tank and pump station is not in service. See "Herron Hill Tank" for operating status information.	
Interior Valves and Piping (includes pump isolation, control and surge valves) – Dresser-style couplings on the suction and discharge lines of Pump No. 2, which are leaking badly, are expected to be addressed after the tank is placed back into service. Pump No. 2 suction butterfly valve is broken shut and the main suction valve will not provide a good shut. New butterfly valves have been purchased and will be installed by Operations Staff after the tank is placed into service. Piping is badly rusted in the trenches beneath the pump floor, probably due to the constant leakage of water from the above pipes.	Repair leaks at Dresser-style couplings on the suction and discharge lines of Pump No. 2 Replace suction valves as planned Repaint interior station piping
Site and Fencing – No problems noted.	
Instrumentation and SCADA System (includes flow meters and suction/discharge pressure transmitters) – SCADA system will be evaluated in an upcoming project.	Replacement of SCADA system in upcoming project
Electrical System (includes lighting) – Switchgear system needs to be evaluated. The generator on site, owned by others, is available to serve backup power to the station.	Evaluate switchgear system

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Highland Pump Station

Condition	Recommendation
Pumping Equipment – All three Pumps are in service. Pump No.'s 1 and 2 were replaced several years ago with higher speed single stage pumps. Because of this change there has been a significant increase in maintenance needs and requirements. The Operations Staff has increased preventive maintenance, rebuilt these pumps to address replacement of worn or failed parts, and replaced bearings routinely. They request that all three pumps be replaced The motors that were provided with the revised pumps are rated for a higher horsepower than what the existing switchgear can accommodate. See "Electrical System", which discusses deficiencies with the electrical equipment. Operations Staff trimmed the impeller at Pump No. 2 to reduce the amperage draw in order to maintain non-overloading pump operations.	Evaluate replacement of all three pumps, especially Pump No.'s 1 and 2 (single stage, 3500 rpm pumps). Evaluate the sizing of the pump motors
Interior Valves and Piping (includes pump isolation, control and surge valves) – Golden Anderson hydraulic-actuated piston-type control valves have numerous maintenance problems resulting in failures. Operations Staff reported that the present horizontal alignment of valves is not ideal. The condition of the piping in the trenches beneath floor level should be evaluated, as pump seal water is discharged directly into these trenches.	Replace all three pump control valves with vertically oriented cone-type valves with new actuators Evaluate the condition of piping in trenches beneath floor level and paint where needed
Instrumentation and SCADA System (includes flow meters and suction/discharge pressure transmitters) – Parts and components in the SCADA equipment have been failing. Replacement of entire SCADA System is being evaluated in an upcoming project. Old flow meter equipment that has been abandoned should be removed. The station flow meter was tested under the Water Audit project. There are presently no bearing temperature sensing devises on the pumps. Digital sensing equipment, similar to what is installed at the other system pumps, should be installed.	Replace SCADA system in upcoming project Remove old flow meter equipment that has been abandoned Provide digital bearing temperature sensing equipment at the pumps

Condition	Recommendation
Pump Station Building Exterior (Structural Architectural) – Chlorine Room door, handrail, window screen, and exhaust louver are badly rusted. Half of the handrail in front of building is missing. Paint is deteriorated on soffit/eaves. Graffiti on back and side exterior walls and overhead door was removed by the City of Pittsburgh.	Repair/replace exterior door, window screen exhaust louver, and handrail at Chlorine Room Replace handrail and repaint soffit/eaves on pump station building
Pump Station Building Interior (Structural Architectural) – Pump bases and pipe trench floor plates are badly rusted. The paint is peeling on the floor around the pumps.	Paint pipe trench floor plates or replace with lighter weight maintenance-free aluminum plating Repaint pump bases and the floor in the station
Roofing – Roof is old but not leaking. A replacement roof may be due within a few years.	
Electrical System (includes lighting and battery backup systems) – The switchgear is old and unreliable. Replacement parts are not readily available. When the pumps were replaced several years ago the horsepower ratings were increased, resulting in overload (overheating) conditions with the equipment in the MCC. The starters at Pump No.'s 1 & 2 are rated for 125 HP motors and the connected pump motors are 150 HP. Switchgear system needs to be upgraded or replaced. Battery Backup system, which serves the RTU/SCADA system and the pump and valve status, is in good condition. Emergency lighting units appear to be inoperable. The cover of the connection box at one of the heating recirculation pumps was reinstalled. A cover is off of an electrical connection box at the boiler with wires hanging out.	Upgrade/replace all station switchgear equipment as needed. Coordinate size rating with pump motor requirements Restore operation of emergency lighting units Reinstall cover on an electrical connection box at the boiler
Heating and Ventilation Systems – Boiler is providing reliable operating service. The exhaust vent fan had been removed from the front of the building, leaving the damper exposed, as it was replaced with a fan at the back of the building. The ventilation exhaust fan and intake damper serving the Chlorine Room do not operate, although they may not be needed since the chlorine facilities have been removed. The electric heater in this room also does not work. Its operation should be restored to protect water lines in the room from freezing.	Install a new louver and electric actuated intake damper on front of building to work in conjunction with the exhaust fan Resolve operational problem with heater in Chlorine Room to prevent freezing of water lines
Chlorination Facilities – The system has been permanently taken out of service, as the water being supplied to this station is being chlorinated from the Membrane Filtration Plant at Highland No. 1 Reservoir before entering the distribution system. The existing chlorination equipment should be removed from the Chlorine Room.	Remove existing abandoned chlorine equipment

Condition	Recommendation
Auxiliary Systems – The fire alarm system is not in service. Its operation should be evaluated and the system upgraded as necessary to restore trouble-free service. Overhead crane in pump area was inspected by a certified specialist. See report for repair recommendations.	Evaluate fire alarm system and upgrade as necessary to restore trouble-free service Address recommendations in crane inspection report

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Howard Pump Station - Including Sewer Division Facility

Condition	Recommendation
Pumping Equipment – Pump No.'s 1, 2, 3, 4, 6, and 7 are operating well and are in good condition; Pump No. 5 has been rebuilt and is scheduled for test operation soon.	Place Pump No. 5 into service as planned
Interior Valves and Piping (includes pump isolation, control and surge valves – Rodney Hunt cone-type pump control valves at Pump No.'s 3, 4, 5, 6 and 7 are in good operating condition. Operations Staff installed the former valve at Pump No. 7 that was rebuilt, at Pump No. 5. Valves Pump No.'s 1 and 2 are difficult to maintain, as replacement parts are not available, but the Operations Staff addresses maintenance needs as needed. Packing on discharge valve at Pump No. 2 is leaking. Surge valve S-2 serving McNaugher/Spring Hill is nonfunctional and out of service. The isolation valve for this surge valve is leaking and water is constantly leaking through the surge valve to drain. Leak was noted at a coupling on the McNaugher Rising Main at the southwest corner of the basement.	Address maintenance needs of pump control valves at Pump No.'s 1 and 2 and evaluate replacement of them Resolve problem with leaking packing on discharge valve at Pump No. 2 Rebuild surge valve S-2 in basement serving pumping line to McNaugher/Spring Hill and resolve leakage of its isolation valve Resolve leak at a coupling on the McNaugher Rising Main at the southwest corner of the basement
Instrumentation and SCADA System (includes flow meters, suction/discharge pressure transmitters) – Analog-type RTD devices (bearing temperature sensors) at Pump No.'s 1-5 are obsolete and failing. Most of them have been removed and others are not functional. The new digital devices at Pump No.'s 6 and 7 are working well. Replacement of entire SCADA System is being evaluated. The flow meters were tested and recalibrated under the Water Audit project.	Replace analog-type RTD devices with digital type at Pump No.'s 1-5 Replace SCADA system in upcoming project
Pump Station Building Interior (Structural/Architectural) – Station walls were not repainted following re-pointing work in the last upgrade contract. Structural steel, columns/bases, walls, ceiling, and piping in the east half of the basement have been painted under the recent pump upgrade project. Piping in the west half of the station is rusted and needs painted.	Paint interior walls of pump room Repaint piping in west basement

Pump Station Building Exterior (Structural/Architectural) – Main double door is misaligned and deteriorated and the threshold is missing. The door and hardware on the west side of the building is deteriorated. Vines noted on north wall.	Replace main double entrance door and hardware and install threshold Replace door and hardware on the west side Remove vines from north wall
Site (Including Fencing) – Sidewalk at rear of the station is in poor condition. The catch basin at the southwest corner of the station is grown over with vegetation.	Replace deteriorated sections of sidewalk at the rear of the station and remove vegetation growing out of the joints Remove vegetation from around the catch basin at the southwest corner of the station
Electrical System (includes lighting and battery backup systems) – Switchgear is in poor condition and needs to be evaluated ASAP according to the Operations Staff. DC Battery system that serves the switchgear breakers should be load tested and replaced if warranted. All components of Battery backup system, which serves the RTU/SCADA system and the pump and valve status, are inoperable and need to be replaced with a UPS type. Lighting in the basement is fair with several fixtures unlit. Most of emergency light fixtures are inoperable. Telephone terminal box cover is off. Cover on electrical device box next to rear door is open with wires hanging out of it. Lights in the pump area were re-lamped. A wire is hanging down from overhead cables in front of the station.	Evaluate switchgear system Test DC Battery system that serves the switchgear breakers and replace if warranted Replace RTU/SCADA battery backup system with a UPS type using NiCad batteries and replace inverter in the RTU Upgrade light fixtures in basement Restore operation of emergency light fixtures Install telephone terminal box cover Reinstall cover on electrical device box next to rear door Investigate and address the wire hanging down from overhead cables in front of the station
Mechanical Systems (water, plumbing, sanitary) – Presently there is no hot water in the station bathrooms, as the hot water tank was previously removed. Toilet in station office area is nonfunctional. Sump pumps in basement work well. Water previously leaking from packing at Pump No. 5 was eliminated since the pump was rebuilt.	Install hot water tank to serve the station Repair toilet in station office area

Heating and Ventilation – The boiler and recirculation pump are in good running condition. The recirculation pump was replaced. The boiler controls access cover panel has been removed. The fan/motor units were replaced in the unit heaters on the north wall and the unit next to the Boiler Room. East ventilation fan is operating properly. The intake damper for the ventilation fan on the north wall and the exhaust gravity damper do not operate, as the electrical disconnect switch appears to be faulty. The air supply intake damper serving the basement does not operate. The chimney cap is missing on the boiler flue pipe. Air intake dampers in the Boiler Room are closed off with wood.	Reinstall the boiler controls access cover panel Service the electrical disconnect switch serving the north wall ventilation fan and intake damper Restore operation of the air supply intake damper serving the basement Install a chimney cap on the boiler flue pipe Provide gravity actuated intake dampers in the Boiler Room and remove wooden covers
Auxiliary Systems – The fire alarm system operation should be evaluated and the system upgraded as necessary to restore full trouble-free service.	Evaluate fire alarm system and upgrade as necessary to restore trouble-free service
Roofing, Gutters and Downspouts – Pump Station roof is in good condition, except a downspout on the north wall has a separated joint. Also see "Sewer Services Division Facility".	Reconnect a downspout on the north wall
Miscellaneous - Overhead crane rail system and hoist are in good operating condition.	
Sewer Services Division Facility - Offices and locker area facilities are in good condition. Walls in the Vehicle Storage area are in poor condition and need to be painted. Gutters around the Sewer Division section of building are clogged with leaves. There appears be a leaking gutter along the south wall, where water is entering the Vehicle Storage area. Leaks are noted in Vehicle Storage area roof, particularly at the northwest corner. The utility building on the north end of the main office area and the utility building on the south side of the Vehicle Storage area were remodeled with new roll-up doors, roofing shingles, rain gutters, downspouts, and siding.	Paint walls in the Vehicle Storage area Remove leaves from the gutters around the building and inspect gutters around Vehicle Storage area, especially at the south wall and resolve the noted leaking condition Inspect the condition of the entire Vehicle Storage area roof and resolve leaks by repair or replacement

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Inline Pump Station at Coral & Pacific

Condition	Recommendation
Pumping Equipment – One of the two pumps is currently operating well. The second pump operates noisily and is scheduled to be replaced soon by Operations Staff. The replacement pump is on hand along with a spare pump. The sump pump is keeping the pump station dewatered.	Replace second pump as planned
Interior Valves and Piping (includes pump isolation, control and surge valves) – Piping and valves are badly rusted. Isolation butterfly valves do not provide a good shut.	Paint piping and valves Replace suction butterfly valves
Pump Station Building Interior (Structural/Architectural) – Floor and lower portion of station are badly rusted causing water infiltration.	Repair station shell by lining the floor and lower portion of the walls with welded steel plating and repaint it
Ventilation System – Operating well	

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Lincoln Pump Station

Condition	Recommendation
Pumping Equipment – Pump No. 2 is out of service, as it is inoperable. A contract is being prepared by PWSA to replace this pump. Pump No.'s 1 and 3 will be rebuilt in the present Motor and Pump Service Contract in the near future.	Replace Pump No. 2 and rebuild Pump No.'s 1 and 3 as planned.
Interior Valves and Piping (includes pump isolation, control and surge valves) – The pump control valves are old and unreliable and have had many operational failures. The control valve at all pumps will be replaced at No.'s 1 and 3 by the Operations Staff in the near future as the rebuilding of each pump is addressed. The valve at Pump No. 2 needs to be replaced when this pump is replaced. There is a lot of water leaking through the pump control valve seals at Pump No. 3, which is being discharged onto the basement floor. Aside from pump control valves other valves in the station are in good condition.	Replace pump control check valves at all three pumps as planned Convey leakage water from the check valve at Pump No. 3 to discharge it directly to the basement sump
Pump Station Building Exterior (Structural/Architectural) – Vines are growing on the north and east building walls and on the fencing around the electrical service security area. Handrail at entrance door is badly rusted. Front door is in fair condition and the door closer is broken.	Remove vines from north and east building walls and vegetation on fencing on east side and around the electrical service area Paint handrail at entrance door Replace/repair front door closer
Pump Station Building Interior (Structural/Architectural) – Storage room door in basement is deteriorated. The covers have been removed from the sump pump base frame in the basement.	Remove deteriorated door in basement Install covers on the sump pump base frame in the basement
Instrumentation and SCADA System (includes flow meters and suction/discharge pressure transmitters) – The bearing sensor devices at the pumps are old and do not include a local readout temperature. These devices will be replaced in conjunction with the pump rebuilding and replacement projects. They will be a digital type unit that would include a local readout	Replace bearing sensor devices as planned Replace SCADA System in upcoming project Remove old abandoned flow indicating

temperature. Replacement of entire SCADA System is being evaluated. The old abandoned flow indicating equipment should be removed from the station.	equipment from the station
Electrical System (includes lighting and battery backup systems) – Switchgear system needs to be evaluated and deficiencies addressed. Battery backup system for the RTU/SCADA system and pump and valve status is old, but in service. Replacement may be warranted to maintain long-term reliable operations. A receptacle was removed from the east wall with wires left hanging out of the device box. A smoke detector was removed from the ceiling in the basement and wires left hanging out of the device box. An instrumentation device was removed from the basement and wiring left hanging out of the device box. Electrical junction box cover is off at the Pump No. 3 valve controls. The electrical termination box covers at the Boiler Recirculation Pumps are off with wires hanging out.	Inspect and evaluate electrical switchgear system and address deficiencies as required Replace all components of the RTU/SCADA battery backup system using NiCad batteries Reinstall receptacle on the east wall Address disconnected wiring as noted and replace electrical box covers where noted Reinstall the covers on the electrical termination box at the Boiler Recirculation Pumps
Utility Systems – (Including Heating, Ventilation, and Plumbing) – The two boilers and recirculation pumps are in good operating condition. The gas service was replaced and a new meter installed outside the pump station building. The gas supply at one of the two unit heaters is shut off. The toilet is not functional. There does not appear to be any ventilation facilities to serve the basement area.	Research operational status of the "shut-off" unit heater to provide backup service. Resolve malfunctions of the toilet Provide ventilation facilities to serve the basement area
Auxiliary Systems – The fire alarm system is not in service. Its operation should be evaluated and the system upgraded as necessary to restore trouble-free service. A carbon monoxide detector should be installed in the basement since the boiler is not installed in an isolated area.	Evaluate fire alarm system and upgrade as necessary to restore trouble-free service Install a carbon monoxide detector in the basement
Roofing – Roof was replaced in an outside contract and is in good condition. The roofing needs to be inspected annually in the late Fall period to address removal of leaves that may accumulate.	Inspect roof in Fall period and remove leaves as needed
Miscellaneous – Old test piping, including drain lines routed across floor (posing a tripping hazard) in basement has been abandoned. Overhead crane in pump area was inspected by a certified specialist. See report for repair recommendations.	Remove old abandoned test piping including drain lines routed across floor in basement Address recommendations in crane inspection report

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Millvale Pump Station

Condition	Recommendation
General - Station was constructed in 1996 but never placed in operation, as water line piping in Millvale's distribution system failed in the test runs of the station. The use of this pump station in the future is not known at this time, although elimination of this station is being evaluated, whereby piping changes in the distribution system would be made to accommodate the filling of the new storage tank in Millvale from a higher pressure district. The station had been partially flooded in the past due to failure of the sump dewatering system. If operation of the station is planned in the future then the deficiencies noted below would need to be addressed. The power to the pump station has been shut off as directed by Duquesne Light. This condition will ultimately result in the flooding of the station, as the sump pump will not be able to run. This flooding condition could be avoided if the station would be periodically pumped out using portable pumps.	Inspect all components of station, which may have been affected from flooding Consider periodic flood-dewatering of station with portable pumps, if this station may be made operational in the future
Pumping Equipment – Pumps and motors have been flooded in the past. Their present operating condition is not known as they have not been run since the flooding condition several years ago.	Remove, bake-dry, and test two pump motors
Instrumentation and SCADA System (includes flow meters, suction/discharge pressure transmitters) – System is out of service, and parts were taken from the RTU to use elsewhere.	Replace SCADA system components (if station operation is implemented)
Pump Station Building Interior (Structural/Architectural) – Areas on floor and sidewalls are rusted. The access hatch cover has been damaged and jammed by traffic loading, whereby it is very difficult to open or latch closed.	Touch-up paint rusted parts of floor and sidewalls in pump station Address problems with the hatch cover
Electrical System (includes lighting and battery backup systems) – Battery in UPS system will need to be replaced. Switchgear/pump control panel, heater and dehumidifier were flooded in the past. The present operating condition of the switchgear is not known as the pumps have not been operated since the test runs prior to the flooding condition several years ago.	Replace battery in UPS system Replace dehumidifier and heater Inspect electrical controls and replace any damaged or defective components

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Mission Pump Station - Including Mission Sewer Division Facilities

Condition	Recommendation
Pumping Equipment – All five pumps are in good running condition. Bearing drain housing at Pump No. 2 was unclogged.	
Valves and Piping (includes pump isolation, control, surge and distribution valves) – The pump check valves work well; however there is a lot of water bleeding through the vent lines at valve No.'s 2 and 3. Valve No.'s 2 & 3 were rebuilt. Water is leaking from a solenoid valve on Valve No. 3. One surge valve on discharge header line has a pinhole in the casing. Piping in the basement and discharge valve vaults is rusted. Flange bolts on the piping in the discharge valve vaults are severely corroded. A leak is suspected on the suction line in the center suction valve vault where it enters the basement, as water is leaking through the pipe wall penetration. The two suction valves inside the valve pits on northwest area of station lack operating nuts, gears and/or handwheels. Water is leaking into Discharge Valve Vault No. 4 where it abuts to the building, probably related to the damaged roof downspout located directly over this vault. See "Roofing, Gutters and Downspouts". Valves in this station were exercise-operated to confirm and maintain proper operation by the Valve Assessment Team.	Resolve leak at a solenoid valve on Pump Check Valve No. 3 Repair/replace surge valve on discharge header line Paint piping in the basement and discharge valve vaults and replace flange bolts on the piping in the discharge valve vaults Perform exploratory excavation on suction line outside basement to confirm and repair leak Provide/install operating nuts on two suction valves inside valve pits on north side of station Seal the joint at Discharge Valve Vault No. 4 where it abuts to the building foundation after the cracked roof downspout is replaced
Instrumentation and SCADA System (includes flow meters and suction/discharge pressure transmitters) – Replacement of the total SCADA System is being evaluated. The bearing sensor devices at the pumps are old and do not include a local readout temperature. The flow meters were tested under the Water Audit project.	Replace SCADA system in upcoming project Evaluate operation of bearing sensor devices and consider replacing with a digital type unit that would include a local readout temperature

