

COMPETITIVE BID NEW ISSUE – Book-Entry Only

RATINGS: See “Ratings of the Bonds” herein

In the opinion of Co-Bond Counsel, assuming continued compliance with certain covenants described herein, under existing laws, regulations, rulings and judicial decisions, interest on the Bonds (including any original issue discount properly attributable to a holder thereof) is excludable from the gross income of the recipients thereof for federal income tax purposes under the Code, and such interest will not be treated as a preference item in calculating the alternative minimum tax that may be imposed on individuals and corporations. Under the Code, interest on the Bonds is to be taken into account in the computation of certain taxes that may be imposed with respect to corporations, including, without limitation, the alternative minimum tax and the foreign branch profits tax. Under the laws of the Commonwealth of Pennsylvania, as enacted and construed on the date hereof, the Bonds are exempt from Pennsylvania personal property taxes and interest on the Bonds is exempt from Pennsylvania personal income tax and Pennsylvania corporate income tax. See the information contained herein under the caption “TAX EXEMPTION.”

\$231,765,069.70

THE PITTSBURGH WATER AND SEWER AUTHORITY

\$93,355,000

**Water and Sewer System First Lien Revenue Bonds,
Series A of 1998**

\$36,440,069.70

**Water and Sewer System First Lien Revenue Bonds,
Series B of 1998**

\$101,970,000

**Water and Sewer System Subordinate Revenue Bonds,
Series C of 1998**

Dated (Current Interest Bonds): March 1, 1998

Dated (Capital Appreciation Bonds): Date of Delivery

Due: September 1, as shown on inside front cover herein

Denomination: Integral multiples of \$5,000

Interest Payable (Current Interest Bonds): March 1 and September 1

First Interest Payment Date (Current Interest Bonds): September 1, 1998

Form: Book-Entry Only

The Water and Sewer System First Lien Revenue Bonds, Series A of 1998 (the “1998 Series A Bonds”), the Water and Sewer System First Lien Revenue Bonds, Series B of 1998 (the “1998 Series B Bonds”) and the Water and Sewer System Subordinate Revenue Bonds, Series C of 1998 (the “1998 Series C Bonds” or “Subordinate Bonds”, and together with the 1998 Series A Bonds and the 1998 Series B Bonds, the “Bonds”) will be special limited obligations of The Pittsburgh Water and Sewer Authority (the “Authority”). The 1998 Series A Bonds and the 1998 Series B Bonds will be issued under a Trust Indenture, dated as of October 15, 1993, as amended and supplemented by a First Supplemental Indenture dated as of July 15, 1995, and by a Second Supplemental First Lien Indenture dated as of March 1, 1998 between the Authority and PNC Bank, National Association, as Trustee (the “First Lien Indenture”). The 1998 Series C Bonds will be issued under a Subordinate Trust Indenture, dated as of July 15, 1995, and a First Supplemental Subordinate Indenture dated as of March 1, 1998 between the Authority and PNC Bank, National Association, as Trustee (the “Subordinate Indenture”, and together with the First Lien Indenture, the “Indentures”).

The 1998 Series A Bonds and 1998 Series C Bonds will be issued as Current Interest Bonds and will pay interest semiannually, from the Dated Date as provided for above. The 1998 Series B Bonds will be issued as Capital Appreciation Bonds and will pay interest at maturity or earlier redemption as described herein.

The Indentures provide that the 1998 Series A Bonds and the 1998 Series B Bonds shall be secured by a first lien pledge and the 1998 Series C Bonds shall be secured by a subordinate pledge of the Receipts and Revenues of the Authority, after deduction of the proper expenses of the operation, maintenance and repair of the water supply, distribution and wastewater collection systems of the Authority (the “Water and Sewer System”), and reserves therefor as provided in the Indentures.

The scheduled payment of the principal of and interest on the 1998 Series A Bonds and the maturity amounts of the 1998 Series B Bonds when due will be guaranteed under an insurance policy to be issued concurrently with the delivery of the 1998 Series A Bonds and the 1998 Series B Bonds by:



Financial Guaranty Insurance Company

FGIC is a registered service mark used by Financial Guaranty Insurance Company, a private company not affiliated with any U.S. Government agency.

The scheduled payment of the principal of and interest on the 1998 Series C Bonds when due will be guaranteed under an insurance policy to be issued concurrently with the delivery of the 1998 Series C Bonds by:

Financial Security Assurance Inc.



The Bonds are issuable only as fully registered bonds initially registered in the name of Cede & Co., as nominee for The Depository Trust Company (“DTC”), New York, New York which will act as securities depository for the Bonds. Purchasers will not receive certificates representing their ownership interest in the Bonds purchased. So long as Cede & Co. is the registered owner, or nominee of DTC, references herein to “Owners” or “registered owners” shall mean Cede & Co., as aforesaid and shall not mean the Beneficial Owners (as defined herein) of the Bonds. Beneficial ownership of the Bonds may be acquired in denominations of \$5,000, principal amount, and any integral multiple thereof.

Principal and interest on the Bonds will be paid by PNC Bank, National Association, Pittsburgh, Pennsylvania, as trustee under the Indentures (the “Trustee”). So long as DTC or its nominee, Cede & Co., is the registered owner, such payments will be made directly to Cede & Co. Disbursement of such payments to the DTC Participants is the responsibility of DTC and disbursement of such payments to the Beneficial Owners is the responsibility of the DTC Participants and the Indirect Participants, as more fully described herein. Interest will be payable on the 1998 Series A Bonds and 1998 Series B Bonds on March 1 and September 1, commencing September 1, 1998 to the registered owners of the Bonds as of the close of business on the fifteenth day of the month preceding the relevant Interest Payment Date (the “Record Date”). Certain Bonds are subject to optional and mandatory redemption as described under heading “Redemption of the Bonds” herein.

THE BONDS ARE LIMITED OBLIGATIONS OF THE AUTHORITY PAYABLE SOLELY FROM THE RECEIPTS AND REVENUES PLEDGED THERETO. NEITHER THE CITY OF PITTSBURGH NOR THE COMMONWEALTH OF PENNSYLVANIA NOR ANY POLITICAL SUBDIVISION THEREOF IS OBLIGATED TO PAY THE PRINCIPAL, REDEMPTION PRICE OF, OR INTEREST ON, THE BONDS, AND NEITHER THE FAITH, CREDIT NOR TAXING POWER OF THE CITY OF PITTSBURGH OR THE COMMONWEALTH OF PENNSYLVANIA OR ANY OTHER POLITICAL SUBDIVISION THEREOF IS PLEDGED TO SUCH PAYMENT. THE AUTHORITY HAS NO TAXING POWER.

The Bonds are offered when, as and if issued by the Authority and received by the Underwriter subject to the approval of the legality of Kutak Rock and Tucker Arensberg, P.C., Co-Bond Counsel. Certain legal matters will be passed upon for the Authority by the Authority’s General Counsel, Dawn A. Borsford, Esquire, and by its Co-Disclosure Counsel, Thorp Reed & Armstrong and Doepken Keevican & Weiss Professional Corporation. The Authority expects that delivery of the Bonds in definitive form will be made in New York, New York, on or about March 2, 1998.

The undersigned acted as financial advisor to the Authority.



financial consultants advising municipal and non-profit enterprises

MATURITY SCHEDULE

The Pittsburgh Water and Sewer Authority

\$93,355,000 Water and Sewer System First Lien Revenue Bonds, Series A of 1998

<u>Maturity (September 1)</u>	<u>Principal Amount</u>	<u>Coupon</u>	<u>Yield*</u>	<u>(September 1)</u>	<u>Principal Amount</u>	<u>Coupon</u>	<u>Yield*</u>
2017	8,455,000	5.000%	5.100%	2022	10,790,000.00	5.100%	5.219%
2018	8,880,000	5.000	5.120	2023	11,345,000.00	5.250	5.232
2019	9,325,000	5.000	5.192	2024	11,940,000.00	5.100	5.220
2020	9,790,000	5.000	5.160	2025	12,550,000.00	5.050	5.192
2021	10,280,000	5.000	5.160				

\$36,440,069.70 Water and Sewer System First Lien Revenue Bonds, Series B of 1998

<u>Maturity (Sept. 1)</u>	<u>Maturity Value</u>	<u>Yield to Maturity</u>	<u>Initial Stated Value</u>	<u>Reoffered Yield to Maturity*</u>	<u>(Sept. 1)</u>	<u>Maturity Value</u>	<u>Yield to Maturity</u>	<u>Initial Stated Value</u>	<u>Reoffered Yield to Maturity*</u>
2017	2,300,000.00	5.179%	848,723.00	5.179%	2024	4,160,000.00	5.265%	1,049,568.00	5.250%
2018	2,300,000.00	5.208	801,757.00	5.208	2025	4,160,000.00	5.266	996,361.60	5.250
2019	2,300,000.00	5.224	759,115.00	5.220	2026	31,755,000.00	5.255	7,242,045.30	5.250
2020	2,300,000.00	5.224	720,958.00	5.220	2027	31,755,000.00	5.313	6,761,909.70	5.310
2021	2,300,000.00	5.260	679,029.00	5.260	2028	31,755,000.00	5.281	6,478,020.00	5.275
2022	2,305,000.00	5.260	646,068.45	5.260	2029	31,755,000.00	5.304	6,105,533.85	5.304
2023	2,300,000.00	5.260	612,053.00	5.260	2030	14,660,000.00	5.229	2,738,927.80	5.225