Condition	Recommendation
Site and Fencing – Manager has requested that security cameras be installed to provide better site security. One of suction vaults has been covered over by sand/gravel stockpiles, thereby preventing operating the valve in the vault through the operator cover in the lid. Material handling equipment, which is moving materials in the stockpiles against the building has damaged brick and stone. The stockpiles have buried a roof drain downspout on the north wall. The stock piles next to the building are planned to be moved in an upcoming project. There is vegetation growing inside the fenced transformer area. The concrete jumper walk on the east side of the building is improperly sloped and has no handrail, which poses a safety concern. Barbed wire is off of the fence and vines are growing on it at the southeast corner of the property. The grating over the exhaust duct underground well on the outside of the north wall of the Vehicle Storage area has been damaged from vehicles running on top of it. A bollard should be installed to prevent further damage.	Evaluate installation of security cameras as requested Move sand and gravel stockpiles away from the entire north side of the building and construct additional storage bins along the fence line as planned in upcoming project Remove vegetation growing inside the fenced transformer area Reconstruct the concrete jumper walk on the east side of the building and install hand railing or remove it entirely Reinstall barbed wire on the fence and remove vines that are growing on it at the southeast corner of the property Install a protective bollard at the exhaust duct underground well on the outside of the north wall of the Vehicle Storage area
Pump Station Building Interior (Structural/Architectural) – Plaster ceiling in north office is badly damaged and partially collapsed, caused from previous roof leaks (now resolved). Walls, ceiling and drain line piping in Men's Locker Room are in poor condition, also affected from previous roof leaks and water is penetrating through the Vehicle Storage area floor above. Areas had been noted in the ceiling of the basement under the Vehicle Storage area that are in a state of potential eminent failure. A detailed inspection and analysis on the structural condition of the floor in the Vehicle Storage area was performed and recommendation made to replace the floor, which will be addressed in an upcoming project. The Manager had been advised to keep materials and equipment off of the affected areas until the floor is replaced. The Floor coating in the Vehicle Storage area is badly damaged and lifted in most areas, which will be replaced with the concrete floor. Structural steel, piping, and conduit in the basement ceiling area beneath the pumps are rusted from water, which had previously leaked from the pumps and valves through the floor openings. Manager requested that the room next to the first floor bathroom be converted to a women's bathroom and the present bathroom be designated exclusively as a	Replace plaster ceiling in office area of pump station Repair/repaint walls, ceiling, and drain line in Men's Locker Room, replace concrete floor in the Vehicle Storage area and recoat the floor under an upcoming project Prepare and coat the rusted structural steel, piping and conduit in basement area beneath the pumps Evaluate conversion of the vacant room next to the first floor bathroom to a women's bathroom Repaint walls of upstairs bathroom

Condition	Recommendation
men's room. Paint is peeling on walls of upstairs bathroom. Sand and gravel that entered the northwest vault needs to be removed. Paint on walls of the discharge valve vaults is badly peeled. Some of the concrete in the southeast valve pit is deteriorated. At the base of both sides of the overhead door in the basement there are openings that enable free access for rodents to enter the building. The concrete block stairway enclosure in the west end of Vehicle Storage area was damaged from a backhoe. In an upcoming project the office area, basement locker room and upstairs bathroom will be upgraded to better accommodate the transfer of the "One-Call" Division from the Central Warehouse to this station.	Remove sand and gravel from inside northwest vault Paint walls of the discharge valve vaults and repair deteriorated concrete in the southeast valve pit Seal opening at the base of both sides of the overhead door in the basement Repair damaged concrete block stairway enclosure in west end of Vehicle Storage area Upgrade the office area, basement locker room and upstairs bathroom in an upcoming project
Pump Station Building Exterior (Structural/Architectural) – Windows (Lexan material) in pump station area are badly weathered and can't be viewed through. Mortar joints in lower stone facing and much of the brick around station are in poor condition. Water appears to be leaking at the crenellation ledge at the north end of east wall where it abuts brick wall, as evidenced by the efflorescence noted on the interior wall and the presence of water on the floor at the base of the wall. Sections of seam flashing on fascia on west wall are detached. Man door on east side of the building basement level is in poor condition and is not usable. The overhead door at the east side of building needs to be repaired or replaced. The overhead door at the west side of building and the entrance man-door into the Vehicle Storage area were repaired. The door at the north Penthouse is jammed in the frame and difficult to open/close. Material handling equipment has damaged brick and stone on the building where sand and gravel is stockpiled against it.	Replace dulled Lexan window panes in pump station building at select locations Re-point mortar joints in lower stone facing and brick around station Inspect and reseal crenellation ledge at north end of the east wall Reattach seam flashing on fascia on pump station building Replace man door and hardware on east side of building Repair or replace overhead door at the east side of building and north penthouse man door Inspect building and make repairs to exterior stone and brick veneer as needed after material stock piles are removed

Condition	Recommendation
Electrical System (includes lighting and battery backup systems) – Switchgear system needs to be tested and evaluated. DC Battery system that serves the switchgear breakers and emergency power backup system that serves the RTU/SCADA system, pump and valve status, and switchgear breakers are in good working condition. All lighting in pump station is in poor condition and needs upgraded. Most of the exterior light fixtures do not work and should be replaced. Lighting in the north penthouse does not function. Exposed wires are noted in a conduit at northeast corner of basement. A cover is missing and exposed wires noted in a junction box next to lighting panel in Vehicle Storage area. Some of the light fixtures in the former locker room area have been removed and will be replaced under the upcoming project. In S-2 valve pit an electrical box was torn off the wall and wires left hanging.	Test and evaluate switchgear system Replace light fixtures in many areas of the station including the exterior fixtures and those in the north penthouse Address exposed wires in a conduit at northeast corner of basement Reinstall cover and conceal exposed wires noted in a junction box next to lighting panel in Vehicle Storage area Address condition in S-2 valve pit where an electrical box was torn off the wall and wires left hanging
Heating and Ventilation Systems – Boilers and combustion air system are in good condition. One of the three unit heaters in the pump area and one of the heaters in the basement are inoperable. Two of four heaters in the Vehicle Storage area are inoperable. The first floor offices have no radiators for heat, only un-insulated piping, which poses a burning hazard and inability to control the heat. The exhaust duct on the outside of the north wall of the Vehicle Storage area is damaged, rusted and missing a bird screen.	Repair/replace inoperable unit heaters in pump area, basement, and Vehicle Storage area Install radiators in office areas and insulate the steam piping Repair, replace, coat and/or install bird screen at the exhaust duct on the outside of the north wall of the Vehicle Storage area
Plumbing System – Lavatory, shower, toilet fixtures and partitions in the Men's Locker Room in the basement and the first floor bathroom are in poor condition and in need of replacement. One of the sinks in the first floor bathroom was removed and one of the urinals is out of service. A hot water tank at the east end of the basement has been taken out of service and abandoned, as the gas supply has been disconnected. The drains in the first floor bathroom clog readily and the slop sink drain is presently clogged. An open and abandoned line that is tied into a drain line in the basement bathroom area should be removed and sealed. The drain from the first floor drinking fountain and the ice machine is discharging onto the basement floor. Upgrade of the Locker Room in the basement and the first floor bathroom is being evaluated in the upcoming project.	Replace plumbing fixtures in first floor bathroom as planned Replace plumbing fixtures and the shower in the basement locker area as planned Remove abandoned water heater in pump basement Clean drains or replace drain piping in the first floor bathroom Remove and seal an open and abandoned line that is tied into a drain line in the basement

Condition	Recommendation
	bathroom area Reroute the drain from the first floor drinking fountain and the ice machine to a floor drain in the basement
Auxiliary Systems – The fire alarm system is not in service. Its operation should be evaluated and the system upgraded as necessary to restore trouble-free service.	Evaluate fire alarm system and upgrade as necessary to restore trouble-free service
Roofing, Gutters and Downspouts – The upper sloped, tiled roof on northeast corner appears to be leaking into the soffit area. A leak was noted at the northwest roof drain line inside the Vehicle Storage area. PVC roof downspout on the south side is split. Both downspouts on the east side of the station are damaged and partially removed. A roof drain downspout on the north wall is buried in the gravel stock piles against the building and another downspout on the north wall is disconnected.	Inspect gutters and roofing on upper sloped, tiled roof at northeast corner Investigate leak at the northwest roof drain line in the Vehicle Storage area Replace PVC downspout with metal one on the south side of the building and confirm that drain boot is not clogged Repair or replace downspouts on the east side of building Inspect, repair or replace buried roof drain downspout after it's uncovered and reconnect another downspout on the north wall
Miscellaneous – Overhead crane in pump and shop areas was inspected by a certified specialist The inspection resulted in the crane being tagged out of service until it is serviced. Wooden storage enclosure in the Vehicle Storage area is in poor condition and lighting in this room is nonfunctional due to roof leaks in the past. Manager requested that the wooden storage enclosure be removed and a security fence be installed around this storage area. Old unused Limitorque valve actuators are laying scattered in the basement and should be removed.	Address recommendations in crane inspection report Replace wooden storage enclosure in the Vehicle Storage area and install fencing around it Remove old unused Limitorque valve actuators from the basement

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Saline Pump Station

Condition	Recommendation
Pumping Equipment – All three pumps are in good operating condition.	
Interior Valves and Piping (includes pump isolation, control and surge valves) – The three Willamette cone-type pump check valves are working well. Piping in the subfloor trenches and the discharge header pipe in the pump area is rusted and/or paint is peeling. The packing at the discharge valve at Pump No. 1 is leaking, which results in flooding of the floor in this area.	Paint piping in the subfloor trenches and discharge header pipe in the pump area Resolve packing leak at the discharge valve at Pump No. 1
Instrumentation and SCADA System (includes flow meters, suction/discharge pressure transmitters) – New digital-type RTD Bearing sensor devices at all three pumps are working well. Replacement of entire SCADA System is being evaluated. The flow meter was tested and recalibrated under the Water Audit project.	Replace SCADA system in upcoming project
Access Road and Pavements – The sidewalk/driveway in the front area of the pump station is badly deteriorated.	Replace sidewalk/driveway in front area of pump station
Site Fencing – Vegetation is growing on fencing at rear and north side of the station.	Remove vines and vegetation from fence at rear and north side of site
Pump Station Building Interior (Structural/Architectural) – Ceiling paint is peeled where roof is leaking.	Repaint ceiling in pump station after roof leaks are resolved
Pump Station Building Exterior (Structural/Architectural) - Entrance door hardware is not working properly, as the active door leaf does not latch.	Repair/replace malfunctioning door hardware
Electrical System (includes lighting and battery backup systems) – Switchgear system needs to be evaluated. The battery backup system serving the RTU/SCADA system and pump and valve status is no longer operable and needs to be replaced. The old formerly abandoned battery backup system should be removed from the station. The electrical service pole, conduit and cable are in poor condition and need to be replaced. Wires are exposed and hanging from the	Inspect/clean switchgear system and address deficiencies as needed Replace all components of battery backup system with a UPS type system and replace the RTU inverter

Condition	Recommendation
two unit heaters	Remove the old formerly abandoned battery backup system Replace the electrical service pole, conduit and cable Address exposed and hanging wires from the two unit heaters
Utility Systems – (Including Heating, Ventilation, and Plumbing) – Bird screen on ventilation air intake is damaged and the damper does not operate automatically as intended. One of the two heaters is valve off and out of service and the other unit works well. The toilet is nonfunctional.	Repair/replace bird screen and damper at ventilation air intake louver Research operational status of "valved-off" unit heater to provide backup service. Replace toilet and restore water supply to it
Roofing – Holes have been noted in the roofing membrane at the base of the parapet wall flashing. Roofing is actively leaking during rain events. Soft wet spots have been noted in the roofing insulation. There is a deteriorated section of concrete docks plank in the overhead ceiling, near the front door that should be replaced ASAP.	Repair or replace leaking roofing Replace a deteriorated section of concrete docks plank on the roof near the front door. Provide temporary shoring until the docks plank is replaced
Drainage System – No problems noted.	
Auxiliary Systems – The operation of the fire alarm system should be evaluated and the system upgraded as necessary to restore trouble-free service.	Evaluate fire alarm system and upgrade as necessary to restore trouble-free service
Miscellaneous – Parts and other materials inside the station were discarded and/or consolidated and. Overhead crane in pump area was inspected by a certified specialist. See report for repair recommendations.	Address recommendations in crane inspection report

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Allentown Tanks

Condition	Recommendations
Interior Tank – KTA-Tator had conducted a detailed inspection of the tank interior, tank exterior, exposed portion of the tank foundation, corrosion protection systems (if present) and all tank appurtenances in 2007. As per their report it was recommended to paint the inside and outside of both tanks by 2012.	Address recommendations from KTA-Tator relative to the tanks and appurtenances, including repainting the inside and outside of both tanks by 2012
Exterior Tank and Appurtenances – See above	
Piping and Valves – A leaking joint in the underground piping on the east side of the tank was repaired, thereby eliminating the wet and saturated ground condition in this area. Valves are in good operating condition.	
Access Road and Pavements – Good condition	
Site and Fencing – A vault hatch cover between the two tanks is bent and distorted, whereby it does not fully close. Fence posts and wire fabric are badly rusted. Fencing fabric has been patched numerous times.	Repair or replace the vault hatch cover between the two tanks Make necessary repairs or replace site fencing
Site Building (Exterior Structural/Architectural) – Soffit and fascia on wooden utility building and the door are in very poor condition. The support for the meter signal cable at one of the tanks that was secured to the building has fallen and is lying on the ground, which has caused damage to the fascia on the building. Radio transmission cables, owned by others, are hanging low to the ground along the south side of the property. The site building door was unlocked with no padlock in place.	Repair/repaint soffit and fascia on utility building Re-secure the meter signal cable at the building and repair fascia Raise and re-support the low hanging transmission cables (by owning utility company) Provide padlock to secure the utility building
Instrumentation and SCADA System – Replacement of the SCADA system is being evaluated. Level Equipment is working well.	Replace SCADA system in future CIP project

Condition	Recommendations
Chlorination Building and Facilities – The system is functioning well after the three pumps were replaced with Blue and White brand peristaltic type pumps. The sample sink, door hardware, pump base and the painted steel chlorine fill access door are badly corroded due to chlorine vapors. The fill access door does not close or latch and is not lockable. The original heater is now functional. The eyewash station has no water in it. The vent fan switch on the door is not functioning to shut the vent fan off when the door is closed.	Install a timer to provide regular intermittent running of the ventilation fan to reduce the corrosive vapors in the building Resolve problem with the chlorine fill access door latching and lock assembly Coat the pump base and recoat the fill access door Fill the eyewash station with water Repair or replace the vent fan switch on the door

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Bedford Tank

Condition	Recommendation
Interior Tank – KTA-Tator had conducted a detailed inspection of the tank interior, tank exterior, exposed portion of the tank foundation, corrosion protection systems (if present) and all tank appurtenances in 2006. As per their report it was recommended that the exterior of the tank be spot painted by 2011, which has not been done.	Address recommendations from KTA-Tator relative to the tank and appurtenances, including spot painting the exterior of tanks
Exterior Tank and Appurtenances – See above	
Site Fencing – Barbed wire missing from portion of gate at west side. Vines have been removed from the fence.	Install missing barbed wire on gate at west side of site
Site Building Interior (Structural/Architectural) – Plaster walls are in poor condition.	Repair plaster walls inside site building and paint them
Site Building Exterior (Structural/Architectural) – Concrete around some handrail posts is cracked.	Repair/reset handrail posts and seal concrete around the posts
Chlorination Facilities – Since the pumps were replaced with two Prominent Brand, peristaltic type pumps, they are operating very reliably. Automatic dosing control operation may be incorporated in the future after the SCADA system is upgraded, similar to what was recently installed at Lincoln, Allentown and Squirrel Hill. This would involve installation of onsite sampling facilities, chlorine concentration analyzers and an SCR function on the pumps. Ventilation fan, intake damper and both heaters work well, however timed automatic operation of ventilation equipment would lessen the affects of chlorine fumes. The outdoor control switches serving the Chlorine Building lights and the ventilation fan and damper are very difficult to operate and should be replaced with ones that use a standard type key like the ones at the new chlorination buildings.	Incorporate automatic dosing control operation feature as discussed to enhance control of chlorine dosing Provide timer control operation for the vent fan to reduce the corrosive air conditions inside the Chlorine Building Replace forked-key-switches that operate the lights and chlorine fan with ones that use a standard type key
Tank Valves and Vaults – Vault and valves are in good condition.	

Condition	Recommendation
Instrumentation and SCADA System – Replacement of the entire SCADA System is being evaluated. Level equipment is working well.	Replace SCADA System in an upcoming project
Miscellaneous – The phone line is hanging low over the sidewalk in front of the building.	Re-support the phone line over the sidewalk in front of the building

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Brashear Tanks

Condition	Recommendation
Interior Tank – Tank No. 2 has been recoated on the interior and exterior under a present contract. New vents, a lightning protection grounding system, ladder safety rails and a new passive "Tide-flex" flow mixing system were installed. Pending permit approval from DEP, a "Pax" Mixing system will be installed in this tank to enhance THM removal. This system includes a mixer, vent fan, air vent, and surface spray system and will be installed in Tank No. 2 as a pilot test. After this system is installed and an operations permit provided from DEP this tank will be placed back into service. Tank No. 1 and appurtenances are in good condition.	Pending approval from DEP install the "Pax" mixing system and place second tank back into service Evaluate the "Pax" THM removal system for consideration to install in Tank No. 2
Exterior Tank and Appurtenances – Overflow chamber at both tanks is open with grating missing.	Provide and install grating cover for overflow chamber on both tanks
Tank Valves and Vaults – Good condition	
Site and Fencing – South fencing next to Chlorine Building is missing barbed wire and is not high enough to provide adequate security. Trees growing along this fence promote easier entry over the fence. Vegetation is growing on and around fencing at Chlorine Building and around the North Tank. A tree is encroaching onto the building and utility wires. Chlorine Building sidewalk is in poor condition and the sidewalk at the top of the steps is deteriorated. Abandoned reservoir wall is in fair condition. The asphalt access roadway around and in between the tanks has been resurfaced. There is an accumulation of leaves around the tanks and Chlorine Building.	Extend fencing vertically on south side of building where it abuts concrete retaining wall and replace missing barbed wire sections Remove trees along fence from the above area, remove vegetation on and around fencing at Chlorine Building and the North Tank and remove tree growing next to building Replace sidewalk in front of Chlorine Building and replace deteriorated sections of the sidewalk at the top of the steps Remove leaves from around the tanks and Site Building

Condition	Recommendation
Site Building Interior (Structural/Architectural) – Wall plaster is cracked on upper floor. Paint on basement walls is badly peeled. Ventilation fan and intake louver work well, however timed automatic operation would lessen the affects of chlorine fumes. The ventilation intake damper actuator controller needs to be adjusted, as it is left in a partially open position when the fan is off. The Chlorine Room door is in poor condition.	Repair cracked wall plaster and paint on upper floor Repair, waterproof-coat and repaint walls in basement. Provide timer control operation for the vent fan to reduce the corrosive air conditions inside the Chlorine Room. Adjust the ventilation intake damper actuator controller Replace door at the Chlorine Room
Site Building Exterior (Structural/Architectural) – Handrail sections are missing and other sections are unsupported in front of building.	Provide and install missing sections and re-support loose sections of hand railing in front of building
Chlorination Facilities - Since the pumps were replaced with two Prominent Brand, peristaltic type pumps, they are operating very reliably. Automatic dosing control operation may be incorporated in the future after the SCADA system is upgraded, similar to what was recently installed at Lincoln, Allentown and Squirrel Hill to enhance control of chlorine dosing. This would involve installation of onsite sampling facilities, chlorine concentration analyzers and an SCR function on the pumps. Abandoned gas feed type chlorination equipment is still in place and one of the formerly removed chlorination pumps is setting on the floor. Support stand for dosing pumps is badly corroded. The outdoor control switches serving the Chlorine Room lights and the ventilation fan and damper are very difficult to operate and should be replaced with ones that use a standard type key like the ones at the new chlorination buildings.	Incorporate automatic dosing control operation feature as discussed Remove old abandoned chlorination equipment from site building and former chlorination pump Paint support stand for dosing pumps or replace with non-metallic material Replace forked-key-switches that operate the lights and chlorine fan with ones that use a standard type key
Instrumentation and SCADA System – Replacement of the entire SCADA System is being evaluated. Level equipment is working well.	Replace SCADA System in an upcoming project
Miscellaneous - Emergency light fixture on upper floor is not operable. There is no water service in the building, as one of the water booster pumps is partially removed and the second pump does not operate.	Resolve malfunction of emergency lighting fixture(s) Restore operation of water booster pumps

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Garfield Tank

Condition	Recommendation
Interior Tank – A detailed inspection of the interior and exterior of the tank, tank foundation, corrosion protection systems (if present) and all tank appurtenances should be conducted. Based on the past painting schedule for this tank, it is expected that this tank would need to be painted inside. An internal inspection of this tank will be performed when the tank is taken out of service for painting work in the future.	Plan painting of the inside and outside of the tank and perform a detailed inspection, including all tank appurtenances
Exterior Tank and Appurtenances – See above	
Tank Valves and Vaults – Good condition	
Site Fencing – Good to fair condition. Some openings were noted in the fence. Trees are growing next to the fence, which enable easy access over the fence into the site.	Patch openings in the fence Remove trees growing next to the fence
Instrumentation and SCADA System – Level equipment is working well with no problems noted. SCADA System equipment will be replaced in the near future in the "Concept" phase of a current project.	Replace SCADA System equipment in the "Concept" phase of a current project
Chlorination Facilities – The chlorination facilities at Highland Pump Station, which had served this storage tank, have been eliminated. The water being supplied to this pump station and in turn to the Garfield Tank is being partially chlorinated from the Membrane Filtration Plant before entering the distribution system, which provides adequate disinfection. See "Highland Pump Station" Evaluation Report for status of abandoned equipment.	

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Herron Hill Reservoir

Condition	Recommendation
Floating Cover – The cover is in good condition with no visual defects noted. Implementation of an annual or periodic maintenance contract for the floating covers in the future is being evaluated.	Evaluate implementation of an annual or periodic maintenance contract for the floating covers in the future
Reservoir Cover Appurtenances (Dewatering Pumps, ladders, vents, hatchways, barriers/railings) – Cover dewatering pumps are working satisfactorily, although the pump canisters in the North and South Cells easily float or lift out of the drainage troughs. In order to address this, either the float control needs to be adjusted to raise the shut-off level and/or weights should be installed in the bottom of the pump canisters. Locks are off of most of the access hatch covers.	Adjust the float control serving both cover pumps to raise the shut-off level and/or install weights in the bottom of the pump canisters Install locks on the access hatch covers where needed
Reservoir Valves and Vaults – Good condition	
Chlorine Building - Shingled roof is in very poor condition. The ventilation fan and damper motor will work, but the linkage is disconnected from the damper and the fan will only run when the local control station at the fan is turned on. Presently the outdoor switch that is used to operate the fan is left in an "on" position, whereby the local control station is kept off. The outdoor control switches serving the lights and the ventilation fan and damper in this building are very difficult to operate and should be replaced with ones that use a standard type key like the ones at the new chlorination buildings. One of the two heaters operates noisily and both are corroded. The access door of the building does not have a threshold. Water is noted leaking into the wall sleeve at the rear of the building where the potable water line enters the building. The water runs across the floor and out the front door. The water should be tested to confirm if it is potable or ground water. This leak into the building wall sleeve should be eliminated.	Replace shingled roofing on Chlorine Building Reconnect the linkage at the ventilation intake damper Replace forked-key-switches that operate the lights and chlorine fan with ones that use a standard type key Service noisy unit heater Install a threshold at the access door of the building Test water leaking into the station to confirm if potable or ground water. Eliminate the leak and/or seal the wall sleeve

Condition	Recommendation
Chlorination Facilities – The three Prominent Brand pumps are in good condition and operating reliably. Automatic dosing control operation may be incorporated in the future after the SCADA system is upgraded, similar to what was recently installed at Lincoln, Allentown and Squirrel Hill to enhance control of chlorine dosing. This would involve installation of onsite sampling facilities, chlorine concentration analyzers and an SCR function on the pumps. The old abandoned chlorine gas feed equipment is still in place. Pump support stand and all pipe supports are badly corroded.	Incorporate automatic dosing control operation feature as discussed Remove the old abandoned gas chlorination equipment Paint pump stand or replace with non-metallic material Provide timer control operation for the vent fan to reduce the corrosive air conditions inside the Chlorine Building
Instrumentation and SCADA System – Replacement of the entire SCADA System is being evaluated. Level equipment is working well. The flow meters were tested and recalibrated as needed under the Water Audit project.	Replace SCADA System in an upcoming project
Miscellaneous – The fence gate panels that were out of alignment were removed and replaced with a locked chain. There is settlement noted at the manhole at the base of the steps on the north side of the reservoir.	Resolve settlement issue noted at the manhole at the base of the step on the north side of the reservoir

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Herron Hill Tank

Condition	Recommendation
Interior Tank – The inside and exterior surfaces of the tank have been painted under a current contract. KTA-Tator evaluated the structural integrity of the tank and determined that the tank is structurally sound. Deep pits that were present on the inside of the tank were weld-repaired prior to painting. A "Tide-Flex" static mixing system was installed. The tank is filled with water and ready to be placed into service, which is pending approval from DEP. The 911 tower equipment was removed permanently from the tank. A new location for a tower to support this equipment is being sought somewhere else on the site by the City of Pittsburgh See "Herron Hill Pump Station" report that addresses piping and pumping equipment, which is installed inside the base of the tank.	Place tank into service following approval from DEP
Exterior Tank and Appurtenances – See above	
Site Lighting – It is noted that the air travel clearance light on top of tank is not a requirement of the FAA, as the tank is less than 200' high, therefore replacement of the current outdated light is not necessary (as had been previously recommended).	
Instrumentation and SCADA System – Replacement of the entire SCADA System is being evaluated. Level equipment is working well. The flow meter was tested under the Water Audit project.	Replace SCADA System in an upcoming project

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Highland No. 1 Reservoir

Condition	Recommendation
General – Installation of a back-up pump station taking suction from Highland No. 2 District and supplementing Highland No. 1 District is being evaluated. The reservoir should be upgraded to provide two cells, which can maintain service individually, thereby enabling maintenance of either cell while keeping the reservoir in full service via the second cell. This would involve modifying (raising) the existing dividing wall that is present in the reservoir. A liner in the reservoir is nearly 30 years old and should be replaced, as this timeframe exceeds the life expectancy of the liner material. See "Membrane Filtration Plant" Evaluation Report, which treats the water discharged from this reservoir.	Evaluate installation of a back-up pump station taking suction from Highland No. 2 District to supplement Highland No. 1 District Upgrade reservoir to provide two cells, which would involve modifying (raising) the existing dividing wall Replace the liner in the reservoir
Reservoir Conditions – Even though badly deteriorated sections of the concrete parapet wall around the reservoir were repaired these areas are in need of replacement, which should be addressed when a renovation project is planned. There is an accumulation of leaves noted in the reservoir. These leaves, along with other debris that is lying on the bottom of the reservoir, create operational problems with the Membrane Filtration Plant. Debris becomes lodged into the intake strainers and temperature inversions stir up the leaves and cause problems with the filtering operations.	Replace deteriorated sections of the concrete parapet wall around the reservoir, which should be addressed when a renovation project is planned Remove leaves from around the reservoir and from inside the reservoir before they sink. Plan to drain and clean the reservoir to remove accumulated leaves and debris on the bottom
Reservoir Valves and Vaults – Good condition	
Site Building (Old Chlorine Building) – This building is currently not being used; however heating is maintained in the building basement to protect water lines inside from freezing. The power panel in this building basement operates the above heating unit, the reservoir lighting and provides power to the separate Restroom Building. Exterior is in good condition. Abandoned	Remove abandoned chlorination equipment and heaters Repaint ceiling Seal core drilled openings in basement wall

Condition	Recommendation
chlorination equipment and inoperable heaters should be removed. Ceiling paint is peeling badly. There are open core drilled openings in the basement wall to enable entry of rodents. The first floor door and hardware is in poor condition. The basement door is jammed tight and difficult to operate. Heavy vegetation is noted around the building and inside the fenced area behind the building. Some of the above recommendations are based on whether the building will serve a new use in the future.	Replace and/or repair doors and hardware as required Remove vegetation noted around the building and inside the fenced area
Site Conditions – Site lighting is in need of replacement, including installation of underground wiring. This should be addressed when a renovation project is planned. The exterior perimeter light at the east peninsula was replaced.	Replace reservoir site lighting, including installation of underground wiring
Instrumentation and SCADA System – Reservoir level signal, which is directed to the MFP Building, is working well. See "Membrane Filtration Plant" Evaluation Report.	

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Highland No. 2 Reservoir

Condition	Recommendation
Floating Cover Conditions - The floating cover and liner, which have prematurely deteriorated from ultraviolet radiation, have been replaced under a current project. A new cover dewatering pump was installed at the south corner and the operation of Pump No. 4 was restored under this project. This reservoir is now in service since it was taken off line in early 2010. There presently are an accumulation of leaves around and inside the reservoir. Implementation of an annual or periodic maintenance contract for the floating covers in the future is being evaluated.	Remove leaves from around and inside the reservoir Evaluate implementation of an annual or periodic maintenance contract for the floating covers in the future
Appurtenances (cover dewatering pumps, ladders, vents, hatchways, barriers, railings) – Cover dewatering pumps, control panels, pump "Motor Saver" devices, and access hatch covers were replaced under the current project. Pump No.'s 1 and 2 control panels are displaying an improper level and an alarm condition respectively and are not functioning. When the cover pumps were replaced the ID labels were removed.	Resolve problem with controls for Cover Dewatering Pump No.'s 1 and 2 Provide ID labels for the cover dewatering pumps, coordinated with the electrical circuit breaker designations
Reservoir Valves and Vaults – Good condition	Tank Valves and Vaults – Good Condition
Chlorination Facilities - The two Prominent Brand pumps are operating reliably. Automatic dosing control operation may be incorporated in the future after the SCADA system is upgraded, similar to what was recently installed at Lincoln, Allentown and Squirrel Hill to enhance control of chlorine dosing. This would involve installation of onsite sampling facilities, chlorine concentration analyzers and an SCR function on the pumps. A vent from a Sodium Hypochlorite storage tank in the station is vented inside the building. The pump support stand and metal pipe supports in the Chlorine Room are badly rusted.	Incorporate automatic dosing control operation feature as discussed Extend vent from a Sodium Hypochlorite storage tank to outside of building Paint and/or replace the pipe and pump support stands with fiberglass or non-metallic material Provide timer control operation for the vent fan to reduce the corrosive air conditions inside the Chlorine Room

Condition	Recommendation
Site Building Interior (Structural/Architectural) – The front window is badly deteriorated and cannot be fully closed and glass panes are partially out of two of the windows, allowing rain and cold air to enter the building. The doors are badly rusted, especially the Chlorine Room door, which is difficult to open and close. Damaged plaster and peeling paint is noted in the main area of the building due to leaking roof. The damaged ceiling in the electrical room had been replaced temporarily with plywood. The hatch cover inside the station, which is heavy, rusted steel, has been replaced with a plywood cover temporarily. The brick at the top of the window jamb at the west side of the building is collapsing. There are old reservoir floats and sand tubes, along with other materials, lying in the station, which inhibit free access in the building. The Breathing Apparatus cabinet is empty. These breathing devices are no longer needed since the gaseous chlorine was replaced with liquid sodium hypochlorite.	Replace all windows and doors in building Repair and repaint damaged plaster inside the building Replace the hatch cover with a light weight hinged door Resolve problem with collapsing brick at the top of the window jamb at the west side of the building Remove old reservoir floats and sand tubes, along with other materials, from the station Remove Breathing Apparatus cabinet
Site Building (Heating, Ventilation, Plumbing and Electrical) - The heating unit in the main area of the building is inoperable. One of the two heaters in the Chlorine Room is inoperable. Ventilation Fan in Chlorine Room would not operate from the indoor switch. The door could not be opened to verify the position of the local electrical switch and the status of the operation of the ventilation fan and damper.	Repair or replace defective unit heaters Evaluate operation of and resolve any problems noted with the ventilation fan and air intake damper
Site (Including Lighting and Fencing – Settlement and/or movement of the slope outside the reservoir are noted on the roadway on the east side of the reservoir; probably resulting from the construction of a Slurry Wall around the reservoir in the past. The conditions do not appear to be much different than were noted last year. Retaining wall bricks near the entrance of the site were knocked out of alignment.	Continue monitoring any settlement or movement of reservoir slope Repair retaining wall bricks near the entrance of the site
Roofing – Leaking condition is noted at or near the roof vent.	Repair leak in roof at the vent
Instrumentation and SCADA System – SCADA System equipment will be replaced in the near future in the “Concept” phase of a current project. Level equipment is working well.	Replace SCADA System equipment in the “Concept” phase of a current project

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Lanpher Reservoir

Condition	Recommendation
Floating Cover Conditions – The floating cover is in good condition and is being kept dewatered. See "Reservoir Appurtenances". Implementation of an annual or periodic maintenance contract for the floating covers in the future is being evaluated.	Evaluate implementation of an annual or periodic maintenance contract for the floating covers in the future
Reservoir Appurtenances (cover dewatering pumps, ladders, vents, hatchways, barriers/railings) – Locks are missing on some of the hatch covers. The cover dewatering pumps, which were malfunctioning, have been replaced using pumps removed (salvaged) from Highland Reservoir No. 2. The Motor Savers, which provide electrical protection for the pump motors, have a history of high maintenance. A few of the units are currently tripped in alarm condition. The handrail and swing gates along the center wall of the reservoir were repaired and/or re-anchored into the concrete under an outside contract.	Install locks where missing from the hatch covers Monitor operation of cover dewatering pumps and consider installing an alarm beacon light at each pump control panel to provide notification of tripping failures when they occur and/or evaluate replacing the Motor Saver devices with ones matching what had been recently installed at Highland No. 2 Reservoir
Reservoir Valves and Vaults – Good condition	
Site Building Interior (Structural/Architectural) – Due to lack of heat in the past, heavy condensation and high humidity conditions corroded much of the equipment in building. The dosing of the chlorine into the flumes under the building floor creates corrosive conditions inside the building. Basement stairs and pipe supports are rusting, due to the humid conditions and the presence of chlorine vapors. The electrical distribution panels are rusting and corroding. Also see "Site Building Utility Systems" for recommendations. A floor access hatch cover has been removed inside the building behind the front door, posing a safety hazard. The crack that was leaking water into the basement north wall from the reservoir was repaired under a present contract. The Breathing Apparatus cabinet is empty. These breathing devices are no longer needed since the gaseous chlorine was replaced with liquid sodium hypochlorite.	Paint basement stairs, valve stands and pipe supports Reinstall the floor hatch cover that was removed inside the building and install a hinged door within the cover for convenient grabbing of water samples Remove Breathing Apparatus cabinet

Site Building Exterior (Structural/Architectural/Roofing) – Soffit and fascia around building is in poor condition. The west section of the roof and rain gutter was replaced, as it had been damaged in a wind storm. The damaged section of downspout on the west side was replaced with the new roof section. A tree is growing inside of the boot section of the downspout on the west side. The joints in the rain gutters are leaking and some sections have been damaged from ice. All four exterior doors and hardware are badly rusted and deteriorated. The lock mechanism on the front door is inoperable. The doors on the west side and in the basement are jammed so tightly that they are very difficult to open. Vines are growing on the building and site fencing.	Repair and repaint soffit and fascia on the site building Repair and seal, or replace damaged sections of gutters and downspouts Remove tree growing inside of west downspout boot Replace all exterior doors and hardware using a corrosion resistant finish Remove vines from building and fencing
Chlorination Facilities – The two Prominent Brand pumps are operating reliably. Automatic dosing control operation may be incorporated in the near future, similar to what was recently installed at Lincoln, Allentown and Squirrel Hill to enhance control of chlorine dosing. This would involve installation of onsite sampling facilities, chlorine concentration analyzers and an SCR function on the pumps. Pump support stand and all pipe supports are badly corroded. PWSA has modified the operation of the reservoir to reduce the formation of THM's. Because a section of the 60" line is currently out of service to accommodate changes on the Route 28 project, it became necessary to install additional chlorination feed facilities, which were provided to dose the system in the west end of Aspinwall.	Incorporate automatic dosing control operation feature as discussed Paint or replace corroded steel pump stands and piping supports in Chlorine Room (with fiberglass or nonmetallic material) Provide timer control operation for the vent fan to reduce the corrosive air conditions inside the Chlorine Room
Site Building Utility Systems – (Including Heating, Ventilation, Plumbing, Electrical and Instrumentation) – One of the two heaters on the main floor, both heaters in the basement and the heater in the Chlorine Room do not work and are out of service. One of the two vent fans on first floor operates, although automatic operation of the fan could not be confirmed. The intake damper for this ventilation fan does not operate properly, and is stuck open. The second fan and damper does not work. All humidistat and thermostat controls are corroded and not functional. The vent fan and damper in the basement do not operate and the electrical starters are severely corroded. The water booster pumps are not operable, whereby there is presently no water service inside this facility, with no water supply to the toilet and lavatory in the basement. The electrical starters for these pumps and the heaters are badly corroded. Ventilation fan and intake damper in the Chlorine Room do not work using the wall switches. The outdoor control switches serving the Chlorine Room lights and the ventilation fan and damper are very difficult to operate and should be replaced with ones that use a standard type key like the ones at the new chlorination buildings.	Restore operation of the heating units in the first floor, basement and Chlorine Room by repairing or replacing inoperable heating units, controls and/or starters as necessary Repair or replace inoperable vent fans, dampers and controls as necessary Supplement control operation for the vent fans by installing timers to reduce the corrosive air conditions inside the building Restore operation of the water booster pumps, including replacement of the electrical starters Replace forked-key-switches that operate the lights and chlorine fan with ones that use a

	standard type key
Instrumentation and SCADA System – The RTU panel, serving the transmission of the reservoir level, is out of service. RTU panel and SCADA System equipment will be replaced in the near future in the "Concept" phase of a current project. Level readings are currently obtained by visual observation daily.	Replace SCADA System equipment in the "Concept" phase of a current project
Miscellaneous - Concrete patches at some of the joints in the reservoir retaining wall next to Friday Road are deteriorated and material is loose, thereby posing a potential risk of damage to the cover if patching material would fall onto it.	Repair or replace the deteriorated joint repair patches in the concrete retaining wall

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Lincoln Tank

Condition	Recommendation
Interior Tank – KTA-Tator had conducted a detailed inspection of the tank interior, tank exterior, exposed portion of the tank foundation, corrosion protection systems (if present) and all tank appurtenances in 2008. As per their report it was recommended to re-inspect the tank by 2012.	Address recommendations from KTA-Tator relative to the tanks and appurtenances as noted and required in their inspection report, including re-inspecting the tank by 2012
Exterior Tank and Appurtenances – See above	
Site and Fencing – Fencing fabric is deteriorated and patched in several areas at the front of the site. Vines are growing on the old and new fence, and trees are growing through the fence behind the tank.	Address repair or replacement of fencing Remove vines and trees on fencing
Tank Valves and Vaults – Good operating condition	
Instrumentation and SCADA System – Replacement of the entire SCADA System is being evaluated. Level equipment is working well. The flow meter was tested and recalibrated under the Water Audit project	Replace SCADA System in an upcoming project
Chlorination Building and Facilities – The two pumps were replaced with Blue and White brand peristaltic type pumps. They are operating reliably. The sample sink, door hardware, pump support stand and the painted steel chlorine fill access door are badly corroded due to chlorine vapors. The chlorine fill access door does not latch and is not lockable. The original unit heater is now functional. The eyewash station has no water in it.	Coat pump support stand and chlorine fill access door Resolve problem with the chlorine fill access door latch and lock assembly Provide timer control operation for the vent fan to reduce the corrosive air conditions inside the Chlorine Room Fill eyewash station with water

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: McNaugher Reservoir

Condition	Recommendation
Reservoirs – Concrete chamber on east side of larger reservoir is deteriorating. Some of the concrete patches on the larger tank are deteriorating.	Repair/restore concrete surfaces of the larger reservoir and chamber on east side of this reservoir
Tank Valves and Vaults – Good Condition	
Access Road and Pavements – A section of stairs in front of Chlorine Building are deteriorated. One of the steps on the newer portion of stairs is damaged where a handrail post is embedded. The joint between the concrete drainage troughs and the wall around the reservoirs needs to be re-caulked.	Repair/replace damaged section of stairs in front of building Repair/replace step on newer portion of stairs where handrail is embedded Re-caulk/seal the concrete drainage trough joint around the reservoirs
Site and Fencing – North half of fencing along Biggs Street is badly rusted. There is an accumulation of leaves around the tanks.	Replace or coat rusted sections of fencing along Biggs Street Remove accumulation of leaves from site
Site Building Interior (Structural/Architectural) - Good condition. The fire extinguisher cabinet should be remounted on the wall. Panic hardware on the Chlorine Room door is loose. The Breathing Apparatus cabinet is empty. These breathing devices are no longer needed since the gaseous chlorine was replaced with liquid sodium hypochlorite.	Remount fire extinguisher cabinet on the wall Re-secure panic hardware on the Chlorine Room door Remove Breathing Apparatus cabinet
Site Building Exterior (Structural/Architectural) – Soffit and fascia paint is badly peeled. The coating on the lower foundation walls is peeling. A section of handrail in front of building needs to be repaired or re-secured.	Paint soffit and fascia on building Re-coat the lower foundation walls Repair/secure hand railing

Utility Systems (Water, Plumbing, Sanitary, Ventilation, Electrical, Instrumentation, SCADA) – Hot water tank is inoperable. Fan in basement does not work. Emergency lights do not test-light. Toilet is malfunctioning. The Chlorine Room ventilation fan and intake damper are functional, although the outdoor control switches serving the ventilation system equipment and the lights in the Chlorine Room are very difficult to operate and should be replaced with ones that use a standard type key like the ones at the new chlorination buildings. The outdoor switch to control the lights is broken. One of the heaters in the Chlorine Room does not appear to be functional.	Replace hot water tank Restore operation of fan in basement Restore operation of emergency lights Address malfunction with toilet Replace forked-key-switches that operate light and chlorine fan with ones that uses a standard type key Resolve operational problem with heater in the Chlorine Room
Instrumentation and SCADA System – Replacement of the entire SCADA System is being evaluated. Level equipment is working well.	Replace SCADA System in an upcoming project
Chlorination Facilities – The two Prominent Brand pumps are operating reliably. Automatic dosing control operation may be incorporated in the near future after the SCADA system is upgraded, similar to what was recently installed at Lincoln, Allentown and Squirrel Hill to enhance control of chlorine dosing. This would involve installation of onsite sampling facilities, chlorine concentration analyzers and an SCR function on the pumps.	Incorporate automatic dosing control operation feature as discussed Provide timer control operation for the vent fan to reduce the corrosive air conditions inside the Chlorine Room
Roofing, Gutters and Downspouts – Shingled roofing is in poor condition. Downspout on southwest corner of building is missing.	Replace shingled roof Install downspout where missing
Miscellaneous – Water is leaking from the hillside behind the Chlorine Building, which may be from a water line on Biggs St. The security sign on the fence next to the building is not legible	Investigate source of and resolve underground water leak in hillside behind the Chlorine Building Replace or repaint the security sign next to the building