\$101,970,000 Water and Sewer System Subordinate Revenue Bonds, Series C of 1998

<u>Maturity (September 1)</u>	<u>Principal Amount</u>	<u>Coupon</u>	<u>Yield*</u>	<u>(September 1)</u>	<u>Principal Amount</u>	<u>Coupon</u>	<u>Yield*</u>
2017	9,225,000.00	5.000%	5.154%	2022	11,795,000.00	5.250%	5.250%
2018	9,685,000.00	5.000	5.180	2023	12,415,000.00	5.125	5.270
2019	10,170,000.00	5.000	5.194	2024	13,055,000.00	5.100	5.260
2020	10,680,000.00	5.100	5.220	2025	13,720,000.00	5.050	5.215
2021	11,225,000.00	5.100	5.220				

*Yields submitted by Underwriters on February 23, 1998.

THE PITTSBURGH WATER AND SEWER AUTHORITY

Joseph Preston, Jr.	Chairman
Eugene Ricciardi	Vice-Chairman
Richard Fees	Secretary
Paul Hennigan	Treasurer
Robert Provolt, Sr.	Assistant Secretary/ Assistant Treasurer
Ann J. Davis	Member
Stephen G. Leeper	Member
Timothy K. Equels	Executive Director

AUTHORITY GENERAL COUNSEL

Dawn A. Botsford, Esquire

CO-BOND COUNSEL

Kutak Rock
Pittsburgh, PA
Tucker Arensberg, P.C.
Pittsburgh, PA

CO-DISCLOSURE COUNSEL

Thorp Reed & Armstrong
Pittsburgh, PA
Doepken Keevican & Weiss Professional Corporation
Pittsburgh, PA

AUTHORITY CONSULTING ENGINEER

Chester Engineers
Pittsburgh, PA

TRUSTEE AND PAYING AGENT

PNC Bank, National Association
Pittsburgh, PA

FINANCIAL ADVISOR

Grant Street Advisors
Pittsburgh, PA

UNDERWRITERS (Acting Severally)

ABN AMRO Incorporated	Advest, Inc.
Belle Haven Investments L.P.	Dain Rauscher
Interstate/Johnson Lane Corp.	JP Morgan Securities Inc.
Lehman Brothers	Raymond James & Associates, Inc.
William E. Simon & Sons Municipal Securities Inc.	

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 Bonds or the matters described herein, other than those contained in this Official Statement, 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 Official Statement does not constitute an offer to sell or the solicitation of an offer to buy nor shall there be any sale of the Bonds by any person in any jurisdiction in which it is unlawful for such person to make such offer, solicitation or sale.

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 Official Statement is not to be construed as a contract or agreement between the Authority and the purchasers or holders of any of the Bonds. Any statements made in this Official Statement involving matters of opinion, whether or not expressly so stated, are intended merely as opinion and not as representations of fact. The information contained herein is subject to change without notice and neither the delivery of this Official Statement nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in the affairs of the Authority since the date hereof.

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

The Authority has deemed this Official Statement to be final for the purposes of Rule 15c2-12(b)(3) of the Securities and Exchange Commission.

THE BONDS HAVE NOT BEEN REGISTERED UNDER THE SECURITIES ACT OF 1933, NOR HAVE THE INDENTURES BEEN QUALIFIED UNDER THE TRUST INDENTURE ACT OF 1939, IN RELIANCE UPON EXEMPTIONS CONTAINED IN SUCH ACTS. THE REGISTRATION OR QUALIFICATION OF THE BONDS IN ACCORDANCE WITH APPLICABLE PROVISIONS OF THE SECURITIES LAWS OF THE STATES, IF ANY, IN WHICH THE 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 BONDS OR THE ACCURACY OR COMPLETENESS OF THIS OFFICIAL STATEMENT. ANY REPRESENTATION TO THE CONTRARY MAY BE A CRIMINAL OFFENSE.

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OTHER THAN WITH RESPECT TO INFORMATION CONCERNING FINANCIAL SECURITY ASSURANCE INC. ("FINANCIAL SECURITY") CONTAINED UNDER THE CAPTIONS "1998 SERIES C BONDS - BOND INSURANCE POLICY" AND "FINANCIAL SECURITY ASSURANCE INC." HEREIN, NONE OF THE INFORMATION IN THIS OFFICIAL STATEMENT HAS BEEN SUPPLIED OR VERIFIED BY FINANCIAL SECURITY AND FINANCIAL SECURITY MAKES NO REPRESENTATION OR WARRANTY, EXPRESS OR IMPLIED, AS TO (i) THE ACCURACY OR COMPLETENESS OF SUCH INFORMATION; (ii) THE VALIDITY OF THE 1998 SERIES C BONDS; OR (iii) THE TAX EXEMPT STATUS OF THE INTEREST ON THE 1998 SERIES C BONDS.

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THE PITTSBURGH WATER AND SEWER AUTHORITY

\$93,355,000

Water and Sewer System First Lien Revenue Bonds,
Series A of 1998

\$36,440,069.70

Water and Sewer System First Lien Revenue Bonds,
Series B of 1998

\$101,970,000

Water and Sewer System Subordinate Revenue Bonds,
Series C of 1998

INTRODUCTION

The purpose of this Official Statement, which includes this introductory statement, the cover page and appendices hereto, is to set forth certain information pertaining to The Pittsburgh Water and Sewer Authority (the "Authority"), a body corporate and politic duly created and existing under the Pennsylvania Municipality Authorities Act of 1945 (P.L. 382), as amended, 53 P.S. § 301 et seq. (the "Act"), and to the issuance by the Authority of \$93,355,000 aggregate principal amount, Water and Sewer System First Lien Revenue Bonds, Series A of 1998 (the "1998 Series A Bonds"), \$36,440,069.70 aggregate original issuance amount, Water and Sewer System First Lien Revenue Bonds, Series B of 1998 (the "1998 Series B Bonds") and \$101,970,000 aggregate principal amount, Water and Sewer System Subordinate Revenue Bonds, Series C of 1998 (the "1998 Series C Bonds" or "Subordinate Bonds", and together with the 1998 Series A Bonds and the 1998 Series B Bonds, the "Bonds"). The 1998 Series A Bonds and the 1998 Series B Bonds are being issued pursuant to a Trust Indenture between the Authority and PNC Bank, National Association, as trustee (the "Trustee"), dated as of October 15, 1993 (the "Indenture") as supplemented by the First Supplemental Indenture dated as of July 15, 1995 and the Second Supplemental Indenture dated as of March 1, 1998 (together, the "First Lien Indenture"). The 1998 Series C Bonds are being issued pursuant to a Subordinate Trust Indenture, dated as of July 15, 1995 between the Authority and PNC Bank, National Association, as Trustee as supplemented by the First Supplemental Subordinate Indenture between the Authority and the Trustee dated as of March 1, 1998 (collectively, the "Subordinate Indenture", and together with the First Lien Indenture, the "Indentures").

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, 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 is acquiring 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 "OWNERSHIP AND OPERATIONS" herein.)

The Water and Sewer System provides water distribution service to approximately 82,000 customers and wastewater collection and transmission service to a population of approximately 550,000. The Water and Sewer System does not include wastewater treatment facilities; such facilities are the responsibility of Allegheny County Sanitary Authority, 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.

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, duly enacted on February 6, 1984, approved by the Mayor on February 8, 1984, and effective February 14, 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 issued by the Department of State on December 11, 1989 to include among authorized projects low head dams and facilities for generating surplus electric power.

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.

Membership

The Board of the Authority consists of seven (7) 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, their terms and their principal private affiliations are as follows:

<u>Member</u>	<u>Occupation</u>	<u>Term Expires (First Monday of January)</u>
Joseph Preston Jr. Chairman	Member, Pennsylvania General Assembly	2001
Eugene Ricciardi Vice-Chairman	Member, City Council City of Pittsburgh	1999
Richard Fees Secretary	Treasurer, City of Pittsburgh	2003
Paul Hennigan Treasurer	Director of Finance, City of Pittsburgh	2002
Robert Provolt, Sr. Asst. Secretary-Treasurer	Union Representative	2000
Ann J. Davis	Community Leader	1992*
Stephen G. Leeper	Director of Development Policy City of Pittsburgh	2001

* Board members with expired terms have not been re-appointed nor have successors been named. They continue to serve until such time as a re-appointment or new appointment is made.