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Spring Hill Tanks

Condition	Recommendation
Interior Tank – KTA-Tator had conducted a detailed inspection in 2006 of the tanks interior, tanks exterior, exposed portion of the tank foundation, corrosion protection systems (if present) and all tank appurtenances. As per their report it was noted that both tanks were in good condition; however they recommended to spot paint the exterior of both tanks and re-inspect them by 2011, which is had not been done.	Address recommendations from KTA-Tator's inspection and report relative to the tanks and appurtenances
Exterior Tank and Appurtenances – The concrete foundation was noted to be deteriorated at the east tank. Also see above.	Repair/replace deteriorated section of concrete foundation at the east tank
Tank Appurtenances (ladders, hatchways, overflows, drains) – See above	
Tank Valves and Vaults – Good condition	
Instrumentation and SCADA System – SCADA System is not functional, whereby the PLC needs to be replaced. Currently there is no level reading transmitted to the OC Center for this site, although the level in theses tanks is nearly the same as McNaugher, which is available. Replacement of the entire SCADA System is being evaluated.	Replace SCADA system in upcoming project
Site Fencing – Poor condition with sections collapsing. Heavy vegetation is growing on many sections.	Replace fencing and remove vegetation

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Squirrel Hill Water Storage Tank

Condition	Recommendation
Interior Tank – A contract has been executed to paint the interior and exterior of this tank, install a Tide-flex Mixing System to circulate the water in the tank, and to address other issues noted in an inspection report, prepared previously by KTA-Tator. Repair of deteriorated structural steel and pin holes, installation of a new roof vent and safety railing are included. Work is now planned for 2012. Presently the Operations staff is developing a plan to take this tank out of service without affecting water service. Flow control valves need to be installed before Squirrel Hill Tank can be taken out of service for painting.	As planned, paint the interior and exterior of the tank and address recommendations from KTA-Tator relative to the tanks and appurtenances as noted in their inspection report
Exterior Tank and Appurtenances – See above	
Tank Valves and Vaults – Good condition	
Site Fencing – Some vegetation noted growing on fencing around site, including small trees on the north side of the tank. Barbed wire is missing from sections.	Remove vegetation and replace missing barbed wire on site fencing
Site Lighting – It is noted that the air travel clearance light on top of tank is not a requirement of the FAA, as the tank is less than 200' high, therefore replacement of the current outdated light is not necessary (as had been previously recommended).	
Site Building Exterior (Structural/Architectural) – Metal shed, which is housing the level and telemetry equipment, is in poor condition.	Replace site building to house and protect level and telemetry equipment by installing a free standing stainless steel panel, with heater and fan, similar to that which has been installed at some of the other storage sites

Condition	Recommendation
Chlorination Building and Facilities – The two Blue and White brand peristaltic type pumps are functioning well. The sample sink, door hardware, pump base and the painted steel chlorine fill access door are badly corroded due to chlorine vapors. The chlorine fill access door does not or latch and is not lockable. The lock cylinder on the access man-door is broken and cannot be locked. The vent fan operates, but the air intake damper does not open. There is no lighting in the building, as the light bulbs are burned out. The heater does not function, whereby there presently is no heat in this building. The eyewash station has no water in it.	Install a timer to provide regular intermittent running of the ventilation fan to reduce the corrosive vapors in the building Coat the pump base and recoat the fill access door Resolve problem with the chlorine fill access door latch and lock assembly and the access man-door door lock Re-lamp light fixtures Restore operation of unit heater Fill the eyewash station with water
Instrumentation and SCADA System – Replacement of the entire SCADA System is being evaluated. Level equipment is working well.	Replace SCADA System in an upcoming project

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Water Treatment Plant
Clarifiers and Residual Sludge Distribution Chamber

Condition	Recommendation
Clarifier Building Exterior (Structural/Architectural) –The building is in good condition except the roof deck. See "Roofing, Gutters and Downspouts".	
Clarifier Expansion joints - Leaks from the expansion joints in the tank walls were repaired in Clarifier No.'s 2 and 4 in 2010, however leakage reoccurred in a few of the joints after cooler temperatures arrived. These leaks have been repaired under warranty twice, although the leak status of the joints will need to be monitored over the upcoming colder winter months. The joints in Clarifier No. 1 were repaired in 2011 and the joints in Clarifier No. 3 will be repaired in early 2012. In these two tanks a product was used that offered a different technology that should prove to be more effective than the repair material and process used in the other two clarifiers.	Monitor and address clarifier leaks per project warranty as needed
Clarifier Building Interior (Structural/Architectural) – The clarifier expansion joints in Clarifier No. 1 been repaired and the joints in Clarifier No. 3 will be repaired by early 2012 to eliminate the leaks through the exterior wall and from the influent and effluent flumes adjacent to these tanks under the Clarifier Joint Repair contract. The joint repair product being used in these two clarifiers Sikadur Combiflex seals manufactured by Sika Corporation, which should provide a more reliable and effective seal over the products that have been formerly used to address the leaking expansion joints. Most of the common horizontal expansion joints between the influent and effluent flumes leak. Cracks are present in several locations in the underside of the concrete access walkway along the side of the clarifier flumes in several locations. Spalled and deteriorated concrete is noted on the walkway deck midway between Clarifier No.'s 1 and 2 and between No.'s 1 and 3 (two places). Spalled concrete has been noted inside the Effluent Flume at several of the expansion joints, which will be addressed under the current Clarifier Joint Repair contract.	Repair expansion joints in Clarifier No. 3 under the current Clarifier Joint Repair contract as scheduled Repair joints between influent and effluent flumes Address repair of cracks in the underside of the concrete access walkway along the side of the clarifier flumes in several locations Repair spalled concrete on the walkway deck midway between Clarifier No.'s 1 and 2 and between No.'s 1 and 3 (two places) Repair spalled concrete inside the Effluent

Condition	Recommendation
Operations is presently pressure-wash cleaning the walkway deck around the clarifier.	Flume under the current Clarifier Joint Repair contract as planned
Electrical and Controls – The covers had been off of I/O Racks 15 and 16 and are now missing. The new Motor Control equipment and the Electrical Room climate-controlled HVAC system are working well.	Reinstall covers on I/O Racks 15 and 16
Heating and Ventilation Equipment – Repairs were made to malfunctioning roof vent fans on the clarifier roof. All (8) fans are operating well. Many of the intake louvers are not functioning (automatically tied to the fans). The heating system on the Screen Room roof is currently back in service after it had been rehabilitated to supply heat to the Clarifier area. See report for "Screen Room", where the heating units are located, for details. A persistent leak is noted in the steam line at the outside southwest corner of the building. Sections of the insulation and jacketing on the steam piping in the exterior piping trench along the south side of the clarifiers have been damaged.	Resolve malfunctions of ventilation air intake louvers Repair a persistent leak is noted in the steam line at the outside southwest corner of the building Replace damaged sections of steam piping insulation and jacketing in the exterior pipe trench along the south side of the clarifiers
Roofing, Gutters and Downspouts – Metal roof is badly rusted over the entire area, being more concentrated along the edges of all panels. Most of the rain gutters and downspouts are rusted and leaking. Vent pipe penetration flashing boots at the east end of the roof are deteriorated and leaking water through the roofing. Some leaks are noted through the roof panels.	Prepare and paint rusted areas on metal clarifier roof Repair/replace leaking gutters and downspouts Resolve leaks at vent pipe penetration flashing boots on the roof
Mechanical Systems (water, plumbing, sanitary) - The flush water that was conveyed in the old abandoned and collapsing carbon line, which was removed, needs to be restored by installing a new 4" PVC pipeline in the Clarifier Effluent flume from the Screen Room to the sludge pits in all four clarifiers. A temporary flush connection has been made with the house using fire hose until this new line is installed.	Install new replacement 4" PVC flush water pipeline from the Screen Room to the sludge pits in all four clarifiers
Clarifier Equipment and Tank Appurtenances – Sludge collecting drive units, chain and flights and screw conveyors have been replaced in all four clarifiers. The Flocculator equipment is in poor condition in all four Clarifiers, although it remains in operation. All equipment associated with the four flocculators in each of the four Clarifiers will be replaced by PWSA Operations Staff in 2012. The leaks from the joints in the effluent troughs have been repaired in all four clarifiers under the	Replace all Flocculator equipment in all four clarifiers as planned Eliminate the short-circuiting in all four flocculators by closing over the drain holes.

Condition	Recommendation
current Clarifier Rehabilitation and Clarifier Joint Repair projects. The joints used Clarifier No. 3 were repaired using a product that offers a different technology that should prove to be more effective than the repair material and process used in the other three clarifiers. The grating over the center sludge collecting pits has been replaced in all four Clarifiers in the present Clarifier Equipment Replacement contract. There is a significant amount of solids carryover noted in the clarifiers, despite having the new sludge collector equipment installed. It is suspected that the drain holes that have been cut into the bottom floor of the flocculators to drain them is causing "short-circuiting, especially from the primary flocculator chamber.	
Valves and Gates – Operations Staff replaced Sludge Valve in Clarifier No. 2. The (8) influent gates, including the actuators and (2) flume drain sluice gates, are nearly 50 years old and should be inspected and rehabilitated as needed. Sludge valves are working well, although there have been occasional problems with the RTU controls for the valves in Clarifier No.'s 1 and 3.	Inspect and rehabilitate the (8) influent gates, including the actuators, and (2) flume drain sluice gates Resolve problems with sludge valve controls in the RTU
Residual Sludge Distribution Chamber – Sluice gates, valves and instrumentation are in good working condition. A substantial accumulation of sludge is noted in the river at the outfall of this chamber. Submersible sludge pumps in the main chamber are working well in managing the removal of heavy sludge when discharged from the clarifiers. The separation of the Clarifier Building roof drains from the Clarifier 30-inch process drain is being proposed to eliminate its discharge to Fox Chapel sewer as required by DEP.	Remove accumulation of sludge in the river at the outfall of the Sludge Distribution Chamber Separate the Clarifier Building roof drains from the Clarifier 30-inch process drain as proposed
Exterior - Site - Accumulated silt material in the steam-piping trench should be removed to reduce the growth of the vegetation. Concrete sidewalk near carbon unloading area is deteriorated.	Remove accumulated silt material and vegetation from the exterior steam piping trench at the south side of the clarifiers Replace deteriorated concrete sidewalk near carbon unloading area
Influent and Effluent Flumes – It is expected that the influent flume has a heavy accumulation of river sediment, filter sand and coal in it. This material should be removed after the sand filters are rehabilitated. The pipelines in the effluent flume that have been collapsing from deteriorated wall supports, including carbon lines, air lines and water lines, were removed under the present Clarifier Equipment Replacement contract.	Remove river sediment and filter sand and coal from the influent flume after the sand filters are rehabilitated

Condition	Recommendation
Miscellaneous – Overhead cranes in pump area were inspected by a certified specialist and recommended repairs were made	

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Water Treatment Plant
Gatehouses, Fluoride Building, and Clearwell

Condition	Recommendation
Inlet Gatehouse - Vegetation is growing on walls of building. The supply fan operates, but the exhaust air louver actuator is inoperable. This condition contributes to the corrosion taking place in this building. There is a strong smell of chlorine present in this gatehouse as the disinfection chlorine is dosed just upstream of this building. The control station for the ventilation fan is located on the north wall whereby the operator has to walk across the building to turn the fan on. This control should be located outside the front door or just inside the door on the south wall and be tied into the light circuit. The control should and also be activated using a timer, overriding the present thermostat, which may not be operable. Electrical starter cabinets are badly corroded. Lighting is in good condition. Noted an open conduit that passes through the front of the building, thereby enabling rodents to enter the building. The heating unit works well, although the open tee section on the heater flue pipe should be capped with a metal cap in lieu of the plastic cover. Minor rust noted on roof. The door threshold has been removed and the closer is broken. The gravity ventilator above the attic space is off of the roof vent duct, thereby allowing rain water to enter the building. Two of the three gates in this building are very old. The sluice gates have not been operated for several years, therefore their operating condition is not known. The roof downspout is separated from the boot at the southwest corner. The 96" Filtered Composite Flow meter was recalibrated under the Water Audit project.	Remove vegetation from the walls of building Resolve operational problems with exhaust air louver and actuator Ventilation fan control should be located outside or near the front door and should be tied into the light circuit and be activated using a timer Paint electrical starter cabinets Seal open conduit that passes through the front of the building Cap the open tee section on the heater flue pipe Reinstall the door threshold and replace the closer Install a new gravity ventilator on the roof Exercise and test the operation of the sluice gates Reconnect the roof downspout at the southwest corner of the building

Condition	Recommendation
Outlet Gatehouse – Some vegetation had been removed but some is still growing on the walls of the building especially on the west side. The supply fan operates, but the exhaust air louver actuator is inoperable and stuck open. The control station for the ventilation fan is located on the south wall whereby the operator has to walk across the building to turn the fan on. This control should be located just inside the access door on the north wall and be tied into the light circuit. Lighting is in good condition. Heating unit is in good condition, however wiring is exposed at the heater and thermostat and the open tee section on the heater flue pipe should be capped with a metal cap. The coating on the roof is peeling. Paint on soffit and fascia is peeling. The roof downspout at the northeast corner has been reconnected. Handwheel is off of the stand of one of the flume drain valves. The sluice gates in this building are very old and have not been operated for several years, therefore their operating condition is not known. Three electrical switches next to the front door are broken. They may have been replaced and abandoned, a situation that needs to be researched.	Remove vegetation from the building wall Replace or repair supply air louver actuator Install a new ventilation fan control just inside the access door and tie it into the light circuit Conceal exposed wiring at the unit heater and thermostat and cap the open tee section on the heater flue Recoat the roof Repaint the soffit and fascia Install handwheel on stand of one of flume drain valves Exercise and test the operation of the sluice gates Investigate the status of the three broken electrical switches next to the front door and address as needed
Fluoride Building – The corrosive environment inside this building is deteriorating everything inside of it, including equipment, controls, heaters, exhaust ducts, thermostats, wall paint etc. Wall coating is peeling. Both vent fans do not operate. The two supply air louver actuators are inoperable with one in an open position. Because chemical fumes accumulate inside the building, automatic control of ventilation system should be evaluated. Neither of the two recently replaced unit heaters appears to be working, whereby there presently is no heat in this building. Two abandoned heaters should be removed, as it was previously concluded that the two newer unit heaters should be able to supply an adequate amount of heat to serve this building when they are working. Wires are hanging from the two new heaters. A control thermostat is hanging off west wall with exposed wiring. Lighting fixtures at the east end of the building are in poor condition. Wires are hanging unsupported between some of the light fixtures. Proper operation of the emergency lighting system needs to be verified. Vegetation is growing on all four walls of building and around the south and west sides of building. A tree is growing very close to the north side of building and should be removed. Soffit and fascia on west side needs to be	Prepare and repaint walls Ventilation fans should be tied into the light circuit and also be activated using a timer, overriding the thermostat Replace deteriorated and/or malfunctioning controls for HV equipment. Replace supply air louver actuators Restore operation of two heating units Remove two inoperable and abandoned heating units and controls and remove all nonfunctional thermostat controls, which were abandoned when the newer heaters were installed with built- in thermostats

Condition	Recommendation
painted. The safety shower has been removed from the building, whereby no safety protection is available. The hatch covers over the exterior chemical piping and electrical conduit access pits are badly deteriorated. An inoperable air compressor and another receiving tank were left abandoned inside the building and should be removed. New Siemens level monitoring equipment was installed at both storage tanks and are working well.	Conceal wires at two new unit heaters Re-secure control thermostat on west wall or remove if not used Replace lighting fixtures with chemical-resistant sealed type fixtures, install new fixtures at the east end of the building, and conceal exposed wires between some of the fixtures Resolve operational problems with emergency lights Remove vegetation from all walls, and around the south and west sides of building and remove tree next to building Repair or replace deteriorated sections of soffit and fascia and repaint it on the west side of building Install a safety shower Replace hatch covers over the exterior chemical piping and electrical conduit access pits with corrosion resistant material Remove abandoned air compressor and another air receiving tank
Filtered Water Reservoir (Clearwell) - The outside lighting is in poor condition and/or is nonfunctional. The access roadway is in poor condition. There are two hinged manhole access lids over the Clearwell that are open, as the hinges are rusted. There is no record as to when this structure had ever been cleaned or any rehabilitation work performed since its construction around 1915. Because this structure includes only one cell there is no backup redundant service available. There are no bypass capabilities for this structure. If the structure was to fail or the operation interrupted, water could not be distributed to the water system. A project study had been previously conducted and report completed by HDR and Malcolm Pirney regarding the	Close access manhole lids Replace outside lighting Restore access roadway Continue planning for cleaning, structural and mechanical renovation of the Clearwell, and installation of a dividing wall and bypass facilities

Condition	Recommendation
upgrading of the Clearwell. It addressed the cleaning, structural and mechanical renovation of the Clearwell, and installation of a dividing wall and bypass facilities. This project has been placed on hold pending available funding. Separation of the Combination Overflow/Drain from Outfall 024 is being proposed under a present contract per a Consent Order to eliminate the potential of backup from the ALCOSAN Diversion Chamber into the Clearwell, which is due to the fact that the diversion chamber is rusted open. A new outfall will be provided for the Clearwell, replacing the present one.	Separate Clearwell Overflow/Drain from Outfall 024 as planned

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Water Treatment Plant
Operations Building, Operations Control Center, and Laboratory

Condition	Recommendation
Building Exterior (Structural/Architectural) – The building is in good condition, although cracked concrete and exposed rebar is noted on wall corner at loading dock. The concrete pad at the air conditioning unit is undermined.	Repair cracked concrete and exposed rebar on the wall corner at loading dock Install stone fill at concrete pad at the outdoor air conditioning unit
Building Interior (Structural/Architectural) – Groundwater leaches through cracks in the floor of the basement. There is an open pipe core in Mechanical Room wall that would enable entry of rodents. Debris is noted in the sub-basement steam pipe trenches.	Address problem with water infiltration through the basement floor by installing a sump pump to reduce ground water pressure and/or pressure-grout seal cracks Seal open pipe core in the wall of Mechanical Room Remove debris from the sub-basement steam pipe trenches
Heating and Ventilation – The second of the two hot water recirculation pumps and isolation valves has been replaced. Two of the ventilation blower housings and duct connectors on the roof are deteriorated, whereby water may be able to enter the building. Water leaking from condensate unit in Mechanical Room is not contained and floods the floor. Heating and air conditioning systems are working well since the existing controls have been replaced with a new digital control system. All heat/AC diffusers on the HVAC system are planned to be balanced in the near future. One unit heater and thermostat in first floor walkway and two wall heaters in second floor walkway to Filter Building are not operational. The heat and ventilation duct system needs to be cleaned for the entire building. Ventilation grills above the toilet area on first floor are missing. There is only one heater in the Stock Room, which is not working well. Due	Repair or seal the ventilation blower housings and duct connectors on the roof Collect and convey water leakage from the condensate unit to a drain in the Mechanical Room Balance all heat/AC diffusers on the HVAC system as planned Replace heaters/thermostat in first and second floor walkways to Filter Building

Condition	Recommendation
to this condition the Stockroom is not heated to a comfortable temperature. Asbestos-laden pipe insulation on the steam and water lines in the Mechanical Room has been abated. PWSA is working to install new replacement pipe insulation.	Clean the heat and ventilation duct system serving the building Replace missing ventilation grills above the toilet area in the first floor bathroom Restore effective operation of the heater in the Stock Room Complete installation of pipe insulation on the piping in the Mechanical Room
Electrical Systems – Various emergency lighting units throughout the building do not appear to be operable. A receptacle cover is missing on the exterior south wall in the basement door access area. Lighting in the Mechanical Room is poor with one fixture fallen from the ceiling. Covers were removed from two electrical junction boxes with exposed wiring at northeast corner of basement. The present style of T-12 fluorescent light bulbs currently used in many areas of this building and other buildings in the treatment plant and pump stations are no longer manufactured due to the energy inefficiency rating of these bulbs. Replacement of these fixtures with a type that uses a more energy efficient type of bulb should be evaluated, as procurement of replacement bulbs for the current fixtures may prove to be difficult in the future.	Restore operation of emergency lighting units in building Replace receptacle cover on south exterior wall in the basement door access area Upgrade lighting in Mechanical Room Reinstall covers on two electrical junction boxes at northeast corner of basement Evaluate replacement of all present T-12 fluorescent light fixtures
Mechanical Systems (water, plumbing, gas, sanitary) – It is noted that there is no main shut off valve on the gas service line inside the building. Cover is off the water fountain in the first floor bathroom. The water fountain was removed from the wall in the dock area and is not expected to be reinstalled.	Install a main shut off valve on the gas service line inside the building Reinstall cover on water fountain in the first floor bathroom Permanently cap the abandoned utility lines where water fountain in the dock area was removed
Roofing – Good condition, although a past inspection by Phoenix Roofing noted that there are a few repairs that are recommended to be made.	Address minor roof repairs as noted in the latest inspection