Organization Summary

Timothy K. Equels has been Executive Director of the Authority since December 15, 1996. Mr. Equels has a Bachelor of Science Degree in Construction from the University of Florida, and a Masters Degree in Engineering from the University of Washington. Prior to his appointment as Executive Director, he was the Director of Public Works for the City of Johnstown (PA). Mr. Equels is also a retired Naval officer, having served in the Civil Engineer Corps.

The Authority is organized into three operating divisions: Administration and Support, Water and Sewer Operations, and Engineering and Construction.

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

The Water and Sewer Operations Division is responsible for the production and transmission of potable water and the collection and transmission of wastewater. Operating sections within this Division are: Production which includes the water treatment plant and storage facilities; Water Quality management which insures that the water produced meets all health and

safety requirements; Water Operations and Maintenance which is responsible for maintaining and repairing the water distribution system; Sewer operations which is responsible for repairing and maintaining the sewer collection system; and Facilities Management which is responsible for overseeing capital and scheduled facility repairs.

The Engineering and Construction Division is responsible for developing, designing, initiating and monitoring all of the Authority's Capital Improvement Projects. In addition, this Division 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.

OWNERSHIP AND OPERATIONS

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 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 is acquiring 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 totalling approximately Ninety-five Million Eight Hundred Forty-five Thousand Dollars and no cents (\$95,845,000.00) to be made to the City during the initial three (3) years 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 BONDS

Description of the Bonds

The Bonds will be issued as fully registered bonds in book-entry form. The Bonds will be issued in denominations of \$5,000 principal amount (maturity value in the case of the 1998 Series B Bonds), or any integral multiple thereof, and will bear interest at the rates and will mature on the dates and in the amounts set forth on the inside cover of this Official Statement. Principal and interest shall be paid in such coin or currency of the United States of America as at the time of payment is legal tender for the payment of public and private debts. Interest on the Bonds will be computed on the basis of a 360-day year of twelve 30-day months.

Interest shall be payable on the 1998 Series A Bonds and 1998 Series C Bonds on March 1 or September 1 of each year commencing September 1, 1998 (each an "Interest Payment Date"). Each 1998 Series A Bond and 1998 Series C Bond will be initially dated March 1, 1998, and thereafter will be dated as of its date of authentication and will bear interest from the March 1 or September 1, as the case may be, next preceding the date of such 1998 Series A Bond and 1998 Series C Bond to which interest has been paid, unless the date of such 1998 Series A Bond and 1998 Series C Bond is an Interest Payment Date on which interest has been paid, in which event it shall bear interest as of such Interest Payment Date or, if dated prior to the first Record Date, which is August 15, 1998, in which event it shall bear interest from March 1, 1998.

The Bonds are payable as to principal at the principal corporate trust office of the Trustee or any successor trustee or paying agent. Payment of interest on the 1998 Series A Bonds and 1998 Series C Bonds shall be made to the Bondholders of record on the registration books of the Trustee as of the close of business on the fifteenth day of the month (whether or not such day is a business day) next preceding the Interest Payment Date (the "Record Date") by check mailed to such owner at the address shown on the registration books, by wire transfer under certain circumstances, as described below, or in any other manner as may be mutually acceptable to the owner and the Trustee. Defaulted interest with respect to any 1998 Series A Bond and 1998 Series C Bond shall cease to be payable to the holder thereof on the relevant Record Date and shall be payable instead to the registered Bondholder as of the close of business on a Special Record Date for the payment of such defaulted interest established by the Trustee in accordance with the Indenture.

Payment of interest on any 1998 Series A Bond or 1998 Series C Bond shall be made to any owner of \$1,000,000 or more in aggregate principal amount of such Bonds by wire transfer to such owner on any Interest Payment Date upon written notice from such owner received by the Trustee not later than the Business Day preceding the Record Date for the applicable Interest Payment Date, such notice to contain the wire transfer address within the continental United States to which such owner wishes to have such wire directed.

The Bonds are subject to mandatory and optional redemption as described herein under the captions "Optional Redemption," "Mandatory Sinking Fund Redemption," and "Extraordinary Optional Redemption."

Compound Accreted Value of Capital Appreciation Bonds

For the purpose of receiving payment of the principal of and the interest on any 1998 Series B Bonds (the "Capital Appreciation Bonds"), if the principal of all Capital Appreciation Bonds is declared immediately due and payable (such date called "Date of Determination"), the value of each Capital Appreciation Bond will be deemed to be its Compound Accreted Value.

The Compound Accreted Value of a Capital Appreciation Bond is the amount determined according to the formula below, which equals the issue price of the Capital Appreciation Bond with semiannual compounding on each March 1 and September 1.

The Compound Accreted Value of any Capital Appreciation Bond shall be determined by the following formula:

$$CAV = IP [1 + (IY)/2]^T$$

Where

CAV = Compound Accreted Value.

IP = Initial Price at which Capital Appreciation Bond is offered to the public.

IY = Initial Yield to Maturity at which Capital Appreciation Bond is offered to the public, expressed as a decimal.

T = Number of semi-annual periods from the initial dated date of the Capital Appreciation Bond to the Date of Determination, assuming 30-day months and 360-day years.

The Compound Accreted Value of the Capital Appreciation Bonds on each March 1 and September 1 is shown on the Compound Accreted Value Table in Appendix G of this Official Statement.

Book-Entry Only System

The Depository Trust Company ("DTC"), New York, NY, will act as securities depository for the Bonds. The Bonds will be issued as fully-registered bonds registered in the name of Cede & Co. (DTC's partnership nominee). One fully-registered bond will be issued for each maturity date of the Bonds, each in the aggregate principal amount of such maturity, and will be deposited with DTC.

DTC is a limited-purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a member of the Federal Reserve System, a "clearing corporation" within the meaning of the New York Uniform Commercial Code, and a "clearing agency" registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934. DTC holds securities that its participants (the "Participants") deposit with DTC. DTC also facilitates the settlement among Participants of securities transactions, such as transfers and pledges, in deposited securities through electronic computerized book-entry changes in Participants' accounts, thereby eliminating the need for physical movement of securities certificates. Direct Participants include securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations (the "Direct Participants"). DTC is owned by a number of its Direct Participants and by the New York Stock Exchange, Inc., the American Stock Exchange, Inc., and the National Association of Securities Dealers, Inc. Access to the DTC system is also available to others such as securities brokers and dealers, banks, and trust companies that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly (the "Indirect Participants"). The Rules applicable to DTC and its Participants are on file with the Securities and Exchange Commission.

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

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

Conveyance of notices and other communications by DTC to Direct Participants, by Direct Participants to Indirect Participants, and by Direct Participants and Indirect Participants to Beneficial Owners will be governed by arrangements among them, subject to any statutory or regulatory requirements as may be in effect from time to time.

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

Neither DTC nor Cede & Co. will consent or vote with respect to the Bonds. 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 Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Principal and interest payments on the Bonds will be made to DTC. DTC's practice is to credit Direct Participants' accounts on payable date in accordance with their respective holdings shown on DTC's records unless DTC has reason to believe that it will not receive payment on payable date. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of such Participant and not of DTC, the Trustee, or the Authority, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of principal and interest to DTC is the responsibility of the Authority or the Trustee, disbursement of such payments to Direct Participants shall be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners shall be the responsibility of Direct and Indirect Participants.

DTC may discontinue providing its services as securities depository with respect to the 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, bond certificates 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 information in this section concerning DTC and DTC's book-entry system has been obtained from sources that the Authority believes to be reliable, but the Authority takes no responsibility for the accuracy thereof.

In the event that the book-entry only system is discontinued, the following provisions would apply: Bonds may be exchanged for an equal aggregate principal amount of Bonds in other authorized denominations, upon surrender thereof at the principal corporate trust office of the Trustee. The transfer of Bonds may be registered on the books maintained by the Trustee for such purpose only upon the surrender thereof to the Trustee with a duly executed assignment in form satisfactory to the Authority and the Trustee. For every exchange or registration or transfer of Bonds, the Trustee may make a charge sufficient to reimburse it for any tax or other governmental charge required to be paid with respect to such exchange or registration or transfer of the Bonds. The Trustee shall not be required to register the transfer or exchange of any bond (i) during a period beginning at the opening of business fifteen (15) days before the day of the mailing of notice of redemption of the Bonds and ending at the close of business on the day of such mailing, (ii) at any time following the selection of such Bond, in whole or in part, for redemption, or (iii) during the period commencing on a Record Date and ending on the corresponding Interest Payment Date.

In the event that the book-entry only system is discontinued, principal and redemption price will be payable upon surrender of the Bonds at the corporate trust office of the Trustee.

REDEMPTION OF THE BONDS

Optional Redemption

(a) **1998 Series A Bonds.** The 1998 Series A Bonds are subject to redemption, at the option of the Authority, in whole or in part, in the order of maturity selected by the Authority and by lot within a maturity, at any time on or after March 1, 2008. Any such redemption will be made at a redemption price equal to 100% of the principal amount thereof plus accrued interest to the redemption date.

(b) **1998 Series B Bonds.** The 1998 Series B Bonds are not subject to optional redemption.

(c) **1998 Series C Bonds.** The 1998 Series C Bonds are subject to redemption, at the option of the Authority, in whole or in part, in the order of maturity selected by the Authority and by lot within a maturity, at any time on or after March 1, 2008. Any such redemption will be made at a redemption price equal to 100% of the principal amount thereof plus accrued interest to the redemption date.

Mandatory Sinking Fund Redemption

(a) **1998 Series A Bonds.** The 1998 Series A Bonds are not subject to mandatory sinking fund redemption.

(b) **1998 Series B Bonds.** The 1998 Series B Bonds are not subject to mandatory sinking fund redemption.

(c) **1998 Series C Bonds.** The 1998 Series C Bonds are not subject to mandatory sinking fund redemption.

Extraordinary Optional Redemption

The 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 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 for the 1998 Series A Bonds and the 1998 Series C Bonds and upon payment of the Compound Accreted Value of the Capital Appreciation Bonds, as of the date of redemption.

The redemption of the Bonds shall be made in the manner and upon the terms and conditions set forth in the Indentures.

MUNICIPAL BOND INSURANCE

1998 Series A Bonds and 1998 Series B Bonds

Concurrently with the issuance of the 1998 Series A and 1998 Series B Bonds, Financial Guaranty Insurance Company ("Financial Guaranty") will issue its Municipal Bond New Issue Insurance Policy for the 1998 Series A and 1998 Series B Bonds (the "Policy"). The Policy unconditionally guarantees the payment of that portion of the principal of and interest on the 1998 Series A and 1998 Series B Bonds which has become due for payment, but shall be unpaid by reason of nonpayment by the issuer of the 1998 Series A and 1998 Series B Bonds (the "Issuer"). Financial Guaranty will make such payments to State Street Bank and Trust Company, N.A., or its successor as its agent (the "Fiscal Agent"), on the later of the date on which such principal and interest is due or on the business day next following the day on which Financial Guaranty shall have received telephonic or telegraphic notice, subsequently confirmed in writing, or written notice by registered or certified mail, from an owner of 1998 Series A and 1998 Series B Bonds or the Paying Agent of the nonpayment of such amount by the Issuer. The Fiscal Agent will disburse such amount due on any 1998 Series A and 1998 Series B Bonds to its owner upon receipt by the Fiscal Agent of evidence satisfactory to the Fiscal Agent of the owner's right to receive payment of the principal and interest due for payment and evidence, including any appropriate instruments of assignment, that all of such owner's rights to payment of such principal and interest shall be vested in Financial Guaranty. The term "nonpayment" in respect of a 1998 Series A and 1998 Series B Bonds includes any payment of principal or interest made to an owner of a 1998 Series A and 1998 Series B Bonds 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.

The Policy is non-cancellable and the premium will be fully paid at the time of delivery of the 1998 Series A and 1998 Series B Bonds. The Policy covers failure to pay principal of the 1998 Series A and 1998 Series B Bonds on their respective stated maturity dates or dates on which the same shall have been duly called for mandatory sinking fund redemption, and not on any other date on which the 1998 Series A and 1998 Series B Bonds may have been otherwise called for redemption, accelerated or advanced in maturity, and covers the failure to pay an installment of interest on the stated date for its payment.

Generally, in connection with its insurance of an issue of municipal securities, Financial Guaranty requires, among other things, (i) that it be granted the power to exercise any rights granted to the holders of such securities upon the occurrence of an event of default, without the consent of such holders, and that such holders may not exercise such rights without

Financial Guaranty' consent, in each case so long as Financial Guaranty has not failed to comply with its payment obligations under its insurance policy; and (ii) that any amendment or supplement to or other modification of the principal legal documents be subject to Financial Guaranty's consent. The specific rights, if any, granted to Financial Guaranty in connection with its insurance of the 1998 Series A and 1998 Series B Bonds are set forth in the description of the principal legal documents appearing elsewhere in this Official Statement. Reference should be made as well to such description or a discussion of the circumstances, if any, under which the Issuer is required to provide additional or substitute credit enhancement, and related matters.

This Official Statement contains a section regarding the ratings assigned to the 1998 Series A and 1998 Series B Bonds and reference should be made to such section for a discussion of such ratings and the basis for their assignment to the 1998 Series A and 1998 Series B Bonds. Reference should be made to the description of the Issuer for a discussion of the ratings, if any, assigned to such entity's outstanding parity debt that is not secured by credit enhancement.

The Policy is not covered by the Property/Casualty Insurance Security Fund specified in Article 76 of the New York Insurance Law.

Financial Guaranty is a wholly-owned subsidiary of FGIC Corporation (the "Corporation"), a Delaware holding company. The Corporation is a subsidiary of General Electric Capital Corporation ("GE Capital"). Neither the Corporation nor GE Capital is obligated to pay the debts of or the claims against Financial Guaranty. Financial Guaranty is a monoline financial guaranty insurer domiciled in the State of New York and subject to regulation by the State of New York Insurance Department. As of September 30, 1997, the total capital and surplus of Financial Guaranty was \$1,246,695,481. Financial Guaranty prepares financial statements on the basis of both statutory accounting principles and generally accepted accounting principles. Copies of such financial statements may be obtained by writing to Financial Guaranty at 115 Broadway, New York, New York 10006, Attention: Communications Department (telephone number: 212-312-3000) or to the New York State Insurance Department at 25 Beaver Street, New York, New York 10004-2319, Attention Financial Condition Property/Casualty Bureau (telephone number: 212-480-5187).

1998 Series C Bonds

Insurance Policy

Concurrently with the issuance of the 1998 Series C Bonds, Financial Security Assurance Inc. ("Financial Security") will issue its Municipal Bond Insurance Policy for the 1998 Series C Bonds (the "Policy"). The Policy guarantees the scheduled payment of principal of and interest on the 1998 Series C Bonds when due as set forth in the form of the Policy included in Appendix F to this Official Statement.

The Policy is not covered by the Property/Casualty Insurance Security Fund specified in Article 76 of the New York Insurance Law.

Financial Security Assurance Inc.

Financial Security is a New York domiciled insurance company and a wholly owned subsidiary of Financial Security Assurance Holdings Ltd. ("Holdings"). Holdings is a New York Stock Exchange listed company whose major shareholders include Fund American Enterprises Holdings, Inc., The Tokio Marine and Fire Insurance Co., Ltd. and U S WEST Capital Corporation. The shareholders of Holdings are not liable for the obligations of Financial Security.

At September 30, 1997, Financial Security's total policyholders' surplus and contingency reserves were approximately \$788,108,000 and its total unearned premium reserve was approximately \$472,290,000 in accordance with statutory accounting principles. At September 30, 1997, Financial Security's total shareholders' equity was approximately \$894,461,000 and its total net unearned premium reserve was approximately \$402,891,000 in accordance with generally accepted accounting principles.

The financial statements included as exhibits to the annual and quarterly reports filed by Holdings with the Securities and Exchange Commission are hereby incorporated herein by reference. Also incorporated herein by reference are any such financial statements so filed from the date of this Official Statement until the termination of the offering of the Bonds.

Copies of such materials incorporated by reference will be provided upon request to Financial Security: 350 Park Avenue, New York, New York 10022, Attention: Communications Department (telephone (212) 826-0100).

The Policy does not protect investors against changes in market value of the 1998 Series C Bonds, which market value may be impaired as a result of changes in prevailing interest rates, changes in applicable ratings or other causes. Financial Security makes no representation regarding the 1998 Series C Bonds or the advisability of investing in the 1998 Series C Bonds. Financial Security makes no representation regarding the Official Statement, nor has it participated in the preparation thereof, except that Financial Security has provided to the Issuer the information presented under this caption for inclusion in the Official Statement.

ESTIMATED SOURCES AND USES OF FUNDS

Sources:

Bond Proceeds	\$231,765,069.70
Less: Original Issue Discount	(3,750,288.14)
Accrued Interest	27,529.01
1995 Debt Service Reserve Funds	<u>14,634,000.00</u>
Total	\$242,676,310.57

Uses:

Deposit to Escrow Funds	\$194,756,004.28
Deposit to 1998 Capital Project Fund	36,001,907.92
Deposit to 1998 Debt Service Reserve Funds	9,910,443.75
Deposit to Debt Service Funds (Accrued Interest)	27,529.01
Costs of Issuance*	<u>1,980,425.61</u>
Total	\$ 242,676,310.57

*Includes legal fees, bond insurance premiums, debt service reserve surety bond premiums, financial advisor, rating agency, clearing agent, verification agent and Trustee fees, printing costs and other miscellaneous fees and expenses.