Condition	Recommendation
Operations Control Center SCADA System – It was reported that there are few spare parts available to service and to maintain the full operations of the SCADA system with minimal interruption when equipment failures occur. Upgrade/replacement of SCADA system is currently being planned in the initial "concept" phase of the overall project. The work station for the Membrane Filtration Plant will be replaced in the initial "concept" phase in the near future. Installation of a back-up generator is being planned in the near future to serve the OC equipment due to the limited capacity of the present UPS system.	Procure spare parts as needed to service and to maintain reliable operations of SCADA system in the interim period until the system is replaced Upgrade/replace SCADA system as planned Replace work station for the Membrane Filtration Plant as planned Install a back-up generator to serve the OC equipment as planned
Laboratory – All equipment and facilities are in good condition, except the ventilation blower serving the hood above the Autoclave unit does not function.	Restore operation of the ventilation blower serving the hood above the Autoclave unit
Outside / Site Conditions – The Chromalox pavement heat control unit at the loading dock has detached from the supporting conduit and is hanging from its electrical power wire. Since this system has been permanently taken out of service the unsupported control unit should be removed. Both Dock Levelers are inoperable. Operations Staff recommends removal of both units, replacing one of them and plating over the second one. A security gate, complete with remote operating controls inside the building at three locations, has been installed, thereby eliminating the need for an entrance guard.	Remove the pavement heat control unit at the loading dock Remove both inoperable dock levelers; replace one unit and plate over the second one
Miscellaneous – There are a lot of unused materials, equipment and archive records in the basement that need to be organized and consolidated or discarded.	Organize and consolidate materials and equipment and archive records in the basement and discard unusable items

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Water Treatment Plant
Rapid Sand Filters

Condition	Recommendation
Sand Filters – Filtering system, including the underdrains, filtering media, backwash/air manifold piping and control panels, are being replaced under an upcoming project designed by CDM. Bidding of this project is pending approval of a construction permit from DEP. All filters are presently in service, except Filter No.'s 4 and 14, due to malfunctions with various valves and/or actuators.	Renovate rapid sand filtering system in upcoming Filter Renovations project and restore operation of Filter No.'s 4 and 14
Interior Valves – Many of the filters are experiencing numerous and frequent mechanical problems with the effluent and backwashing valves due to faulty hydraulic valve actuators and/or hydraulic system control devices, resulting in performing backwashing operations manually. Many of the hydraulic valve actuators in the piping gallery are leaking. Valve actuators will be rebuilt and/or replaced in the upcoming Filter Renovation project.	Address malfunctions with filter backwash and effluent valve operations by repairing or replacing faulty hydraulic valve actuators and/or hydraulic system control devices, as necessary until addressed in upcoming filter renovation project Maintain a supply of spare parts and components on hand, including actuators as needed
Interior Piping – The backwash piping at the northwest area of the Pipe Gallery is badly corroded. The pipe coupling on the backwash line at the west end of the Pipe Gallery is leaking. Many of the air scour lines piped into the underside of the filters are leaking through the pipe penetrations in the concrete ceiling in the North and South Garages. Above problems will be addressed in the upcoming renovation project. The leaks at the pipe coupling on the influent pipe at Filter No.'s 14 and 16 were resolved. Leaks are noted on the 6" water line in Pipe Gallery near the bottom of the east stairs. Half of the piping was painted in the Pipe Gallery and	Resolve leaks in corroded piping and at pipe coupling on backwash line at the west end of Pipe Gallery Repair leaks in air scour lines piped into the underside of filters in the North and South Garages Resolve leaks at the 6" water line in Pipe

Condition	Recommendation
the paint is badly peeling on the other half of the piping. This should be addressed in the upcoming project. There are numerous leaks in the piping in the Backwash Valve pit. The wooden supports under the South 72" Filtered Water line in the Backwash valve pit are extremely deteriorated and need replaced as soon as possible.	Gallery at the east stairs Eliminate the leaks in the piping and appurtenances in the Backwash Valve Pit Replace Supports under the South 72" Filtered Water line as soon as possible
Filter Control System (Electronic and Hydraulic systems) – Noted leaking utility water control lines and isolation valves at some of the Leopold Valve Packs. System components will be replaced/upgraded in the upcoming Filter Renovation project.	Resolve leaks in utility and hydraulic water lines and valves at filter valve control station racks in Pipe Gallery
Backwash Pump and System – The pressure regulating valve in the Backwash Valve Pit is leaking water through a disconnected control line pipe. The Backwash Pump, including the spare unit, will be rebuilt under the upcoming Filter Renovation project.	Reconnect control line on pressure regulating valve in the Backwash Valve pit Rebuild Backwash Pump, including the spare unit under the upcoming Filter Renovation project
Filter System Auxiliary Systems - Some of fiberglass backwash troughs in the filters have been damaged in the past, resulting from failure of their support at the wall. The integrity of the trough supports will be evaluated and deficiencies addressed in the upcoming Filter Renovation project.	Evaluate integrity of fiberglass backwash trough supports at the filter walls and address deficiencies
Air Scour Blower Room - Air Scour Blower No. 2 was put back in service. Noted that there was no oil in the bearing reservoir of this blower. Damper was removed on the air supply duct and is setting on the top of the ventilation duct. This only allows inside air from the room to be drawn through the blowers, thereby bypassing the outside air intake.	Install oil in bearing oil reservoir of Blower No. 2 Reinstall the damper on the air supply duct
Backwash Wastewater – Design and construction of a new backwash water holding tank and pumping facilities and dedicated force main to the Ross Pump Station Wetwell are being constructed under a current project to provide more efficient recycling of backwash water to the head of the plant without overflow discharge to the river. The new tank serves to replace the former tank (Backwash Retention Basin) located next to the West Intake Structure. Also See "WTP - Raw Water Intakes - Backwash Retention Basin" Evaluation report, which includes information for the status of this former holding tank.	Coordinate completion of construction of the new backwash water holding tank and pumping facilities
Instrumentation - Abandoned BIF Backwash Valve Control instrumentation at west end of South Garage should be removed. Some of the Effluent Flow meters are inaccurate and should be recalibrated.	Remove abandoned BIF instrumentation at west end of South Garage Recalibrate the Effluent Flow meters

Condition	Recommendation
Building Interior (Structural/Architectural) – Some of the cracks in the ceiling of the North and South Garage (beneath the filters) leak water from the filters. The leaks from the concrete ceiling at Filter No.'s 1 and No. 3 (South Garage) and Filter No. 14 (North Garage) that were previously noted are no longer present. The grating over the piping/valve pits at the east end of the North Garage, some of the grating at the west end of the North Garage and the west end of the South Garage and Pipe Gallery are badly rusted and deteriorated. The valve pit at the west end of the North Garage is filled with water, which is backed up from the flooded pit in the South Garage. The frame of the man door from the Pipe Gallery to the west end of South Garage and the door from the OC area to the Filter Gallery are both out of alignment. The roll up housing on the overhead door at the west end of the South Garage was removed. The exterior man door at the west end of the Pipe Gallery and the door at east end of North Garage were repaired. The man door at the west end of the Filter Gallery is out of adjustment. There are spalled areas of concrete noted in the ceiling in the north garage.	Reseal active leaking cracks in ceiling of the North and South Garages, beneath filters by pressure grouting Replace deteriorated grating over the piping/valve pits in the west end of South Garage and Pipe Gallery and east and west ends of the North Garage Realign and re-anchor the door frame at southwest area of Pipe Gallery and the door from the OC area to the Filter Gallery Reinstall roll up cover on overhead door at the west end of the South Garage Resolve problem with exterior door at west end of Filter Gallery Closely inspect the ceiling in the Garages to identify spalled areas of concrete and address repairs as needed
Building Exterior (Structural/Architectural) – Areas of spalled and deteriorated concrete were noted on walls at the west half of the south side of the building exterior. Some minor deterioration is also noted on the north side and south end of the west side of the building.	Repair deteriorated areas of concrete walls of the building exterior where noted
Electrical System (includes lighting) – Some new light fixtures were installed in the South Garage, but the old replaced fixtures were abandoned and left in place. There are many lighting lamps out in the Filter and the Pipe Galleries. Several lights in the garage areas are not lit or are not operational. Some light fixtures have been removed in the North Garage and wiring left exposed. Many of the emergency lighting fixtures do not operate throughout the Filter Building. The present style of T-12 fluorescent light bulbs currently used in many areas of this building and other buildings in the treatment plant and pump stations are no longer manufactured due to the energy inefficiency rating of these bulbs. Replacement of these fixtures with a type that uses a more energy efficient type of bulb should be evaluated, as procurement of replacement bulbs for the current fixtures may prove to be difficult in the future.	Remove abandoned light fixtures in South Garage Re-lamp and/or replace nonfunctional or missing light fixtures in the Filter Gallery, Pipe Gallery and Garage areas as needed Restore operation of emergency lighting fixtures throughout the Filter Building Evaluate replacement of all present T-12 fluorescent light fixtures Reinstall electrical junction box covers at the

Condition	Recommendation
Electrical junction box covers are off, with wiring hanging out at the sewage sump in South Garage and at the heating unit at the east end of North Garage. Since most of receptacles in the South Garage do not work they need to be replaced. Some of the flood lights are not operational in the Filter Gallery. Wires are hanging exposed at the heater near the west end of the South Garage. A backup power generator is being proposed in the near future to serve the turbidimeters in the Filter Pipe Gallery and the Pre-Filter and Post-Filter Chlorination Feed Systems in the North Garage. See "WTP - Operations Building; Electrical System". Cover is off of the lighting panel in the South Garage near Filter No. 9.	sewage sump in South Garage and at the heating unit at the east end of North Garage Replace receptacles and power feed in the South Garage Restore operation of flood lights in Filter Gallery Conceal wiring at the heater near the west end of the South Garage Reinstall cover on the lighting panel in the South Garage near Filter No. 9
Heating and Ventilation – Presently there is no heat being delivered into the North Garage, resulting in conditions of high humidity and formation of heavy condensation. The heating units at the west and east ends of the North Garage are not operable. Air handling-type heating unit at east end of South Garage has been abandoned and been replaced with an overhead steam unit heater. This air handling-type heating unit should be removed. Condensate units at the east end of North and South Garage are leaking water, which discharges onto the floor, as the drain lines are blocked. A leak was noted in the discharge line at the North Garage condensate unit. The condensate unit in the South Garage electrically trips off at times, whereby the condensate water is discharged out of the vent piping from the condensate tank. A leak is noted at the level device tap in one of these condensate tanks. New motors were installed in the unit heaters in the Filter Gallery and the Pipe Gallery to restore operation. The two heat/ventilation fans between the Pipe Gallery and the two garages that are used to supplement heat to the Garage areas are off and may not be functional. The vent fan at the exterior southwest corner of the building has been removed. Vent fan next to sewage sump in South Garage has been removed and the wall closed with plywood. The fan was left lying on the ground outside the building. The motor operators on the louvers at all four corners of the Filter Building have been removed, rendering the automatic louvers non-functional. Two new vent fans installed in the North Garage and the rooftop fans over the filter area are working well. Leak in steam piping in the storage cage at Filter No. 16 was repaired.	Repair heating units at east and west ends of the North Garage or replace them with an overhead steam unit heater and remove the abandoned heating units Remove abandoned air handler system at east end of the South Garage Resolve leaks at condensate units at east end of both Garages unblock or replace blocked drain piping in order to convey seal water to the drain system Resolve electrical malfunctioning of the condensate unit in the South Garage Restore operation of the two heat/ventilation fans between the Pipe Gallery and the two garages Replace the vent fans at the southwest corner of building and next to the sewage pumps that have been removed Install actuator devices to automate the operation of the air intake louvers at the four

Condition	Recommendation
	corners of Filter Building Leak in steam piping in the storage cage at Filter No. 16 was repaired
Plumbing – The toilet at the east end of the South Garage is out of service.	Restore operation of toilet at the east end of the South Garage
Roofing – Good condition, although a previous inspection by Phoenix Roofing reported that there are a few repairs that are recommended to be made.	Address minor roof repairs as noted in the latest roofing inspection report
Drainage System and Sump Pumps – The original vertical sump pump at the Filter Backwash Valve pit in the South Garage had been removed and replaced with a submersible sump pump; however this sump pump was removed, which left the valve pit flooded, with water overflowing to the river. A permanent sump pump needs to be installed in this valve vault. There is a large opening left in the grating where the original pump was removed. The abandoned controls serving the original sump pump should be removed.	Install permanent sump pump at the sump pit in the Backwash Valve pit in the South Garage Install a hinged cover over the grating opening where replacement sump pump can be accessed Remove abandoned controls from original sump pump
Chemical Storage and Feed Systems – Sodium Hypochlorite pumping system in the east and west ends of the North Garage, serving the Pre-Filter Chlorination and the Post-Filter Disinfection Chlorination processes respectively are working well. A second chlorination pump was installed in the Post-Filter area. See "Ross Pump Station and Chemical Facilities; Chemical Conveying/Piping Systems". The wooden stand that supports the Chlorination Pre-Filter pumps is collapsing. Water is leaking from the air scour piping above the Pre-Filter containment area into and accumulating in the containment area. The HTH dry chlorine that had been stored in the enclosed area at the west end of the North Garage was removed to repair the steam leak and to remove the water-affected drums in this storage area. Construction of a new building at the west end of the Filter Building is being evaluated to provide a new storage area for the HTH chlorine.	Replace the wooden stand at the Pre-Filter Chlorination pumps Resolve and/or divert leak in the air scour piping at the Pre-Filter spill containment area Evaluate construction of a new building at the west end of the Filter Building to provide a new storage area for the HTH chlorine
Miscellaneous – The top is missing from the outdoor fire extinguisher cabinet at the gasoline pump. Noted that there are no fire extinguishers in the Filter Gallery. The Chromalox pavement heat control unit next to the east door, which has been permanently taken out of service, has detached from the supporting conduit and is hanging from its feed wire. Metal lid on the underground chemical line vault on north side of filters is broken (section missing). Noted a	Replace the top of the outdoor fire extinguisher cabinet at the gasoline pump Provide fire extinguishers in the Filter Gallery as required Remove the pavement heat control unit next to

Condition	Recommendation
core-drilled opening in exterior wall in the North Garage at Filter No. 10, which would enable entry of rodents. The VeederRoot leak detection system at the gasoline storage tank is working well. Materials and old equipment are scattered throughout the North and South Garages.	the east overhead door Replace metal lid on underground chemical line vault on north side of filters Seal core-drilled opening in exterior wall at Filter No. 10 Consolidate and orderly store usable materials that are scattered in the garages and discard unusable equipment and materials

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Water Treatment Plant
Raw Water Intakes – East and West Intake Facilities and Backwash Retention Basin

Condition	Recommendation
East Intake Building – The entrance door and hardware are in poor condition. Because the door can not be closed, leaves enter the building and accumulate. Fire extinguisher is missing and cabinet door glass is broken. Vegetation noted growing on building. Sample pumps (one for local sampling and the other serving the lab remotely) are in good operating condition. The grade of the ground in front of the building is very uneven, as previous excavations were never leveled off. A new asphalt access road was constructed in front of this building. The electrical service wiring serving this building was replaced, but the cover was left off of the junction box inside the building with wires hanging out. A breaker was installed in the existing electrical distribution panel to provide independent shut-off of the power service to the West Intake Building. Graffiti is noted on the outside brick walls of the building.	Replace the entrance door and hardware Repair fire extinguisher cabinet and provide an extinguisher Remove vegetation from outside of building Re-grade and level the ground in front of the building Reinstall cover on electrical junction box inside the building and terminate hanging wires Remove Graffiti from the outside brick walls of the building
East Intake Sluice Gates and Screens - Sluice gates are in working condition. The two bar screens are in poor condition and in need of replacement. There is much debris and river sediment in front of the screens. Soundings should be taken to determine the elevation of the river bottom in front of the intakes. The bottom of the flume chambers and intake lines should be inspected by divers or robotic cameras to note the presence of a build-up of river sediment and/or debris.	Replace the bar screens Remove river sediment and debris from front of screens Take soundings to determine the elevation of the river bottom in front of the intakes Inspect the bottom of the flume chambers and intake lines by divers or robotic cameras

Condition	Recommendation
West Intake Building - The entrance door and hardware is in poor condition and inoperable. Entrance access sidewalk in front of building is badly settled and/or missing. Lighting is poor and should be upgraded to Metal Halide fixtures. A cover is off of a receptacle in the building.	Replace the entrance door and hardware Replace sidewalk Upgrade Lighting to Metal Halide fixtures Install cover on receptacle in the building
West Intake Gates - The down-river sluice gate gear operator is out of service and needs to be rebuilt, as one of the cog teeth is broken. The second gate is very hard to operate. The eight sluice gates outside the building are totally inoperable; however restoration of their operation is not warranted at this time. Some of the concrete on the revetment wall at the river and the access steps next to the intake structure are deteriorated. Soundings should be taken to determine the elevation of the river bottom in front of the intakes.	Refurbish the sluice gates and operators as required Repair or replace deteriorated concrete at the revetment wall and the access steps next to the structure Take soundings to determine the elevation of the river bottom in front of the intakes
Backwash Retention Basin – After the construction of a new storage tank and recycle pumps at the Filter Building under the current Backwash Facilities project, this existing tank will be utilized as an overflow structure to serve an emergency back up operation for the new recycle pump station. See "Rapid Sand Filters". Mixer in this basin does not operate although it probably will not be needed in the future. The concrete at the outside face of the south wall is noted to be in very poor condition. A valve access cover is off of the top of the tank. This basin was recently cleaned out to remove blockage in front of the discharge pipe and to remove accumulated sand and coal in the tank.	Remove mixer in the basin Repair/restore concrete at the outside face of the south wall of basin Install valve access cover on top of the tank

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Water Treatment Plant

Ross Pump Station and Chemical Facilities – Includes Boiler Heating Facilities and Sodium Hypochlorite Building and Facilities

Condition	Recommendation
Pumps – Pump No. 2 thrust bearing problems were resolved. The pump is out of service, as the switchgear is presently being replaced for this pump and a VFD controller will be installed. Pump No. 1 is running well although the packing is leaking excessively. Problems have been resolved with this pump thrust bearing. This pump will be taken out of service at the beginning of 2012 for a few weeks when its switchgear is replaced. Filters were installed on the oiling system for Pump No.'s 1 and 2. See "Auxiliary Systems". Pump No. 5 is out of service, as it is being rebuilt under the current Motor and Pump Service Contract. Pump No. 3 is in good running conditions. This pump will be taken out of service for a few weeks when its switchgear is replaced at the beginning of 2012. Pump No. 4 is presently in service and running well after the pump and motor were rebuilt, the switchgear replaced, and a VFD controller installed under the current Switchgear Replacement project. This pump can now be operated effectively at reduced and varied flow rates.	Resolve excessive leaking problem with the packing at Pump No. 1 Incorporate a VFD controller at Pump No. 2 under the Switchgear Replacement contract Complete rebuilding of and restore operation of Pump No.5 under the Motor and Pump Repair Service Contract
Interior Valves and Piping (includes pump isolation, control and surge valves) – The hydraulic controls for pump control valves at Pump No.'s 1, 4 and 5 have been replaced and the cone valve limit switches will be replaced under the current Switchgear Replacement project. The hydraulic actuators on cone valves at Pump No.'s 1, 2 and 4 leak. The actuator at Pump No. 1 will be rebuilt under the Motor and Pump Service Contract. The remote operator for the main butterfly discharge valve at Pump No. 3 does not function properly. The starter will be replaced for the Limitorque actuator on the 72" Effluent Valve. The valve has a history of being very tight and should be exercised after the new starter is installed.	Resolve problem with Pump No. 3 discharge butterfly valve Resolve leaking problems at cone valves at Pump No.'s 2 and 4 and rebuild actuator at Pump No. 1 as planned Exercise-operate the 72" Effluent Valve

Condition	Recommendation
Outside Valves and Piping - The leak that was identified in the leaded joint in the 30" water line inside a valve vault in front of the pump station is in the process of being repaired. This will eliminate the continuous discharge of water into the vault drain line and into the emergency access tunnel area, which discharges into the main building sump. At the northeast corner of the station there are depressions in a large area of the yard and a sinkhole, due to previous leaks and excavations to repair them. Sections of the sidewalk are sunken and damaged. A valve manhole at the northeast corner of the station is open without a cover over it. Water is leaking continuously into the station through a pipe that is being used as a sleeve for electrical conduit. The origination of this water needs to be investigated and eliminated. It is suspected that a leak is present in an underground water line outside the pump station.	Identify source of leaking water entering the northeast corner of the pump station and eliminate it Fill in depressions and sinkhole and re-grade the yard at the northeast corner of the station and replace damaged sections of sidewalk Install a cover over the valve manhole at the northeast corner of the station
Instrumentation and SCADA System – The pump and motor bearing sensor devices at Pump No.'s 1, 4 and 5 are being replaced under the current Switchgear and Motor and Pump Service projects. Upgrade/replacement of the entire SCADA system is being evaluated and monitoring screens are proposed to be installed in the Pump Operating Engineer's office. Raw Water Flow meter has been evaluated and recalibrated as necessary under the Water Audit Project.	Upgrade/replace SCADA system, including all computer equipment in the control room
Pump Station Building Interior (Structural/Architectural) – Noted rusting and deterioration of the electrical conduits, grating and hand railing at Pump No. 1 access platform, and piping and peeling paint on the walls is noted at the northeast corner of the pump area due to water leakage into the station. See "Outside Valves and Piping" for action to eliminate this leaking water. The piping and structural platform in the area of the drainage sumps at the northwest corner of the station are badly rusted and/or deteriorated. Interior wall between the chemical area and Boiler Room, constructed of drywall, is badly damaged, especially near the loading dock. Door and frame were removed from the west door of the Electrical Room in the Chemical area and the door on east side of the room is jammed. Door at the Sewage Pump Room is jammed tight. Door frame in the old locker room is loose from the wall. A floor cover plate at the first floor door leading to the second floor is missing, posing a tripping hazard. Concrete floor in the lime handling area is deteriorated. Some of wall control joints in pump area and in the suction valve pit at Water Pump No. 2 leak ground water and should be grout sealed. Noted and reported that chemical dust migrates from the Chemical Handling area to the Control/Office area. Noted obsolete and unusable materials and parts stocked on the second and third floor. PWSA is planning to remove old clarifier equipment soon, now that Clarifier	Coat and/or replace rusted deteriorated conduits, grating and hand railing at Pump No. 1 access platform and piping, and repaint walls at the northeast corner of pump area Paint and/or replace rusted and deteriorated piping and structural platform in the area of the drainage sump at the northwest corner of the station Replace damaged areas of drywall in Chemical Handling area with a more durable building material Reinstall and/or resolve problems with doors on Electrical Room, Old Locker Room, and Sewage Pump Room Reinstall floor cover plate at the first floor door leading to the second floor