REFUNDING PROJECT

The 1998 Series A Bonds are being issued to refund all of the Authority's Water and Sewer System First Lien Revenue Bonds, Series A of 1995 (the "1995 Series A Bonds") which were issued pursuant to the First Lien Indenture which are currently outstanding under the First Lien Indenture in the principal amount of \$89,850,000. A portion of the proceeds of the 1998 Series A Bonds will be deposited with PNC Bank, National Association, as escrow agent (in such capacity, the "1995 A Escrow Agent"), pursuant to an Escrow Agreement dated as of March 1, 1998 between the Authority and the 1995 A Escrow Agent. The 1995 A Escrow Agent will use such proceeds to acquire direct obligations of the United States Treasury which will be sufficient in amount to pay (a) the principal on the 1995 Series A Bonds which mature on September 1 of the years 1998 to and including 2005, (b) the redemption price on September 1, 2005 of all remaining 1995 Series A Bonds and (c) the interest due on the 1995 Series A Bonds on March 1, 1998 and on each March 1 and September 1 thereafter to and including September 1, 2005.

The 1998 Series C Bonds are being issued to refund all of the Authority's Water and Sewer System Subordinate Revenue Bonds, Series B of 1995 (the "1995 Series B Bonds") which were issued pursuant to the Subordinate Indenture and which are currently outstanding in the principal amount of \$98,410,000. A portion of the proceeds of the 1998 Series C Bonds will be deposited with PNC Bank, National Association, as escrow agent (in such capacity, the "1995 B Escrow Agent"), pursuant to an Escrow Agreement dated as of March 1, 1998 between the Authority and the 1995 B Escrow Agent. The 1995 B Escrow Agent will use such proceeds to acquire direct obligations of the United States Treasury which will be sufficient in amount to pay (a) the principal on the 1995 Series B Bonds which mature on September 1 of the years 1998 to and including 2005, (b) the redemption price on September 1, 2005 of all remaining 1995 Series B Bonds and (c) the interest due on the 1995 Series B Bonds on March 1, 1998 and on each March 1 and September 1 thereafter to and including September 1, 2005.

The arithmetical accuracy of the computations establishing the sufficiency of the escrow securities for the purposes of the Escrow Agreements will be verified by Maher Duessel, Certified Public Accountants.

INVESTMENT AGREEMENTS AND OTHER INSTRUMENTS

The Authority may, with the approval of the respective Bond Insurers, enter into one or more investment agreements or other instruments with respect to moneys on deposit in the 1998 Capital Project Fund, Debt Service Funds and/or Debt Service Reserve Funds.

DEBT SERVICE REQUIREMENTS

Upon delivery of the Bonds, in addition to the Bonds, the Authority will have outstanding the 1993 Series A Bonds in the aggregate principal amount of \$253,310,000 and the 1993 Series B Bonds in the aggregate principal amount of \$10,785,000 (the "Prior Bonds"). The following schedule sets forth the debt service requirements on all outstanding bonds of the Authority which will be outstanding upon the delivery on the Bonds.

Year Sept. 1	Prior Bonds			1998 Series A Bonds			1998 Series B Bonds Maturity Value	1998 Series C Bonds			Total Debt Service
	Principal	Interest	Subtotal	Principal	Interest	Subtotal		Principal	Interest	Subtotal	
1998	8,550,000	13,294,622.50	21,844,622.50		2,362,558.75	2,362,558.75					
1999	8,885,000	12,961,172.50	21,846,172.50		4,725,117.50	4,725,117.50		2,592,663.13	2,592,663.13		26,799,844.38
2000	9,245,000	12,605,772.50	21,850,772.50		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,756,616.25
2001	9,635,000	12,212,860.00	21,847,860.00		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,761,216.25
2002	10,065,000	11,788,920.00	21,853,920.00		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,758,303.75
2003	10,505,000	11,335,995.00	21,840,995.00		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,764,363.75
2004	11,000,000	10,852,765.00	21,852,765.00		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,751,438.75
2005	11,515,000	10,335,765.00	21,850,765.00		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,763,208.75
2006	12,060,000	9,788,802.50	21,848,802.50		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,761,208.75
2007	12,640,000	9,209,922.50	21,849,922.50		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,759,246.25
2008	13,260,000	8,590,562.50	21,850,562.50		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,760,366.25
2009	13,920,000	7,927,562.50	21,847,562.50		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,761,006.25
2010	14,620,000	7,231,562.50	21,851,562.50		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,758,006.25
2011	15,350,000	6,500,562.50	21,850,562.50		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,762,006.25
2012	16,345,000	5,502,812.50	21,847,812.50		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,761,006.25
2013	17,410,000	4,440,387.50	21,850,387.50		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,758,256.25
2014	18,540,000	3,308,737.50	21,848,737.50		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,760,831.25
2015	19,425,000	2,428,087.50	21,853,087.50		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,759,181.25
2016	20,340,000	1,505,400.00	21,845,400.00		4,725,117.50	4,725,117.50		5,185,326.25	5,185,326.25		31,763,531.25
2017	1,325,000	539,250.00	1,864,250.00	8,455,000.00	4,725,117.50	13,180,117.50	2,300,000.00	9,225,000.00	5,185,326.25	14,410,326.25	31,754,693.75
2018	1,390,000	473,000.00	1,863,000.00	8,880,000.00	4,302,367.50	13,182,367.50	2,300,000.00	9,685,000.00	4,724,076.25	14,409,076.25	31,754,443.75
2019	1,460,000	403,500.00	1,863,500.00	9,325,000.00	3,858,367.50	13,183,367.50	2,300,000.00	10,170,000.00	4,239,826.25	14,409,826.25	31,756,693.75
2020	1,535,000	330,500.00	1,865,500.00	9,790,000.00	3,392,117.50	13,182,117.50	2,300,000.00	10,680,000.00	3,731,326.25	14,411,326.25	31,758,943.75
2021	1,610,000	253,750.00	1,863,750.00	10,280,000.00	2,902,617.50	13,182,617.50	2,300,000.00	11,225,000.00	3,186,646.25	14,411,646.25	31,758,013.75
2022	1,690,000	173,250.00	1,863,250.00	10,790,000.00	2,388,617.50	13,178,617.50	2,305,000.00	11,795,000.00	2,614,171.25	14,409,171.25	31,756,038.75
2023	1,775,000	88,750.00	1,863,750.00	11,345,000.00	1,838,327.50	13,183,327.50	2,300,000.00	12,415,000.00	1,994,933.75	14,409,933.75	31,757,011.25
2024				11,940,000.00	1,242,715.00	13,182,715.00	4,160,000.00	13,055,000.00	1,358,665.00	14,413,665.00	31,756,380.00
2025				12,550,000.00	633,775.00	13,183,775.00	4,160,000.00	13,720,000.00	692,860.00	14,412,860.00	31,756,635.00
2026								31,755,000.00			31,755,000.00
2027								31,755,000.00			31,755,000.00
2028								31,755,000.00			31,755,000.00
2029								31,755,000.00			31,755,000.00
2030								31,755,000.00			31,755,000.00
Total	264,095,000.00	164,084,272.50	428,179,272.50	93,355,000.00	112,698,696.25	206,053,696.25	166,105,000.00	101,970,000.00	123,656,366.88	225,626,366.88	1,025,964,335.63

SECURITY FOR THE BONDS

Limited Obligations

The Bonds are limited obligations of the Authority. The Bonds do not pledge the general credit or taxing power of the City of Pittsburgh, the Commonwealth of Pennsylvania (the "Commonwealth") or any political subdivision thereof; nor shall the Bonds be deemed a general obligation of the City, the Commonwealth or any political subdivision thereof; nor shall the City, the Commonwealth or any political subdivision thereof (other than the Authority pursuant to its limited obligation) be liable for payment of the principal of, premium, if any, or interest on the Bonds. The Authority has no taxing power.

Pledge of Receipts and Revenues

The 1998 Series A Bonds and the 1998 Series B Bonds, together with the 1993 Series A Bonds and the 1993 Series B Bonds and any additional bonds which are hereafter issued pursuant to the First Lien Indenture (collectively, the "First Lien Bonds"), are secured, on a parity, by a first lien pledge of the Receipts and Revenues of the Water and Sewer System after payment of Current Expenses, each as defined in the First Lien Indenture, together with cash and investments from time to time held in certain funds pursuant to the First Lien Indenture. (See "Summary of Indentures" – Appendix A herein.)

The 1998 Series C Bonds are secured by a subordinate lien on the Receipts and Revenues of the Water and Sewer System, after payment of Current Expenses, together with cash and investments from time to time held in certain funds pursuant to the Subordinate Indenture. The lien on the Receipts and Revenues is subordinate to the lien securing the First Lien Bonds and to payments due to the surety provider with respect to the surety bond held in the Debt Service Reserve Fund pursuant to the First Lien Indenture. (See "FLOW OF FUNDS" herein.)

Debt Service Reserve Fund and Insurance

The Debt Service Reserve Fund will be funded in an amount equal to the maximum annual debt service requirements on the First Lien Bonds and Subordinate Bonds. The Debt Service Reserve Fund may be funded with any combination of cash, investments and surety policies sufficient in total to at all times equal the maximum annual debt service requirements on the First Lien Bonds and Subordinate Bonds. Withdrawals shall be made from the Debt Service Reserve Fund for payment of principal and/or interest on the First Lien Bonds up to an amount not exceeding the maximum annual debt service requirements on the First Lien Bonds. Withdrawals shall be made from the Debt Service Reserve Fund for payment of principal and/or interest on the Subordinate Bonds up to an amount not exceeding the maximum annual debt service requirements on the Subordinate Bonds.

Payments of principal and interest (or maturity value in the case of the 1998 Series B Bonds) on the 1998 Series A Bonds and 1998 Series B Bonds when due are insured by a municipal bond insurance policy to be issued by Financial Guaranty Insurance Company simultaneously with the issuance of the 1998 Series A Bonds and 1998 Series B Bonds. Payments of principal and interest on the 1998 Series C Bonds when due will be insured by a municipal bond insurance policy to be issued by Financial Security Assurance Inc. See "MUNICIPAL BOND INSURANCE" herein.

Debt Service Reserve Fund Policy

Concurrently with the issuance of the First Lien Bonds, Financial Guaranty Insurance Company ("Financial Guaranty") will amend its Municipal Bond Debt Service Reserve Fund Policy (the "Reserve Policy") to extend the term of its existing Reserve Policy to September 1, 2030. The Reserve Policy unconditionally guarantees the payment of that portion of the principal of and interest on the First Lien Bonds which has become due for payment, but shall be unpaid by reason of nonpayment by the Issuer, provided that the aggregate amount paid under the Reserve Policy may not exceed the maximum amount set forth in the Reserve Policy, which maximum amount is \$21,853,920. Financial Guaranty will make such payments to the paying agent (the "Paying Agent") for the First Lien Bonds on the later of the date on which such principal and interest is due or on the business day next following the day on which Financial Guaranty shall have received telephonic or telegraphic notice subsequently confirmed in writing or written notice by registered or certified mail from the Paying Agent of the nonpayment of such amount by the Issuer. The term "nonpayment" in respect of a First Lien Bond includes any payment of principal or interest made to an owner of a First Lien Bond 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.

The Reserve Policy is non-cancellable and the premium will be fully paid at the time of delivery of the First Lien Bonds. The Reserve Policy covers failure to pay principal of the First Lien Bonds on their respective stated maturity dates, or dates

on which the same shall have been called for mandatory sinking fund redemption, and not on any other date on which the First Lien Bonds may have been accelerated, and covers the failure to pay an installment of interest on the stated date for its payment. The Reserve Policy shall terminate on the earlier of September 1, 2030, the scheduled final maturity date of the First Lien Bonds or the date on which no Bonds are outstanding under the authorizing document.

Generally, in connection with its issuance of a Reserve Policy, Financial Guaranty requires, among other things, (i) that, so long as it has not failed to comply with its payment obligations under the Reserve Policy, it be granted the power to exercise any remedies available at law or under the authorizing document other than (A) acceleration of the First Lien Bonds or (B) remedies which would adversely effect holders in the event that the issuer fails to reimburse Financial Guaranty for any draws on the Reserve Policy; and (ii) that any amendment or supplement to or other modification of the principal legal documents be subject to Financial Guaranty's consent.

The Reserve Policy is not covered by the Property/Casualty Insurance Security Fund specified in Article 76 of the New York Insurance Law.

Financial Guaranty is a wholly-owned subsidiary of FGIC Corporation (the "Corporation"), a Delaware holding company. The Corporation is a subsidiary of General Electric Capital Corporation ("GE Capital"). Neither the Corporation nor GE Capital is obligated to pay the debts of or the claims against Financial Guaranty. Financial Guaranty is a monoline financial guaranty insurer domiciled in the State of New York and subject to regulation by the State of New York Insurance Department. As of September 30, 1997, the total capital and surplus of Financial Guaranty was \$1,246,695,481. Financial Guaranty prepares financial statements on the basis of both statutory accounting principles and generally accepted accounting principles. Copies of such financial statements may be obtained by writing to Financial Guaranty at 115 Broadway, New York, New York 10006, Attention: Communications Department (telephone number: 212-312-3000) or to the New York State Insurance Department at 25 Beaver Street, New York, New York 10004-2319, Attention Financial Condition Property/Casualty Bureau (telephone number: 212-480-5187).

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 or constructing capital additions or refunding outstanding First Lien Bonds, upon satisfaction of the conditions set forth in the First Lien Indenture.

The Authority may issue additional bonds on a parity basis with the Subordinate Bonds for any lawful purposes of the Authority, upon satisfaction of the conditions set forth in the Subordinate Indenture.

Covenants of the Authority

Under the Indentures, 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 and (3) to maintain the Water and Sewer System in good repair, working order and condition. (See "Summary of Indentures" – Appendix A herein.) (Also, see "RATE COVENANT" herein.)

Events of Defaults and Remedies

Events of Default under the Indentures include, among other things: (1) the failure to pay principal of or interest on First Lien Bonds and/or Subordinate Bonds when due; (2) the entry of an order or decree appointing a receiver of the Water and Sewer System or of the Receipts and Revenues, that is not vacated, discharged or stayed on appeal within ninety (90) days; (3) the institution of a proceeding the purpose of which is to effect a compromise between the Authority and its creditors; (4) a default by the Authority in the observance of any covenant contained in the Indentures which continues for a period of sixty (60) days after written notice of such default has been given by the Trustee, provided, however, that failure to meet the rate covenant shall not constitute an event of default under the Indentures. A Trustee is not required to give notice of an Event of Default to the Authority or to take any action with respect to the same, unless it receives a written request of the owners of at least 25% in aggregate principal amount of bonds outstanding.

Upon the occurrence or continuance of an Event of Default with respect to First Lien Bonds, the Trustee for the First Lien Bonds may (1) declare the First Lien Bonds immediately due and payable, (2) enter into and take possession of the Water and Sewer System, or (3) commence appropriate judicial proceedings, each upon the conditions set forth in the First Lien Indenture.

Upon the occurrence or continuance of an Event of Default with respect to the Subordinate Bonds, the Trustee for the Subordinate Bonds has the right to judicially seek specific performance with respect to enforcement of the rate covenant and may exercise other remedies, including acceleration of principal, only if the Trustee for the First Lien Bonds shall have first done so. (See "Summary of Indentures" – Appendix A herein.)

FLOW OF FUNDS

The Authority has heretofore established a special fund (the "Revenue Fund") 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*
On the first day of each month moneys are to be transferred to the Operation and Maintenance Fund in an amount equal to the amount budgeted by the Authority for that month for the payment of the Current Expenses as the same become due.
2. *Debt Service Fund – First Lien Indenture*
On or before each Interest Payment Date, moneys in the amount of the interest to come due on the First Lien Bonds on such Interest Payment Date 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.
3. *Debt Service Reserve Fund/Operating Reserve Fund — First Lien Indenture*
On the first day of each month in which there is a deficiency in the Debt Service Reserve Fund/Operating Reserve Fund or if there has been a draw on any surety bond held in the Debt Service Reserve Fund, amounts sufficient to repay any deficiency or repay any such draw, together with expenses due, (the "Policy Costs") in not more than 12 equal monthly payments shall be transferred, as applicable, to the Debt Service Reserve Fund or the Operating Reserve Fund held pursuant to the First Lien Indenture or paid to the surety provider.
4. *Renewal and Replacement Fund – First Lien Indenture*
On the dates and in the amounts 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.
5. *Debt Service Fund/Debt Service Reserve Fund – Subordinate Indenture*
After making the foregoing transfers, on the first day of each month moneys shall be transferred to the Debt Service Fund of the Subordinate Indenture in an amount equal to 1/6th of the interest and 1/12th of the principal to come due on the Subordinate Bonds on the next interest payment or principal payment date, and
6. *Depreciation Reserve Account – First Lien Indenture*
On December 1 of each year moneys shall be transferred to the Depreciation Reserve Account held pursuant to the First Lien Indenture.