Condition	Recommendation
Renovation project work is completed.	Repair and coat floor in the lime handling area Grout-seal the leaking wall control joints in pump area and suction valve pit at Water Pump No. 2 Construct a partition wall with access door and viewing windows between Chemical Handling area and Control/Office area Remove obsolete and unusable materials and parts from second and third floors
Pump Station Building Exterior (Structural/Architectural) – Stone on the lower portion of the south wall of station is badly deteriorated. The joints in areas of the stone facing around the station need to be re-pointed or re-caulked. A pipe penetration on the east brick wall is open and needs to be patched or sealed. Heavy vines and vegetation are growing on the front and sides of the station, which should be removed for aesthetic reasons and to avoid damage to the mortar joints in the brick and stone. The top of the concrete valve vault next to the Dehumidifier enclosure is deteriorated, probably due to missing roof downspout in this area.	Repair/restore stone on the lower portion of south wall Re-point and/or re-caulk joints in areas of the stone facing around station Patch/seal pipe penetration on the east wall Remove vegetation from the building Repair or reconstruct top of the concrete valve vault next to the Dehumidifier enclosure
Electrical System (includes lighting and battery back-up systems) – Four of the (12) light fixtures in the pump area were replaced with metal halide type fixtures. Replacement fixtures for the other (8) lights were purchased and will be installed in the near future. Lighting fixtures on the second floor (including the air handler equipment room) and third floor chemical areas are in poor condition. The Motor Control equipment for all five pumps in the station is currently being replaced under the current Switchgear Replacement project. Emergency light fixtures throughout station do not operate. Cover is off of electrical junction box and wires hanging out near the Deaerator Unit on third floor, in Pump No. 1 Dehumidifier Enclosure, and next to the Water Softener Tank. Poor lighting is noted in the Sewage Sump Room. Wires are hanging out of a motor connection box at one of the Ferric Chloride Feed pumps. The exit sign is off of the west door on the second floor. The electrical distribution panel on the West Balcony was replaced by "Operations Staff". Emergency generator serving the boiler system, sump pump and select chemical systems is	In the pump area replace remaining lights with metal halide type Replace lighting fixtures on the second floor (including the air handler equipment room) and third floor chemical areas with chemically resistant, sealed type fixtures Complete replacement of MCC equipment in current project Restore operation of emergency light fixtures throughout station Reinstall cover on electrical junction box near the Deaerator Unit on third floor, in Pump No. 1

Condition	Recommendation
working well. Additional loads may be added to this generator to supplement power backup needs to coordinate with the newly proposed emergency generator. See discussion below. D&D Engineering is preparing a scope of work to furnish and install equipment under the Ross Switchgear Project to accommodate hook-up of an emergency generator, which can be used to provide emergency backup power for either Pump No.'s 3, 4 or 5 (one pump) in the event of a power outage. PWSA is in the process of getting approval to purchase a generator to provide this back-up power expeditiously.	Dehumidifier Enclosure, and next to the Water Softener Tank Restore or improve lighting in the Sewage Sump Room Address wires hanging out of a motor connection box at one of the Ferric Chloride Feed pumps Install exit sign at the west door on second floor Install equipment for hook-up of an emergency generator and finalize purchase agreement for the generator
<u>Boiler System, Heating and Ventilation</u> – Two roof-mounted belt driven ventilation fans on third floor operate, but the exhaust damper at the west fan does not open, as the drive belt appears to be slipping. The wall-mounted air intake louver actuators need adjusted or do not operate. There is no direct ventilation in the first floor chemical feed area. One of the two vent fans in the ceiling of the overhead walkway to the Screen Room is not operable. The vent fan in the Sewage Pump Room is not functional. Air dryer at the compressor on the third floor is not operable. The two boilers and auxiliary equipment work well. Operations Staff modified the steam condensate tank in the pump area to eliminate the formation and discharge of steam from the overflow line of the tank. This discharge of steam had previously caused a heavy accumulation of very humid air inside the pump station. Painted surfaces at and near the Condensate Tank are corroded with the paint peeling. The shaft seal is leaking at one of the condensate pumps with water being discharged on the floor of the pump pit. A persistent steam leak is noted in the third floor overhead walkway to the Screen Room. A steam leak was noted in the east section of the Dehumidifier Enclosure and at the southeast corner of the pump pit area. The fire hose in the Boiler Room is collapsing from its wall support. The two heating units in the pump area are malfunctioning, as the fan in one unit does not work and the blower hood does not oscillate on the second unit.	Resolve problem with exhaust damper and/or the west roof vent fan and the air intake dampers on the third floor Provide ventilation facilities in the chemical feed area including exhaust fan(s) and motorized air intake damper(s) Restore operation of vent fan in ceiling of overhead walkway Restore operation of the vent fan in the Sewage Pump Room Restore operation of the Air Dryer at the compressor on the third floor Repaint surfaces at and near the Condensate Tank where corroded and paint is peeling Resolve shaft seal leaking problem at one of the condensate pumps Repair steam leak in the third floor overhead walkway, in the east section of the Dehumidifier Enclosure, and at the southeast corner of the

Condition	Recommendation
	pump pit area Re-secure the support for the fire hose in the Boiler Room Resolve malfunctions of the two heating units and/or steam traps in the pump area
Plumbing System – Packing is leaking badly at a valve on 6" water line at northwest corner of station at the lower mezzanine platform. Many of the isolation valves on the house water line do not shut tightly, and/or are leaking. The 6" valve between Pump No.'s 3 and 5 is broken. Ferric chloride had back-flowed into the utility water lines in the chemical feed area and has damaged existing piping, valves, PRV's and appurtenances. Replacement of the utility water service piping and appurtenances in the Chemical Handling area are being proposed in an upcoming project.	Resolve problem with leaking packing at valve on 6" water line at northwest corner of station at lower Mezzanine platform Resolve problems with the isolation valves on the house water line and/or replace the valves, including the broken valve between Pump No.'s 3 and 5 Replace utility water service piping and appurtenances in the chemical area in upcoming project
Auxiliary Systems – Filters were installed on the pump bearing pressure oil lubrication systems for Pump No.'s 1 and 2. The water separator serving pump No. 4 was eliminated under the current Switchgear project, as the rebuilt pump includes installation of new, improved bearing seals to provide a better water seal inside the bearing housing. The priming systems are functioning satisfactorily. The present softener system that serves to supply treated water to the boilers and soda ash feed system will be replaced and upgraded to a larger capacity system in the near future The fire alarm systems in the pump station and the chemical areas are not in service. The operation should be evaluated and these systems upgraded as necessary to restore trouble-free service.	Replace softener system to a larger capacity system as planned Evaluate fire alarm systems and upgrade as necessary to restore trouble-free service
Dehumidifying System in Valve Vault at Pump No.'s 1 and 2 – Dehumidifier unit is not operational. Piping in the East Valve Pit is badly rusted and needs to be painted and grating is badly rusted and should be replaced. Grating is missing around Pump No. 2 control valve operating platform. The metal roofing is rusted over the entire pit. The two air intake dampers are stuck and do not operate.	Restore operation of Dehumidifier unit in outside valve pit Paint piping and replace grating in East Valve Pit in Dehumidifier enclosure with fiberglass material

Condition	Recommendation
	Install grating around Pump No. 2 control valve Repair and/or recoat rusted areas of the Dehumidifier enclosure roof after the pump station downspout is installed Restore operation of air intake dampers
Roofing, Gutters and Downspouts – Metal roof is rusted in areas mainly at the pipe penetrations. Roof drain downspout is missing on the northeast corner of station, the lower portion of downspout is missing on southeast corner and the downspout is disconnected on the south wall next to the chemical unloading station. Ice is dropping from the disconnected downspout at the northeast corner onto the dehumidifier roof, causing damage to it. Roof at the overhead walkway leaks.	Coat rusted areas of metal roof at pipe penetrations on pump station Replace missing or reconnect roof drain downspouts Address leaks in roof at the overhead walkway
Drainage System and Sump Pumps – Turbine type drainage pump in pump area is in poor condition and out of service. The gas-driven stand-by pump in pump area, which is intended to handle flood waters, is inoperable,. Both submersible sump pumps are operating well. One of them was replaced recently. Due to heavy incoming flows into the building sump both pumps run nearly continuously. Sump pump at Water Pump No. 3 is out of service and been replaced temporarily with a portable submersible pump. The sump area under Pump #5 is filled with water. According to the operators there is no sump pump installed un this sump. Sewage sump pit cover in chemical area is open.	Since an emergency generator was installed several years ago consideration should be given to install a larger electric submersible sump pump to replace the turbine type drainage pump and the gas driven stand-by flood water drainage pump. This pump must be connected to the generator Install new sump pump at Water Pump No. 3 and install a sump pump to address water build-up problem at Pump No. 5 Close/seal sewage sump pit cover
Gas Building on the east side of station - Door is in poor condition and lower panel on door is missing.	Replace the door on the Gas Building
Chemical Storage and Feed Equipment and Systems – The Bindicator level devices for dry chemicals and liquid chemicals are not functional. The two new liquid level devices (Siemens) at Bin No.'s 6 and 8, which serve Ferric Chloride and Cat Floc bins respectively, are working well. The ferric chloride local display has clouded over from chemical exposure and cannot be viewed, although the level can be noted on the HMI computer screen. The three Ferric Chloride bins are floating on the same level. Bin dust-collectors on third floor have not been	Replace Bindicator level equipment for dry chemicals and remove the old Bindicator level devices at all bins Inspect and service chemical bin dust-collectors on third floor to verify effective and efficient operation

Condition	Recommendation
inspected internally or serviced for an extended period of time to verify effective and efficient operation. Old abandoned dust collectors that are stored on the third floor should be removed from the station. The two lime feed systems were replaced over two years ago and are working fairly well, although the lines plug very frequently. PWSA is procuring and plan to install larger injectors that should discharge more solution to yield higher scouring velocities in the piping. Also see "Chemical Conveying/Piping Systems". The Potassium Permanganate Feeder equipment does not provide reliable operation and does not adequately contain chemical dust. Operations Staff has purchased new replacement feeder equipment with an updated system that utilizes a water injector. There is excessive leakage through the shaft seal of the Permanganate Feed Pump. Since the new feed system utilizes a water injector this feed pump will no longer be needed. Operations Staff have determined that liquid sodium permanganate would be cost prohibitive. Also see "Chemical Conveying/Piping Systems" below. The soda ash product is delivered at times with solid clumps, whereby the feeders readily clog. To address this, a screen needs to be installed at the chemical fill line inside the two bins. The soda ash pump at Bin No. 7 was replaced. Vibrator at Bin No. 7 is inoperable. The lines that convey the soda ash to the Clearwell are always clogging due to cold temperatures. Steam is presently injected into the mixing tanks to warm the liquid solution prior to being pumped and softened water is utilized to minimize the formation of minerals in the piping system. See "Chemical Conveying/Piping Systems" below. Ferric Chloride pumps are old and in need of replacement to maintain reliable service. One of these pumps was replaced with a digitally controlled Prominent brand pump, which is operating reliably. The vent lines were replaced on the three Ferric Chloride bins, as they became blocked from corrosion, resulting in accumulation of chemical fumes on the third floor. The dry chemical feeder totalizers do not work at Bin No.'s 4, 7 and 9.	Replace the present Potassium Permanganate Feed system with an updated system Remove old abandoned dust collectors on the third floor from the station Install larger lime feed injectors as planned Install a screen at chemical fill line inside two soda ash bins Repair or replace bin vibrator at Bin No. 7 Replace remaining two Ferric Chloride pumps Restore operation of dry chemical feeder totalizers at Bin No.'s 4, 7 and 9
<u>Sodium Hypochlorite Building and Facilities</u> – The building is in good condition, however, sections of roofing counter flashing are dislodged and need to be re-caulked. The Sodium Hypochlorite Tank No. 1 has been converted permanently to serve as a caustic soda storage tank. Leaks in pipe fittings at Storage Tank No. 1 and most of leaks in caustic soda piping system have been resolved. Sodium Hypochlorite Tank No. 2 is presently out of service until	Re-secure and re-caulk roofing counter flashing Repair leaks in Sodium Hypochlorite Tank No. 2 and restore service of this tank Install a second new Prominent brand pump to

Condition	Recommendation
two leaks in the tank are repaired. Sodium Hypochlorite pumps have been experiencing operational problems with the VFD controls. Operations Staff installed a new Prominent brand pump with a built in VFD and degasification feature to replace one of the four existing dosing pumps. One more Prominent pump will be installed in the near future. The remaining two pumps will be removed, as two pumps will be adequate to accommodate Pre-Chlorine and Pre-Clarifier Chlorine. Due to line clogging problems these pumps are no longer used to dose the sodium hypochlorite to the Clearwell for disinfection. This disinfection service is now provided from the storage tanks installed in the Filter Building North Garage. See "Chemical Conveying/Piping Systems". The sump pump has been replaced with a new self-priming horizontal pump. The coils are presently being replaced in the air handler unit to resolve a leaking condition. The two Caustic Soda Feed Pumps were replaced with Prominent brand pumps.	replace the second of the four existing Hypo Feed pumps and remove the remaining two pumps Restore operation of heating air handler unit
Chemical Conveying/Piping Systems - The lime piping to the Screen Room is clogging often and is being "pigged out" and or jet cleaned routinely. The scouring velocity should be evaluated and consideration given to replace the rigid PVC piping with flexible Tygon tubing (possibly smaller than the present 3" size). Since the sodium hypochlorite storage and feed systems have been installed in the North garage of the Filter Building, these facilities are operating reliably. This chemical is presently being fed exclusively from this location due to the past clogging-prone piping system from the Sodium Hypochlorite Building. Also see "Rapid Sand Filters" where these storage tanks are installed. Operations Staff are evaluating the permanent relocation of the sodium hypochlorite storage and pumping facilities to the west side of the Filter Building, to be housed in a proposed building structure. PWSA continues to deal with clogging problems with the underground soda ash piping from Ross Pump Station to the discharge point in the Inlet Gatehouse, due to blockage from chemical deposition, caused mainly from cold temperatures. This piping was recently replaced through the casing pipes via the underground manholes. Steam is presently injected into the mixing tanks to warm the liquid solution prior to being pumped. This warming treatment is needed for a longer timeframe than when the heating system boilers are normally in service. In order to avoid having to run the heating system boilers exclusively to warm the soda ash chemical solution, PWSA is planning to procure a small boiler to serve the soda ash system.	Evaluate the scouring velocity for the lime feed piping and consider replacing the rigid PVC piping with flexible tubing Operations Staff to evaluate the permanent relocation of the sodium hypochlorite storage and pumping facilities to the west side of the Filter Building, to be housed in a proposed building structure Operations Staff to install a small boiler system as planned and evaluate the permanent relocation of the storage and feed equipment for soda ash to the Fluoride building or a location closer to the injection point in the Inlet Gatehouse

Condition	Recommendation
Operations Staff are evaluating the permanent relocation of the storage and feed equipment for soda ash to the Fluoride Building or a location closer to the injection point in the Inlet Gatehouse, as a long term solution to this clogging problem.	
Miscellaneous – Overhead crane in pump area was inspected by a certified specialist. See report for findings and recommendations. The lights on the crane rail are burned out. The Motor Generator that powered the crane was replaced with a power inverter, which will provide more reliable power service. The main elevator does not work and is out of service. Asbestos-laden pipe insulation on steam and water lines has been identified via testing by an independent laboratory. This will be abated by a specialized outside contractor in 2012. The Operations Staff will install new insulation on the affected sections of piping. There are a lot of unusable parts and materials on the second and third floors of the station that should be removed. Operations Staff will soon remove outdated clarifier parts now that the replacement of the old equipment in the clarifiers has been completed. The pavement at the two doorways on the west side of the station should be expanded to increase the turning radius to better accommodate truck deliveries. See "WTP - Site and Grounds" Evaluation Report.	Address repair recommendations in crane inspection report and re-lamp the light fixtures on the crane rail Resolve operational problems with elevator Abate asbestos-laden pipe insulation on steam and water lines and reinsulated and install new insulation on the affected sections of piping Remove unusable parts and materials on the second and third floors

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Water Treatment Plant
Screen Room, Flash Mix Tanks, Carbon Facilities and 48-Inch Influent Valve Vault

Condition	Recommendation
Traveling Screens and Sluice Gates – The screens are working well. The conveyor unit works better since spray wash nozzles were installed by "Operations Staff" to minimize likelihood of clogging from accumulations of leaves.	
Screen Room Exterior (Structural/Architectural – Building is in good condition. The man door on the east side has been repaired. The overhead door and controls in the lower level are in fair condition, although it does operate satisfactorily.	
Screen Room Interior (Structural/Architectural – The Flash Mix Tank "sight pipe" openings in the floor should have a cap installed over them (two places in Screen Room and one in the Electrical Room). Water leaks through the construction joint next to the lower Carbon Pre-Mix Slurry Transfer pit, causing water damage to equipment and piping systems. This water was confirmed to be treated water, thereby indicating that there may be an underground leak in a utility water line in this area. The bathroom door frame has detached from its wall supports. The door at the overhead walkway is misaligned and is jammed tight and the closer is broken. The frame of one of the Electrical Room doors is loose and/or damaged. The sink and lab bench in the Screen Control Room are in poor condition.	Cover the Flash Mix tank "sight" holes in the floor (three places) Investigate and/or resolve problem with a possible leaking underground water line next to Carbon Pre-Mix Slurry Transfer pit Re-secure / Repair the bathroom door frame Resolve problems with jammed door and closer at the overhead walkway Resolve problems with door fame at Electrical Room Replace the sink and lab bench in the Screen Control Room
Carbon Feed Equipment – The two Carbon Pre-Mix Transfer pumps are in poor condition and unreliable. The third Carbon Slurry pump was replaced. All three pumps are in good operating condition. Two of the three Rotodip Carbon Feeders and all three of the Carbon Feeder Mixers	Replace two Carbon Pre-mix Transfer pumps The Carbon Rotodip Feeders (with mixers) should be replaced with a more updated type

Condition	Recommendation
do not operate. The carbon unloading system is old, leaks carbon dust and provides inefficient operation. It was reported that one of the carbon storage tanks fills with water when the tank is taken out of service. The Carbon Tank Mixers work well in Tank No.'s 1 and 2. The impeller has detached from the mixer shaft in Carbon Tank No. 3. Discharge plug valve at Carbon Slurry Pump No. 3 was cracked.	of feeder Upgrade the carbon unloading equipment to a more efficient system Investigate and resolve problem, whereby one of the carbon storage tanks fills with water when the tank is taken out of service Reinstall the impeller on the mixer in the Carbon Tank No. 3 Replace damaged plug valve at Carbon Slurry Pump No. 3
Flash Mix Tanks – New replacement Flash Mixer No. 4 was replaced by the Operations Staff. Now that all four new mixers have been replaced they are in good operating condition.	
Instrumentation and SCADA System - Bindicator level equipment at carbon feeders is not operational and two units are missing. Upgrade/replacement of SCADA system is anticipated in the near future.	Service or replace Bindicator level equipment at Carbon Feeders Upgrade SCADA system in upcoming project
Electrical System (includes lighting) – The plunger type light switches on the lower level are stuck and do not function. Abandoned wiring at the removed heating unit in Flash Mix Tank area is exposed.	Replace plunger type light switches on the lower level Remove unit heater wiring back to junction box at a Flash Mix Tank area heater
Heating and Ventilation – Condensate tank and associated piping in Carbon Pre-Mix Transfer pit area are badly deteriorated. The steam heater in the Carbon Pre-Mix Transfer pit is totally deteriorated and inoperable, with wiring pulled out of the electrical conduit. Ventilation fan serving the Carbon Pre-Mix Transfer pit area is not operational. The overhead heating unit in the Carbon Slurry Pump area works well. The flexible duct connector at the both rooftop air handlers are badly deteriorated, thereby allowing rainwater to enter the unit and leak through the roof and waste heating air. The coils were recently replaced and the system controls were upgraded using a digital system. The heating system air handlers were recently placed back into service to provide heat to the Clarifier area.	Replace condensate tank, heating unit and associated piping in the lower Carbon Pre-Mix Transfer pit area. Restore wiring at the heating unit Service or replace the ceiling-mounted ventilation fan serving the Carbon Pre-Mix Transfer pit area Replace flex duct connector at both rooftop air handler units Remove abandoned condensate unit in the