RATE COVENANT

Under the Indentures, the Authority has covenanted with the owners of the First Lien Bonds and the Subordinate Bonds to adopt rates complying with either of the following in each fiscal year:

- (1) The Authority will maintain, charge and collect, so long as any of the First Lien Bonds or 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, 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;
 - (b) An amount equal to 120% of the debt service requirements with respect to the First Lien Bonds and Subordinate Bonds for the current fiscal year; or,

- (2) The Authority will maintain, charge and collect, so long as any of the First Lien Bonds or 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 fund 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 fund and may be used to pay debt service on First Lien Bonds and Subordinate Bonds or are applied directly to payment of debt service on First Lien Bonds and Subordinate Bonds), shall be at all times at least sufficient to provide annually:
- (a) Funds to pay all of the Current Expenses;
 - (b) An amount equal to 100% of the debt service requirements with respect to the First Lien Bonds and Subordinate Bonds for the current fiscal year.

Calculation of compliance with the covenant shall be made on the following basis (a) operating revenue, construction fund income, earnings on the Debt Service Reserve Fund, and expenses, including 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 First Lien Bonds and Subordinate Bonds may be treated as if such amounts are amortized over the life of the First Lien Bonds and Subordinate Bonds irrespective of any shorter period over which such costs are actually amortized; and (c) depreciation is specifically excluded from the calculation. Gross revenues shall be reduced by the amount of any payment then due and owing with respect to the surety bond held in the Debt Service Reserve Fund.

The Authority also covenants with the holders of the 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 rate covenant, it will promptly revise its water and 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 Indentures will be remedied before the end of the next ensuing fiscal year.

THE WATER AND SEWER SYSTEM

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, 1,200 miles of mains and service lines, 30,000 valves, 8,000 fire hydrants, nine pumping stations, five reservoirs, and eleven 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 three to five days of normal water usage. In the opinion of the Authority's Consulting Engineer, Chester Engineers, the Water System's treated water quality exceeds all the current standards and levels of the Safe Drinking Water Act and the Pennsylvania Department of Environmental Protection ("DEP").

The sole source of water for the Water System is the Allegheny River. The DEP issued the Authority a Water Allocation Permit in March 1989. This permit is for 100 million gallons per day; however, DEP has advised that they would reevaluate this allocation in the future in the event the Authority's demand increases as a result of growth within the City or through the sale of water to surrounding municipalities. The current average withdrawal of water from the Allegheny River is approximately 65 million gallons per day, and the maximum withdrawal made on any one day was approximately 90 million gallons during the past year. 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.

The Water System currently provides approximately 82,000 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 customers within the City with the balance served by three independent water purveyors.

In 1997, the total amount of water supplied by the Authority was approximately 24 billion gallons, an average of 65 million gallons per day. Approximately 1.5 million gallons per day were sold to several adjacent municipalities for resale to customers within their service areas.

No material decreases in customers or water usage are anticipated in the foreseeable future; however, the Authority is attempting to market its excess supply of water. (See “Consulting Engineer’s Report” – Appendix A, p.II-2 herein.)

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. (See “THE CAPITAL IMPROVEMENT PROGRAM” herein.)

The Sewer System

The wastewater collection and transmission system (the “Sewer System”) is part of a regional system which provides service to about 550,000 people, of which nearly 370,000 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 1,100 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”) under Permit No. 0025984.

The Sewer System also is utilized by 24 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 the sharing of maintenance or reconstruction costs of the Sewer System.

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. Many of these conditions have been or will be eliminated through the implementation of the Authority’s ongoing Capital Improvement Program. There can, however, be no assurance that additional expenditures will not be required to correct the conditions and to comply with environmental laws in effect from time to time.

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. With the continuation of the Capital Improvement Program, the Sewer System will be sufficient to meet foreseeable future demands and provide uninterrupted service to its users.

Description of 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 C.

Water and Sewer Rates

The following tables present the Authority's Water and Sewer Rates and certain data with respect thereto. The data have been derived from the books and records of the Authority and the City.

Year	Water and Sewer Rates ⁽¹⁾									
	Residential		Commercial		Industrial		Wholesale ⁽²⁾			
	Rate	Increase ⁽³⁾	Rate	Increase ⁽³⁾	Rate	Increase ⁽³⁾	Rate	Increase ⁽³⁾		
1988	\$2.30	18 %	\$2.28	18 %	\$2.12	18 %	\$1.98	18 %		
1989	2.42	5	2.39	5	2.23	5	2.08	5		
1990	2.54	5	2.51	5	2.34	5	1.71	-18		
1991	2.67	5	2.64	5	2.46	5	1.80	5		
1992	2.90	8.5	2.86	8.5	2.67	8.5	1.95	8.5		
1993	3.00	3.5	2.96	3.5	2.76	3.5	2.02	3.5		
1994	3.12	4	3.08	4	2.87	4	2.10	4		
1995	3.42	9.5	3.37	9.5	3.14	9.5	2.30	9.5		
1996	3.42	0	3.37	0	3.14	0	2.30	0		
1997	3.42	0	3.37	0	3.14	0	2.30	0		

(1) Rate per 1,000 gallons over minimum use per quarter.

(2) Up to 500,000 gallons

(3) Represents percentage increase over prior year

1996 Water Consumption by Customer Classification⁽¹⁾

Classification	Customers	Percentage of Usage
Residential	76,384	48.8%
Commercial	6,070	23.3
Industrial	194	9.7
Wholesale	21	10.6
Pennsylvania American Water ⁽²⁾	1	7.6
TOTAL	82,671	100.0%

(1) Excludes customers of other water purveyors.

(2) Includes purchases under a long-term contract providing for minimum billings for 4 million gallons per day which expired in September 1996.

Residential customers are the Water System's major block of customers. The "Commercial" category includes water usage by schools, hospitals and various units of government.

A detailed analysis of historical water consumption prepared by the Authority indicates that consumption in any one quarter differed by no more than 3% from the mean consumption level. Therefore, seasonal variability is not a significant factor in water consumption nor in the Water and Sewer System's revenue stream.

1997 Water Rate Survey of Major Area Suppliers

	<u>Rate</u> <u>1,000</u> <u>Gal.</u>	<u>Minimum</u> <u>Charge</u>	<u>Minimum</u> <u>Gallons</u>	<u>Average</u> <u>Charge</u> <u>15,000 Gal.</u> <u>Per Quarter</u>
1. Sharpsburg Borough	\$3.00	\$12.00	4,000	\$45.00
2. West View Municipal Authority	2.19	10.35	0	46.05
3. Monroeville Authority (New System)	3.10	18.60	6,000	46.50
4. Shaler Township	3.10	9.30	3,000	46.50
5. Plum Borough Municipal Authority	2.62	21.10	5,610	46.88
6. Wilkinsburg - Penn Joint Water Authority	3.21	25.61	8,228	47.35
7. Robinson Township Municipal Authority	2.84	16.20	0	58.80
8. Hampton Township Municipal Authority	3.36	13.20	0	63.90
9. Richland Township Municipal Authority	3.34	37.43	6,000	67.49
10. Westmoreland Authority - Forward Township	3.26	39.07	6,000	68.41
11. Pittsburgh Water and Sewer Authority	3.76	27.93	4,000	69.29
12. Southwestern - Pennsylvania Water Authority	3.94	10.95	0	70.05
13. Blawnox Borough	4.70	14.10	3,000	70.50
14. Aspinwall Borough	4.75	14.25	3,000	71.25
15. Fawn - Frazier Joint Water Authority	3.50	51.00	9,000	76.50
16. Westmoreland Authority - White Oak	4.48	28.85	3,000	82.61
17. Pennsylvania American Water Company	3.93	25.20	0	85.48
18. Westmoreland Authority - McKeesport	5.83	34.98	6,000	87.45
19. Fox Chapel Authority	5.25	10.00	0	88.75
20. Harmar Township Municipal Authority	5.35	60.00	6,000	108.15

Source: Bankson Engineers, Inc. August 1997

10 Largest Users

1. Housing Authority of Pittsburgh
2. University of Pittsburgh
3. LTV Steel
4. Pittsburgh Brewing Company
5. H.J. Heinz Company
6. Allegheny County
7. Pittsburgh – Allegheny County Thermal
8. Allegheny General Hospital
9. The Galbreath Company
10. Carnegie Mellon University

Source: Pittsburgh Water and Sewer Authority

Prospective Water Sales

The Authority has current excess delivery capacity of approximately 25 million gallons of potable water per day and the Authority is aggressively attempting to market the sale of water to municipalities and water authorities in the region. The Authority is also investigating the possibility of purchasing existing water systems currently owned and operated by local municipalities located in communities adjacent to the Authority's existing service area.

Expenses of Operation

Salaries and related expenses account for approximately twenty-three percent (23%) of the 1998 Budget for Current Expenses. In 1998, the Authority's budget provides for two hundred sixty-one (261) positions as follows: thirty-six (36) in billing and collections; twenty-five (25) in administrative and accounting positions; one hundred eighty-five (185) in water and sewer operations and fifteen (15) in engineering. Payments to the City of Pittsburgh for services provided to the Authority under the Cooperation Agreement were approximately twenty-two percent (22%) of the 1997 budget for Current Expenses. Utilities amounted to twelve percent (12%) of the 1997 Current Expense budget, primarily due to the electricity required to operate the treatment plant and pumping stations.