Condition	Recommendation
The condensate unit in the Screen Room had been taken out of service and the condensate directed back to Ross PS by gravity. This abandoned equipment should be removed. The two ventilation fans in the Electrical Room and the fan in the bathroom are off and/or not operational. A recessed wall-mounted heater had been removed in the Screen Room, leaving an opening in the wall. The instrument air compressor in the Electrical Room has been serviced and placed into full operation. The air leak at the air dryer next to the compressor has been repaired. The proper operation of the air dryer needs to be verified. Piping insulation is damaged on water and steam lines. Insulation had been removed from the water line next to the Screen Control Room causing excessive condensation and the insulation fell off of steam lines in the lower level. Replacement of affected insulation may be addressed after the asbestos-laden insulation is abated. See "Mechanical Systems (water, plumbing, sanitary)".	Screen Room Restore operation of two ventilation fans in the Electrical Room and the fan in the bathroom Close/trim opening in wall where recessed wall-mounted heater had been removed Verify proper operation of the air dryer in the Electrical Room Repair and/or replace damaged/missing piping insulation on water and steam lines
Roofing, Gutters and Downspouts – Many leaks are noted in the roof with major leakage noted at the roof hatch. Some leakage may be attributed to the deteriorated duct connectors at the rooftop air handler unit. Moss is growing along the edges of the roof. Curb caps at the air handler units are rusting. The PVC roof drain piping at the east end of building is cracked.	Closely inspect condition of roofing and address repairs or total replacement as needed Coat the rusted curb caps
Mechanical Systems (water, plumbing, sanitary) – Lavatory is missing in bathroom. Utility water lines and valves in this area are proposed to be replaced under an upcoming project due to old age and deterioration of the piping system. Abatement of the asbestos-laden piping insulation on this piping will be included in this project.	Provide a lavatory in bathroom Replace deteriorated utility water lines and valves and abate/remove asbestos-laden pipe insulation under an upcoming project
Vault for 48" Influent Control Valve – Piping is rusted and needs painted. Access door is jammed at the threshold and the latch does not work. Flow meter works well. The Influent Control Valve works most of the time, with periodic malfunctions with the PLC. The heaters do not appear to be working, whereby there presently is no heat in the valve vault.	Prepare and paint piping in the vault Resolve problems with access door and hardware Address PLC malfunctions with the 48" Influent Control Valve Restore operation of the heaters in the vault
Miscellaneous – The fire extinguisher is missing from the carbon feed area.	Provide a fire extinguisher in the Carbon Feed area

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Water Treatment Plant
Sedimentation Basins

Condition	Recommendation
Sedimentation Basins – For several years there have been operating problems with the Clarifiers (now resolved) in that sludge was not being removed effectively from the clarifying process. This condition probably has resulted in the carry over of sludge solids to the Sedimentation Basins, resulting in the accumulation of it in these basins. Many of the concrete slabs on the top of the basin slopes are deteriorated. Condition of slabs below the water surface should be inspected when the basins are drained for cleaning.	Drain and inspect the three basins, now that all the Clarifier sludge collecting equipment has been replaced, and remove sludge solids where present Replace deteriorated concrete slabs in basins where present
Access Road and Pavements – Poor condition	Pave the roadway from the gate entrance to the Old Administration Building
Site – Drainage problems are noted on the north side of site with water ponding. Surface runoff water is entering the basins along the north side.	Grade the area immediately adjacent to the basins to drain surface water away from the basins on the north side
Fencing – Fencing is in poor condition with many patches noted and sections partially collapsed on the south and east sides of site. Some collapsing sections of fence on east side of the site and the entrance gate were replaced. The latch on the new gate cannot be padlocked. Heavy accumulations of vines are growing in many areas of the fencing.	Replace damaged sections of fencing and posts as needed Modify gate latch to accommodate a padlock Remove heavy growth of vines from the fence
Gate chamber sluice gates - Operating condition is not known, as they have not been operated for several years.	Test operate sluice gates
Old Administration Building – Plywood window closures and soffit and fascia need painted. Some of the window closures and fascia are deteriorating. Sections of the roof gutters and all four of the downspouts have been torn off the building. Vines are growing on walls of building.	Paint plywood window panels and soffit and fascia and replace deteriorated sections as necessary Install new gutters and downspouts where

Condition	Recommendation
	missing Remove vines from building walls
Instrumentation and SCADA System (includes level pressure transmitter) – Upgrade/replacement of system is planned in the near future. The level instrument is no longer being received at the OC Center.	Evaluate instrumentation and SCADA requirements Restore operation of level instrumentation
Miscellaneous – Yard hydrants are very old and may not be operable. One unit at the East Gate Chamber was torn out of the ground. Two manholes at the east side of the building are missing castings and lids, posing a safety hazard.	Replace yard hydrants Install lids on open manholes

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Water Treatment Plant
Site and Grounds

Condition	Recommendation
Access Road and Pavements – Access road to Inlet Gatehouse is in very poor condition. Sections of pavement at the north side of Aspinwall Pump Station are in poor condition. Many potholes are noted throughout the roadways within the plant site, although major defects have been recently patched with asphalt. The pavement at the two doorways on the west side of Ross Pump Station should be expanded to increase the turning radius to better accommodate truck deliveries. See "WTP - Site and Grounds" Evaluation Report.	Repair or replace deteriorated sections of concrete pavement as required Expand the pavement at the two doorways on the west side of Ross Pump Station
Fencing – The fence on the east and south sides of Ross Pump Station is deteriorated and some sections have partially collapsed. Heavy vegetation is also growing on both sides of the fence northwest of the pump station and on the outside of the fence on the east side of the station.	Remove vegetation from the fencing at Ross Pump Station and East Gate Chamber and repair or replace the fencing as necessary, especially at the area next to the Wet Well at Ross Pump Station
Emergency Access Tunnel – Tunnel is flooded with water, probably due to clogged drain(s) from leaves and vegetation. Because of the flooded condition this tunnel is not usable for emergency access or egress. Water had been discharging continuously from a wash out line from the yard piping. This discharge will be eliminated soon with the repair of a pipeline leak. See "Ross Pump Station – Outside Valves and Piping". A tree is the tunnel access road on the north end of the tunnel, which needs to be removed.	Remove leaves and vegetation from clogged drain(s) at Emergency Access Tunnel Remove tree that is fallen onto the tunnel access road on the north end of the tunnel
Miscellaneous – The railroad crossing signs in front of the plant should be upgraded for better visibility.	Upgrade railroad crossing signs for better visibility

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Brilliant Warehouse

Condition	Recommendation
Building Interior (Structural/Architectural) – The Authority had worked on painting the upstairs and downstairs hallways, but have not completed the work. Painting of the offices may be planned in the near future. Many of ceiling tiles throughout first floor have been discolored, caused from toilet overflowing from second floor and rain water infiltration in the window curtain wall. Paint is badly peeled in the Mechanical Room near the pressure washer. An access door in the wall at the south entrance to the Men's Locker Room was installed to close the opening. Floor tiles are lifting in some of the offices on the second floor.	Complete painting work in office area hallways and paint the offices Replace water-stained and discolored ceiling tiles throughout first floor Repaint walls in the Mechanical Room near the pressure washer Replace flooring where tiles are lifting in some of the offices on the second floor
Building Exterior (Structural/Architectural) – Building siding was damaged at the southeast corner (three places) of building. At times rainwater enters the building through the window wall on the north side of the building when it is wind driven, possibly via an unsealed top window sill or siding flashing, which results in water damaging ceiling tiles in the first floor ceiling. Water runoff from the entrance sidewalk enters the vestibule from underneath the door threshold.	Repair building siding at southeast corner of building Investigate and eliminate leaks in north window wall by caulk-sealing window sill or flashing Provide watertight seal underneath the main entrance door threshold in the vestibule
Doors and Hardware and Windows – All man-doors in the vehicle area were replaced, including installation of new hardware. The overhead door at the southeast area of the vehicle storage area was replaced. One of the doors in the Mechanical Room is missing hardware. All three of the north hallway doors are out of alignment and/or or need adjusted to fully close. The panic hardware on one of them does not function. Weather seals on overhead doors are torn or missing. The hood was removed from the overhead door at the northeast corner of building. The manager requested that windows, which can be opened, be installed at the main office, and at each end of the second floor hallway to provide ventilation during times between the heating	Provide new hardware at Mechanical Room door Align and/or adjust north hallway doors and replace panic hardware on one of them Renew weather seals on overhead doors and reinstall hood at northeast corner of building

Condition	Recommendation
and cooling seasons, however the controls contractor has recommended that the building remain closed, as the AC and/or heating systems are designed to run continuously all year.	
Auxiliary Building Systems - Intrusion alarm system is inoperable. Many of man-door intrusion switches have been disconnected. Proper operation of fire alarm system needs to be evaluated.	Upgrade or replace intrusion alarm system and all field devices Inspect and test operation of fire alarm system and correct malfunctions as necessary
Lighting Systems – A new light fixture is needed at the northwest corner of the building to fully light the storage area. Most of the outside pole fixtures do not work and/or have been damaged. Two of the poles have been removed, as they obstructed traffic around the facility. Wiring at these two fixtures was buried in underground junction boxes; however they are not watertight and have posed an electrical safety concern. Damaged conduits serving light fixtures on south inside wall of the vehicle area had been removed but wiring was left exposed. First floor hallway light fixtures are in poor condition. The stairwell at the east end of the office area is not lighted well enough. An overhead phone cable is hanging on the light pole fixture that is leaning at the north side on the facility. This would be resolved when the damaged pole is addressed.	Install a new light fixture at the northwest corner of the building Replace outside pole light fixture heads with a more reliable type of fixture and repair/replace damaged poles on outside lights Provide weather tight underground junction boxes at two abandoned pole lights Replace removed conduit to conceal wiring on south inside wall of building Replace and/or re-lamp first floor hallway light fixtures Install a new light fixture in the stairwell at the east end of the office area
Heating and Ventilation Systems – All HVAC ductwork, diffusers, grills and intake louver screens are have been cleaned. Damaged insulation on two heating lines in main vestibule was replaced. The HVAC system with new digital controls is providing reliable trouble free operation. One of the Boiler Recirculation Pumps and the air intake dampers and actuators at the two air handling units were replaced under a previous project. The older Boiler Recirculation Pump operation is noisy. The ventilation air intake ducts in the Vehicle Storage area should have grill covers installed over them to keep debris from getting into the ventilation system.	Resolve noisy condition at Boiler Recirculation Pump Install grill covers over the ventilation air intake ducts in the Vehicle Storage area
Plumbing System – The pressure washer unit in the Mechanical Room is providing reliable service. The leak at the potable water backflow preventer in Mechanical Room was fixed. In the Men's Locker Room the toilet stall dividers need to be painted. The two urinals are constantly clogging. One of them is presently out of service.	Paint the toilet stall dividers and investigate the cause of and resolve the clogging problems with the urinals in the Men's Locker Room

Condition	Recommendation
Roofing, Gutters and Downspouts – Roof is in good condition. The roof was inspected, deficiencies were addressed and restoration work as outlined below was completed in an outside contract. Roof drain gutters were cleaned to remove leaves in them. The gutter at the southwest corner was repaired and re-supported, which has eliminated water overflowing down the face of the building siding during rain events. The joints in all of the gutters have been resealed.	
Drainage System and Sumps – Sections of drainage grating are missing in the Vehicle Storage area. These sections need to be replaced and the remaining sections adequately secured in place. Drains in the Vehicle Storage area overload easily and result in flooding conditions on the floor, due to the inadequate design sizing and construction of the oil/grease pit on this drain system. The wash water consistently flows out of the fresh air vent in the oil separator pit onto the pavement on the west side of the building. Frequent clean-out maintenance is required to maximize flow-through efficiency of the oil/grease pit.	Provide replacement sections of drainage grating where missing in the Vehicle Storage area and secure remaining sections of grating Evaluate potential modifications that could be made to the drain system oil/grease pit to maximize flow-through efficiency
Fencing – Southeast corner of building is not secure by fencing. Two front gates at the entrance to the Old and New Warehouses and the gate to the Equalization Chamber access road are in poor condition and warrant replacement. Fencing along the east property line has been damaged. Manager requested a motorized gate with security card access and remote activation at the main entrance gate. Damaged or missing sections of fencing were noted around the perimeter of the site. A missing section of fencing at the southwest corner of the site was reinstalled. Also see "Bruecken Pump Station - Fencing" Evaluation Report, which adjoins this facility.	Install new fencing along east side and new fencing and gate at southeast corner of the building. Install a new motorized gate with security card access and remote activation at the main entrance Install new replacement manual gates to the equalization chamber and the Old Warehouse Replace damaged sections or install new sections of fencing where missing around the perimeter of the site
Site – PWSA continues to deal with minor amounts of earth material sliding off the hillside to the south of the access roadway, using Jersey barriers along the roadway to contain this material and routinely removing loose material collected behind the barriers. There is inadequate signage (old outdated type signs) at the railroad crossing. The undermining condition of the pavement around catch basin on west side of building has been addressed although another catch basin at the northeast corner of the building is now undermining. The catch basin along the curb on the west side of the building is higher than the road pavement, whereby water is ponding. The pavement should be resurfaced to accommodate proper drainage. Manager has	Install new updated-style railroad crossing signs at the track crossing Address undermining of pavement at catch basin on northeast side of building Repave asphalt over entire site, including area where the rising main was repaired, and re-slope pavement between the Old and New Warehouse Buildings to accommodate proper

Condition	Recommendation
requested that the entire site be repaved, as the asphalt is in poor condition and to repave area where the rising main was repaired previously. The truck washout was relocated to the northeast area of the building to avoid interference with travel around the Bruecken Pump Station and to better accommodate handling of the wash water. All stocked materials in the yard have been organized and the site cleaned up.	drainage into the catch basins
Miscellaneous – Fire extinguisher is missing in the Mechanical Room. No deficiencies are noted with the gasoline and diesel fuel storage and pumping facilities. The VeederRoot leak detection systems at the fuel storage tanks are working well. Manager requested installation of security cameras in the Vehicle Storage area to deter theft of stored materials and tools, and around the exterior of the building to maintain security.	Install fire extinguisher in Mechanical Room Install security cameras in the Vehicle Storage area and around the exterior of the building as requested to maintain security
Old Warehouse Building – Ceiling above shower is badly damaged. Sinks are in poor condition, faucets constantly leak water and the shower fixtures need replaced. One of two urinals was removed. The bathroom is currently being used as a storage area. Supporting steel at roof parapet on exterior of building is rusted. Intake ventilation grills on north and south walls are damaged or missing and some are boarded up. Rodents are entering through these openings. The utility air compressor in the shop is unreliable and is undersized to suit shop needs. The two man doors were replaced and new thresholds installed at these doors. The trim and seal materials are missing at the overhead door on the east side of the building. Manager requested that a drain or sump be installed in this building, as there presently is no way to collect and convey wash water in this building. Flue piping penetrations at (2) gas heaters has been inadequately sealed with fiberglass. The blower in the furnace, which is serving the bathroom and storeroom areas, is inoperable. The phone system to this building is presently out of service, due to a suspected problem with the phone wiring from the Main Warehouse.	Replace ceiling in shower and sink and shower faucets/fixtures and install urinal where missing if bathroom facility will be maintained Paint supporting steel at roof parapet at exterior walls Replace intake ventilation grills on north and south walls, including weather dampers Replace utility air compressor Install trim and seal materials where missing at the overhead door on east side of the building Install a drain or grated trench sump and pump in the building. A discharge point would need to be researched Seal flue piping penetrations at (2) gas heaters with permanent sealing materials Service the blower in the furnace Investigate cause of and resolve malfunction of the phone service

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Central Warehouse

Condition	Recommendation
General – The Authority is planning to move the "One-Call" Division to Mission Pump Station after that facility is remodeled, which would serve to resolve the overloading of the office space.	Move "One-Call" Division to Mission Pump Station as planned
Building Interior (Structural/Architectural) – The building is old, in fair condition. Upgrading or remodeling of the office area may enhance operating efficiency. At a minimum, new flooring should be installed. Department of Labor and Industry has recently informed PWSA that the floor tiles, which have asbestos in them, need to be removed. The department has requested that a structural analysis be provided of the mezzanine above the office ceilings to confirm structural adequacy to handle the loading of stored materials on it. Bathroom ceiling is damaged, possibly from previous roof leaks, which have been eliminated. The outside wall in the office at the north side of the building is damaged from water infiltration through the windows. See "Doors and Hardware and Windows". The former Ladies' Room was eliminated when the WTP Operations Staff set up sampling and monitoring equipment in this building several years ago. The WTP Operations Staff advised that this equipment setup will remain permanent. In order to accommodate the reactivation of a Ladies' Room the manager requests that the "One Call" manager's office be converted to a Ladies' Room when this division transfers to Mission Pump Station in the future.	Upgrade or remodel the office area, and replace asbestos-containing flooring tiles Provide structural analysis of loading condition on mezzanine above offices to DL&I or remove stored materials as needed Repair and repaint bathroom ceiling and wall in office at the north side of the building Restore service of the Ladies' Room as discussed
Building Exterior (Structural/Architectural) – The upper parapet wall on the east side is cracked longitudinally, is shifted outward, and may pose a structural risk of collapsing. The air-conditioning units installed in the window openings are supported and bulk-headed with unpainted wood. These units will be eliminated when the boiler is replaced in the near future and can be removed. The stone fascia at the base of the walls around the building and the lower brick mortar joints are deteriorated due to use of salt applied on the sidewalks in the winter months.	Plan a structural evaluation of the upper parapet wall on the east side Remove window air-conditioning units and close window openings after new HVAC equipment is installed Repair and seal the stone fascia at the base of the walls and re-point the lower brick mortar joints

Condition	Recommendation
Doors and Hardware and Windows – The entrance door to the office area is deteriorating and needs new hardware. There are many broken glass block windows and many cracked/open joints between them in the upper and lower walls of the building. The window frames around the building are in poor condition with open gaps along the edges. The window security cages are in poor condition with some of them missing.	Provide new door and hardware at entrance door to the office area Replace broken glass block windows and re-grout or seal the cracked and open joints between them in the upper and lower walls of the building Paint the window frames around the building and seal open gaps along the edges Paint or replace and/or install window security cages and provide where missing
Auxiliary Building Systems – Installation of an intrusion alarm system is planned soon to enhance security. System upgrades will include "swipe card access", new locks and alarming and monitoring service from ADT. The manager requests installation of motion detectors inside the building.	Install intrusion alarm system as planned and evaluate installation of motion detectors inside the building as requested
Lighting and Electrical Systems – The lighting is in good condition since it was upgraded. The cover is off of the phone terminal box.	Reinstall cover on phone terminal box
Heating and Ventilation Systems – The boiler is old and unreliable. Its replacement is being planned by heating season next year. The window AC units and the radiator heating units in the office area will be replaced with an HVAC system, separate from the boiler heating system. The heating units and ventilation fans in the storage area are in good operating condition.	Replace boiler and appurtenant equipment and install new HVAC system in the office area as planned
Plumbing System – There are no doors on the toilet partitions in the men's room. The plumbing system is in good condition.	Install doors on the toilet partitions
Roofing, Gutters and Downspouts – The roof is in good condition, as it was recently replaced	
Site – Fencing around parking areas is in good condition.	
Miscellaneous – The main overhead crane works well. The crane in the south portion of the building is out of service and not utilized or needed. The cable protection guard at the outside southeast corner of building is shifted and damaged, offering minimal protection for the cable mounted to the wall. The fork lift unit is in good operating condition.	Replace cable protection guard at the outside southeast corner of building

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Membrane Filtration Plant at Highland No. 1 Reservoir

Condition	Recommendation
General - Expansion of the plant from 20 MGD to 26 MGD is completed. Pall Corporation has replaced all feed and filtrate piping at the Valve and Filter Module Racks with HDPE material to resolve failures due to corrosion from the high concentration of treatment chemicals. At the same time the racks have been upgraded and additional filter modules were installed to expand the flow capacity of the plant and to address "broken fiber" problems in the modules. DEP has issued the operational permit to proceed with operating the plant at the 26 MGD capacity. Pall Corporation will conduct a 30-day trial-run operating test at the new design flow rate in January 2012.	Continue coordination with Pall Corporation to test the expanded flow capacity of the plant
Feed Pumps – Good operating condition. The broken shaft was replaced in one of the pumps	
Interior Valves and Piping – The 24" stainless steel feed manifold pipe in the pump area is leaking due to the formation of pin holes from deterioration. It is difficult to isolate the two rising mains tied into the plant due to the arrangement of the stop log assemblies in the Hydraulic Control Structure (HCS).	Repair or replace the 24" feed manifold pipe The concrete dividing wall in the HCS should be extended to the top of the structure if rising main isolation is important
Outside Valves and Piping – Good condition	
Instrumentation and SCADA System – Computers and HMI monitors in the Control Room will be replaced in the near future by Pall Corporation. SCADA System equipment will be replaced in the near future in the "Concept" phase of a current project. Replacement of the present communication mode (PC Anywhere over a phone line) with dedicated fiber optics is being incorporated.	Pall Corp to replace the computers and HMI monitors in the Control Room as planned Replace SCADA System equipment in the "Concept" phase of a current project and incorporate dedicated fiber optics to replace the present communication mode

Condition	Recommendation
Pump Station Building Interior (Structural/Architectural) – Coating on the floor of the chemical containment areas has failed and the underlying concrete has deteriorated in some locations. Structural steel and conduit on the first floor has rusted due to water leaking from the second floor.	Recoat the chemical containment areas using Stone Chem 441 and repair concrete substrate where needed Repaint rusted structural steel and conduit on the first floor
Pump Station Building Exterior (Structural/Architectural) – Overhead door actuator was serviced. Building is in good condition.	
Filtering and Backwashing System Equipment - All of original modules have been replaced, as well as the process/instrument air system. The valves are in good condition. Problems with flow meters were resolved. Pall will be addressing problems with Amiad strainers at the filtering racks. Leaves and debris from the reservoir enter the intake lines into the plant and jamb the Kinney Strainers, thereby compromising the filtering operations. See "Highland No. 1 Reservoir" Evaluation report for recommendations to drain and clean the reservoir.	Pall will address problems with Amiad strainers at the filtering racks
Chemical Cleaning and Disinfection Equipment and Systems – Due to the arrangement of the piping, an air release valve needs to be installed on the suction line to maintain proper operation of the CIP pump. The Caustic CIP and Neutralization tanks vent inside the building. It is difficult to heat up and keep the cleaning solutions warm due to the cold temperatures in the building. See "Heating and Ventilation".	Install an air release valve on the CIP Pump suction line Vent Caustic CIP and Neutralization tanks outside the building Insulate the chemical solution lines between the solution tanks and the module racks to minimize cooling of the solutions
Electrical System (includes lighting and battery back-up systems) – Additional and/or replacement lighting fixtures were installed on the second floor in order to provide adequate lighting. The cooling fan on one of the electrical transformers at the back of the building operates very noisily and needs to be replaced.	Replace the cooling fan on one of the electrical transformers at the back of the building
Heating and Ventilation – The heating facilities in this building do not provide adequate heat in the building. Cold temperatures in the building compromise the effectiveness of the rack chemical cleaning solutions for the filtering process and proper storage conditions for temperature sensitive caustic soda. Air conditioning unit serving the MCC room on the second floor was rehabilitated.	Provide additional heating facilities to supplement the existing heating system. Installation of heat pump(s) should be evaluated (possibly roof mounted)

Condition	Recommendation
Plumbing System – The system is in good condition, although the PVC piping that provides backwash water to the Backwash Water Filtering rack has failed a few times due to the moderately high pressure in the building. Replacement of this piping with ductile iron should be evaluated. Water leaking from the filtering racks ponds in areas on the second floor, which may warrant installation of new floor drains.	Evaluate the replacement of the water line piping at the Backwash Water Filtering rack with ductile iron Install new floor drains on the second floor to eliminate ponding of water
Auxiliary Systems – Fire alarm system is out of service due to malfunctioning components. Malfunctioning components in the intrusion alarm system have kept this system out of service, despite previous service calls. A cost estimate has been requested by Operations Staff for the fire and intrusion systems to address the malfunctions. One of the air compressors was rebuilt.	Service Fire and Intrusion Alarm systems to restore service
Roofing, Gutters and Downspouts – Good Condition, although some slate tiles have become loose and fallen from the roof.	Reinstall missing slate tiles
Drainage System and Sump Pumps – The check valve at the connection of the chemical waste line to the sewer outside the building allows chemical and sewage fumes to back-up into the building.	Replace the check valve or modify the connection of the chemical waste line to the sewer outside the building
Site - Slate sidewalk on the north side of the building needs some of the stones reset and re-grouted.	Reset and re-grout slate sidewalk on the north side of the building

PITTSBURGH WATER AND SEWER AUTHORITY
Facilities Evaluation

December 2011

Description: Sewage Pumping Stations

Condition	Recommendation
Lincoln Place (Mifflin Road) Pump Station – Both sewage and priming pumps are in good working condition; however the priming system to accommodate the suction lift pumping conditions requires a high degree of maintenance needs and often fails to work. Presently replacement of the pumps with dry pit submersible grinder type pumps is being evaluated. There is no heat in this station due to an inoperable heating unit and/or controls. The (4) ventilation dampers, louvers and screens are in poor condition and need to be replaced. The dampers are currently in a fixed open position. The sump pump manual electrical starter panel is open. There is lot of debris and unused parts and materials lying in the station. There is an uncovered pipe penetration opening in the floor of the station. There may be some evidence of roof leaks, whereby it should be inspected. The pump suction and discharge piping and supports are in poor condition and badly rusted. The electrical circuit panel and equipment manual electrical starters are old and in fair condition. The SCADA equipment works but needs to be upgraded. Installation of an emergency backup power generator is being reviewed. Reduction of flows to the station by separation of combined sewers is being evaluated. PWSA is negotiating with West Mifflin to abandon this station and discharge this sewage to West Mifflin. All recommendations to address deficiencies included herewith are based on the pumping station remaining in service.	Replace pumps with dry pit submersible grinder type pumps without the need for priming equipment. Remove abandoned priming pumps from the station Repair or replace heating unit and/or controls to restore heat Replace (4) ventilation dampers, louvers and screens and evaluate installation of a supply air fan and automatic exhaust damper actuator Close cover on the sump pump manual electrical starter panel Remove debris and unused parts and materials from the station Install a cover plate over the pipe penetration opening Inspect and address roof repairs or replacement as needed Replace or paint pump suction and discharge piping and supports Replace SCADA equipment in upcoming project Review installation of an emergency backup

Condition	Recommendation
	power generator Evaluate reduction of flows to the station by separation of combined sewers Communicate with West Mifflin to determine the operational fate of this pumping station in the future
Rogers Pumping Station - Both sewage and priming pumps are in good working condition, although one of the pumps operates with a noise that may be a failing bearing. The priming system to accommodate the suction lift pumping conditions requires a high degree of maintenance needs and often fails to work. Presently replacement of the pumps with dry pit submersible grinder type pumps is being evaluated. Access door is deteriorated. Paint is peeling from interior walls. Heater operates. Ventilation louvers and screens are in poor condition, with some screens missing at the ventilation openings. Ventilation dampers are in a fixed open position. The pump suction and discharge piping is in good condition. The electrical circuit panel is in good condition. Cracks are noted in the exterior brick joints. Structural framing supports in the pipe vault under the floor are badly rusted. Although there is no evidence of active leaks, the roofing needs to be inspected and its condition evaluated. The SCADA equipment works but needs to be upgraded. Installation of an emergency backup power generator is being reviewed. Reduction of flows to the station by separation of combined sewers is being evaluated. PWSA is negotiating with West Mifflin to abandon this station and discharge this sewage to West Mifflin. All recommendations to address deficiencies included herewith are based on the pumping station remaining in service.	Investigate and address operating noise from one of the pumps Replace pumps with dry pit submersible grinder type pumps without the need for priming equipment Replace access door Paint interior walls Evaluate installation of a supply air fan and automatic exhaust damper actuators Replace screens, dampers, and louvers over the ventilation openings Repair and re-point the brick joints where cracked Paint structural framing supports in the pipe vault Inspect and address roof repairs or replacement as needed Replace SCADA equipment in upcoming project Review installation of an emergency backup power generator Evaluate reduction of flows to the station by separation of combined sewers

Condition	Recommendation
	Communicate with West Mifflin to determine the operational fate of this pumping station in the future
Browns Hill Pumping Station – Both sewage and priming pumps are in good working condition; however the priming system to accommodate the suction lift pumping conditions requires a high degree of maintenance needs and often fails to work. The metal pump support base plate, an integral part of the package pump station, is badly deteriorated. The hinged access door over the station wet well chamber is deteriorated. Presently replacement of the pumps with submersible grinder type pumps is being evaluated. The metal cover plate and the top section of concrete over the manhole on the west side of the station are badly deteriorated. Fencing is in poor condition and rusted. The SCADA equipment works but needs to be upgraded. Installation of an emergency backup power generator is being reviewed. Reduction of flows to the station by separation of combined sewers is being evaluated.	Replace pumps with submersible grinder type pumps without the need for priming equipment, including the metal pump support base plate, and top cover housing and the hinged access door over the station wet well chamber Replace metal cover plate and top section of the concrete over the manhole on the west side of station Replace fencing fabric Replace SCADA equipment in upcoming project Review installation of an emergency backup power generator. Evaluate reduction of flows to the station by separation of combined sewers
Evergreen Road Pumping Station) – Both sewage and priming pumps are in good working condition; however the priming system to accommodate the suction lift pumping conditions requires a high degree of maintenance needs and often fails to work. Presently replacement of the pumps with dry pit submersible grinder type pumps is being evaluated. The access door over the wet well is badly rusted and in poor condition. There are old abandoned pump controls in the station. The door needs to be painted. The roofing shingles are in poor condition, gutters are damaged and both downspouts are missing. The fascia needs painted. The fencing is out of alignment with a large gap between the gate panels. The pump suction and discharge piping and supports are in poor condition and badly rusted. The electrical circuit panel and equipment manual electrical starters are old and in fair condition. The ventilation dampers are in fair condition, but installation of a forced air fan should be evaluated. The ceiling tiles are in poor condition and should be replaced or painted. The SCADA equipment works but needs to be	Replace pumps with dry pit submersible grinder type pumps without the need for priming equipment Replace access door over the wet well Remove old abandoned pump controls in the station Paint front door Replace roofing shingles gutters and downspouts and paint fascia Realign fencing and gate panels

Condition	Recommendation
upgraded. Installation of an emergency backup power generator is being reviewed.	Paint pump suction and discharge piping and supports Evaluate installation of a supply air fan and automatic exhaust damper actuators Replace or paint ceiling tiles Replace SCADA equipment in upcoming project Review installation of an emergency backup power generator

APPENDIX F

MUNICIPAL BOND INSURANCE POLICY ISSUED ON JUNE 12, 2008

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FINANCIAL SECURITY ASSURANCE®

MUNICIPAL BOND INSURANCE POLICY

ISSUER:

BONDS:

Policy No.: -N

Effective Date:

Premium: $

FINANCIAL SECURITY ASSURANCE INC. ("Financial Security"), for consideration received, hereby UNCONDITIONALLY AND IRREVOCABLY agrees to pay to the trustee (the "Trustee") or paying agent (the "Paying Agent") (as set forth in the documentation providing for the issuance of and securing the Bonds) for the Bonds, for the benefit of the Owners or, at the election of Financial Security, directly to each Owner, subject only to the terms of this Policy (which includes each endorsement hereto), that portion of the principal of and interest on the Bonds that shall become Due for Payment but shall be unpaid by reason of Nonpayment by the Issuer.

On the later of the day on which such principal and interest becomes Due for Payment or the Business Day next following the Business Day on which Financial Security shall have received Notice of Nonpayment, Financial Security will disburse to or for the benefit of each Owner of a Bond the face amount of principal of and interest on the Bond that is then Due for Payment but is then unpaid by reason of Nonpayment by the Issuer, but only upon receipt by Financial Security, in a form reasonably satisfactory to it, of (a) evidence of the Owner's right to receive payment of the principal or interest then Due for Payment and (b) evidence, including any appropriate instruments of assignment, that all of the Owner's rights with respect to payment of such principal or interest that is Due for Payment shall thereupon vest in Financial Security. A Notice of Nonpayment will be deemed received on a given Business Day if it is received prior to 1:00 p.m. (New York time) on such Business Day; otherwise, it will be deemed received on the next Business Day. If any Notice of Nonpayment received by Financial Security is incomplete, it shall be deemed not to have been received by Financial Security for purposes of the preceding sentence and Financial Security shall promptly so advise the Trustee, Paying Agent or Owner, as appropriate, who may submit an amended Notice of Nonpayment. Upon disbursement in respect of a Bond, Financial Security shall become the owner of the Bond, any appurtenant coupon to the Bond or right to receipt of payment of principal of or interest on the Bond and shall be fully subrogated to the rights of the Owner, including the Owner's right to receive payments under the Bond, to the extent of any payment by Financial Security hereunder. Payment by Financial Security to the Trustee or Paying Agent for the benefit of the Owners shall, to the extent thereof, discharge the obligation of Financial Security under this Policy.

Except to the extent expressly modified by an endorsement hereto, the following terms shall have the meanings specified for all purposes of this Policy. "Business Day" means any day other than (a) a Saturday or Sunday or (b) a day on which banking institutions in the State of New York or the Insurer's Fiscal Agent are authorized or required by law or executive order to remain closed. "Due for Payment" means (a) when referring to the principal of a Bond, payable on the stated maturity date thereof or the date on which the same shall have been duly called for mandatory sinking fund redemption and does not refer to any earlier date on which payment is due by reason of call for redemption (other than by mandatory sinking fund redemption), acceleration or other advancement of maturity unless Financial Security shall elect, in its sole discretion, to pay such principal due upon such acceleration together with any accrued interest to the date of acceleration and (b) when referring to interest on a Bond, payable on the stated date for payment of interest. "Nonpayment" means, in respect of a Bond, the failure of the Issuer to have provided sufficient funds to the Trustee or, if there is no Trustee, to the Paying Agent for payment in full of all principal and interest that is Due for Payment on such Bond. "Nonpayment" shall also include, in respect of a Bond, any payment of principal or interest that is Due for Payment

made to an Owner by or on behalf of the Issuer which has been recovered from such Owner pursuant to the United States Bankruptcy Code by a trustee in bankruptcy in accordance with a final, nonappealable order of a court having competent jurisdiction. "Notice" means telephonic or telecopied notice, subsequently confirmed in a signed writing, or written notice by registered or certified mail, from an Owner, the Trustee or the Paying Agent to Financial Security which notice shall specify (a) the person or entity making the claim, (b) the Policy Number, (c) the claimed amount and (d) the date such claimed amount became Due for Payment. "Owner" means, in respect of a Bond, the person or entity who, at the time of Nonpayment, is entitled under the terms of such Bond to payment thereof, except that "Owner" shall not include the Issuer or any person or entity whose direct or indirect obligation constitutes the underlying security for the Bonds.

Financial Security may appoint a fiscal agent (the "Insurer's Fiscal Agent") for purposes of this Policy by giving written notice to the Trustee and the Paying Agent specifying the name and notice address of the Insurer's Fiscal Agent. From and after the date of receipt of such notice by the Trustee and the Paying Agent, (a) copies of all notices required to be delivered to Financial Security pursuant to this Policy shall be simultaneously delivered to the Insurer's Fiscal Agent and to Financial Security and shall not be deemed received until received by both and (b) all payments required to be made by Financial Security under this Policy may be made directly by Financial Security or by the Insurer's Fiscal Agent on behalf of Financial Security. The Insurer's Fiscal Agent is the agent of Financial Security only and the Insurer's Fiscal Agent shall in no event be liable to any Owner for any act of the Insurer's Fiscal Agent or any failure of Financial Security to deposit or cause to be deposited sufficient funds to make payments due under this Policy.

To the fullest extent permitted by applicable law, Financial Security agrees not to assert, and hereby waives, only for the benefit of each Owner, all rights (whether by counterclaim, setoff or otherwise) and defenses (including, without limitation, the defense of fraud), whether acquired by subrogation, assignment or otherwise, to the extent that such rights and defenses may be available to Financial Security to avoid payment of its obligations under this Policy in accordance with the express provisions of this Policy.

This Policy sets forth in full the undertaking of Financial Security, and shall not be modified, altered or affected by any other agreement or instrument, including any modification or amendment thereto. Except to the extent expressly modified by an endorsement hereto, (a) any premium paid in respect of this Policy is nonrefundable for any reason whatsoever, including payment, or provision being made for payment, of the Bonds prior to maturity and (b) this Policy may not be canceled or revoked. THIS POLICY IS NOT COVERED BY THE PROPERTY/CASUALTY INSURANCE SECURITY FUND SPECIFIED IN ARTICLE 76 OF THE NEW YORK INSURANCE LAW.

In witness whereof, FINANCIAL SECURITY ASSURANCE INC. has caused this Policy to be executed on its behalf by its Authorized Officer.

[Countersignature]

FINANCIAL SECURITY ASSURANCE INC.

By _____

By _____
Authorized Officer

A subsidiary of Financial Security Assurance Holdings Ltd.
31 West 52nd Street, New York, N.Y. 10019

(212) 826-0100

Form 500NY (5/90)

APPENDIX G

FORM OF BOND COUNSEL OPINION

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[PROPOSED FORM OF BOND COUNSEL OPINION]

September __, 2012

The Pittsburgh Water and Sewer Authority
Pittsburgh, Pennsylvania

Re: $26,870,000 The Pittsburgh Water and Sewer Authority Water and Sewer System Subordinate Revenue Refunding Bonds, Series C-1D of 2008 (Term Mode) (the "Bonds")

You have requested our opinion as to the legality of the above designated series of Bonds, issued by The Pittsburgh Water and Sewer Authority (the "Authority") under the provisions of the Pennsylvania Municipality Authorities Act, 53 Pa. Cons. Stat. §§ 5601-5623, as amended (the "Act"), and pursuant to a Subordinate Trust Indenture by and between the Authority and The Bank of New York Mellon Trust Company, N.A., as successor trustee (the "Trustee"), dated as of July 15, 1995 (the "Initial Subordinate Indenture"), as supplemented by a First Supplemental Subordinate Indenture dated as of March 1, 1998 (the "First Supplemental Subordinate Indenture") and a Second Supplemental Subordinate Indenture dated as of June 1, 2008 (the "Second Supplemental Subordinate Indenture" and collectively with the Initial Subordinate Indenture and the First Supplemental Subordinate Indenture, the "Subordinate Indenture") and as further supplemented by an Amending Supplement to the Initial Subordinate Indenture and Second Supplemental Subordinate Indenture dated as of November 1, 2009 (the "First Amendment"), and by a Second Amending Supplement to the Second Supplemental Subordinate Indenture, dated as of September 1, 2012 (the "Second Amendment" and together with the First Amendment and the Subordinate Indenture, the "Amended Subordinate Indenture").

The Bonds were previously reissued in the Term Mode on November 25, 2012 under the Amended Subordinate Indenture and are being reissued in the Term Mode.

In addition, payment of the principal of, and interest on, the Bonds are insured under a municipal bond insurance policy (the "Bond Insurance Policy") issued by Assured Guaranty Municipal Corp.

As Bond Counsel for the Authority, we have examined such law and such certified proceedings and other documents as we have deemed necessary to express this opinion.

In rendering this opinion we have examined and relied upon the opinions of counsel to the Authority with respect, *inter alia*, to the due organization, existence and good standing of the Authority; the authorization, execution and delivery of the documents to which the Authority is a party; the validity and binding effect thereof on the Authority; and the

accuracy of the statements and representations and the performance of the covenants of the Authority set forth in the Amended Subordinate Indenture and in the Authority's Tax Certificate, each as delivered on this date in connection with the issuance of the Bonds.

As to questions of fact material to our opinion, we have relied upon the representations of the Authority contained in the Amended Subordinate Indenture and in the certified proceedings and other certifications of public officials and others furnished to us without undertaking to verify the same by independent investigation.

Based upon the foregoing, we are of the opinion that, under existing law:

1. The Authority has been duly and legally incorporated and validly exists under the Act and has corporate power and lawful authority to execute and deliver the Second Amendment and to reissue the Bonds in a Term Mode.

2. The Second Amendment has been duly authorized, executed and delivered by the Authority and, assuming the due authorization, execution and delivery thereof by the other parties thereto, is a valid and binding obligation of the Authority, enforceable in accordance with its terms.

3. The Bonds have been validly authorized, executed and delivered by the Authority and, when authenticated by the Trustee, constitute valid and binding limited obligations of the Authority entitled to the benefits and security of the Amended Subordinate Indenture and are enforceable in accordance with their terms.

4. Under the laws of the Commonwealth of Pennsylvania, as currently enacted and construed, the Bonds are exempt from personal property taxes in Pennsylvania and the interest on the Bonds is exempt from Pennsylvania personal income tax and Pennsylvania corporate net income tax.

5. Interest on the Bonds is excluded from gross income of the owners of the Bonds for federal income tax purposes under existing law, as currently construed. Interest on the Bonds is not an item of tax preference under the Internal Revenue Code of 1986, as amended (the "Code"), for purposes of the federal alternative minimum tax imposed upon individuals and corporations. Interest on a Bond held by a corporation (other than an S corporation, regulated investment company, real estate investment trust or real estate mortgage investment conduit may be directly subject to alternative minimum tax because of its inclusion in the earnings and profits of the corporate holder. Interest on a Bond held by a foreign corporation may be subject to the branch profits tax imposed by the Code.

Ownership of the Bonds may give rise to collateral federal income tax consequences to certain taxpayers, including, without limitation, financial institutions, property and casualty insurance companies, S corporations with Subchapter C earnings and profits,

individual recipients of Social Security or Railroad Retirement benefits and taxpayers who may be deemed to have incurred or continued indebtedness to purchase or carry the Bonds. We express no opinion as to such collateral federal income tax consequences.

In providing this opinion, we advise you as follows:

a. It may be determined in the future that interest on the Bonds, retroactively to the date of issuance thereof or prospectively, will not be excluded from the gross income of the owners of the Bonds for federal income tax purposes if certain requirements of the Code are not met subsequent to the issuance of the Bonds. The Authority has covenanted in the Subordinate Indenture to comply with all such requirements.

b. The enforceability (but not the validity) of the documents mentioned herein may be limited by bankruptcy, insolvency, reorganization, moratorium or other laws now or hereafter enacted by any state or the federal government affecting the enforcement of creditors' rights generally, and "enforceable in accordance with its (their) terms" shall not mean that specific performance would necessarily be available as a remedy in every situation.

c. The obligations of the Authority under the Amended Subordinate Indenture and the Bonds do not create an indebtedness or pledge the credit or taxing power of the United States of America, the Commonwealth of Pennsylvania or any political subdivision thereof, and the Bonds are limited obligations of the Authority payable solely from the moneys pledged therefor under the Amended Subordinate Indenture and from payments under the Bond Insurance Policy.

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

PEPPER HAMILTON LLP

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