Financial Operations

The following table prepared by the Authority sets forth the results of financial operations for the years 1992 through 1996. Audited financial statements for 1996 appear in Appendix B herein.

FIVE-YEAR FINANCIAL HISTORY

(Dollars expressed in thousands)

	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>
Operating Revenue:					
Residential, commercial, and industrial water sales and other	\$43,035	\$47,282	\$50,210	55,894	56,808
Utility water sales	<u>2,824</u>	<u>2,917</u>	<u>3,109</u>	<u>3,360</u>	<u>2,689</u>
Total operating revenue	<u>45,859</u>	<u>50,199</u>	<u>53,319</u>	<u>59,254</u>	<u>59,497</u>
Operating Expenses:					
Direct operating expenses	--	--	--	16,781	15,641
Cooperation Agreement expenses reimbursed to the City:					
Water direct expenses	15,015	15,885	14,936	--	--
Sewer direct and indirect expenses	4,272	4,046	3,651	4,867	4,830
City indirect cost allocation	4,827	5,788	5,098	2,856	4,632
Assessment of City employee benefits	--	901	--	--	--
Operating lease within the City:					
Fixed lease payment	3,228	3,145	3,051	1,246	--
Additional payment	4,440	4,591	4,737	2,844	--
Subsidy of non-City water agency customers	2,819	2,808	2,715	2,451	2,034
Depreciation and Amortization	3,166	3,840	4,206	5,598	7,598
General and administrative	<u>659</u>	<u>826</u>	<u>770</u>	<u>--</u>	<u>--</u>
Total operating expenses	<u>38,426</u>	<u>41,830</u>	<u>39,164</u>	<u>36,643</u>	<u>34,735</u>
Operating income	<u>7,433</u>	<u>8,369</u>	<u>14,155</u>	<u>22,611</u>	<u>24,762</u>
Other Revenue (Expense):					
Investment income	1,703	1,980	546	2,546	3,460
Interest expense	(9,863)	(12,324)	(12,536)	(17,271)	(20,407)
Other (net)	(1,021)	--	--	--	--
Amortization of bond issue costs	<u>(155)</u>	<u>(198)</u>	<u>(190)</u>	<u>(253)</u>	<u>(334)</u>
Total other revenue (expense)	<u>(9,336)</u>	<u>(10,542)</u>	<u>(12,180)</u>	<u>(14,978)</u>	<u>(17,281)</u>
Income (loss) before extraordinary item	<u>(1,903)</u>	<u>(2,173)</u>	<u>1,975</u>	<u>7,633</u>	<u>7,481</u>
Extraordinary item:					
Gain on extinguishment of bonds	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>	<u>--</u>
Net income (loss)	<u>(\$ 1,903)</u>	<u>(\$ 2,173)</u>	<u>\$ 1,975</u>	<u>\$7,633</u>	<u>\$7,481</u>
Annual debt service requirement					
Principal	\$ --	\$ 4,445	\$ 8,495	\$ 4,884	\$ 7,980
Interest	<u>16,793</u>	<u>13,866</u>	<u>12,499</u>	<u>13,836</u>	<u>25,248</u>
Total annual debt service requirement	<u>\$16,793</u>	<u>\$18,311</u>	<u>\$20,994</u>	<u>\$18,725</u>	<u>\$33,228</u>

Source: Pittsburgh Water and Sewer Authority

DEBT SERVICE COVERAGE FORECAST

(in Thousands)

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>
Cash Beginning of Year	\$ 22,610	\$25,243	\$ 23,492	\$ 19,742	\$ 14,467
Operating Revenue**	55,063	56,851	57,114	57,378	57,644
Interest Earnings	5,795	5,006	3,217	1,929	1,546
Transfer From Construction Fund	<u>300</u>	<u>315</u>	<u>325</u>	<u>340</u>	<u>350</u>
Total Available Funds	83,768	87,415	84,148	79,389	74,007
Operating Expenses	<u>31,725</u>	<u>32,166</u>	<u>32,645</u>	<u>33,164</u>	<u>33,698</u>
Net Available For Debt Service	52,043	55,249	51,503	46,225	40,309
Debt Service Requirements	26,800	31,757	31,761	31,758	31,764
Coverage Factor	1.94	1.74	1.62	1.46	1.27
Cash at End of Year	25,243	23,492	19,742	14,467	8,545

Source: Chester Engineers

**Estimates do not include any projected revenues from LTV Steel, the Authority's third largest user in 1997. LTV Steel has announced its intention to close its facilities in Pittsburgh. The closing is the subject of ongoing legal proceedings, and the facilities are still operating as of the date of this Official Statement.

Billings and Collections

Water customers are billed by the Authority based upon meter readings, estimated readings or on a flat basis, and revenues are collected by the Authority.

Historically, the City (which billed and collected as an agent of the Authority prior to January 1, 1995) has collected approximately 93% to 95% of water billings. The Authority has established a collection policy which provides for the filing of liens, the termination of services, and the taking of real property in the case of delinquent accounts.

In 1997, the Authority assigned to Capital Asset Research Corporation ("CARC") approximately \$12 million in delinquent water charges. In return, the Authority received \$8.6 million. CARC will purchase additional delinquent charges in 1998, 1999 and 2000.

The Authority is presently installing a new billing system (both hardware and software). This new billing system will enable the Authority to move to monthly billing for all accounts and will enhance the Authority's ability to manage accounts in the following areas: account aging, selection of delinquent accounts for terminations and collections, meter inventories, revenue forecasting and service work processing.

LTV Steel has indicated that it plans to close the coke oven manufacturing plant, which is currently the third largest user of water in the system. The Authority has budgeted, beginning in 1998, for the loss of revenue. LTV Steel has announced that it will consider the feasibility of building a new coke oven facility at this site. See "DEBT SERVICE COVERAGE FORECAST" above.

Employee Relations and Retirement System

The majority of employees of the Authority are represented by a labor organization under Act 195 of 1970 of the Commonwealth of Pennsylvania. Blue collar employees are represented by the Pittsburgh Joint Collective Bargaining Committee and white collar employees are represented by the American Federation of State, County and Municipal Employees, Local 2719. 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 City (which employed the employees now employed by the Authority) had concluded numerous negotiations with these bargaining units without any labor stoppages. A four-year agreement with the American Federation of State, County and Municipal Employees unit, effective January 1, 1998, was reached in 1997 with salary increases of 3% on January 1, 1998, 3% on January 1, 1999, 3.25% on January 1, 2000, and 3.5% on January 1, 2001. A four-year agreement, effective January 1, 1995, was reached in 1995 with the Pittsburgh Joint Collective Bargaining Committee in 1995 with salary increases of 3% on July 1, 1995 and 3% on January 1 of each of the three following years.

Employees of the Authority are covered under the City's Municipal Pension Fund. Applicable municipal law requires that the Authority be responsible for its proportionate share of the cost of providing pension benefits for Authority employees who formerly worked for the City. The Authority and the City, to date, have not resolved the Authority's ultimate liability with respect to the City's Municipal Pension Fund.

THE CAPITAL IMPROVEMENT PROGRAM

The primary objectives of the Capital Improvement Program are to insure uninterrupted service to the Authority's consumers and to enhance the system's capabilities. The original Capital Improvement Program implemented in 1984 (the "Program") was designed to maintain a satisfactory level of service to the Water and Sewer System users, to improve operating efficiency, to address future requirements and to assure a safety supply of water to its users. The Program resulted in major improvements, additions and rehabilitation to all components of the Water and Sewer System.

In order to assure 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 System, additional funding is required for improvements to the Water and Sewer System (the "Proposed Capital Improvement Program"). In determining the funding requirements for the Proposed Capital Improvement Program, the following factors and conditions were considered:

- Identified improvements not currently funded.
- Rehabilitation and/or replacement of existing facilities which 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 and the Urban Redevelopment Authority of Pittsburgh planned redevelopment projects.
- Improvements required under current and anticipated safe drinking water standards.
- Implementation of combined sewer overflow controls as required by the U.S. Environmental Protection Agency.

Based upon the previously noted factors and conditions and evaluations of the existing Water and Sewer System, a Proposed Capital Improvement Program was developed which addresses the identified and anticipated needs of the Authority over the next six years (from mid 1998 to mid 2003).

The following is a summary of the portion of the Capital Improvement Program to be funded with proceeds of the sale of the 1998 Series B Bonds.

<u>Description</u>	<u>Estimated Cost</u>
Water Distribution System	\$ 3,900,000
Pumping and Storage Facilities	14,000,000
Water Treatment Plant	1,000,000
Miscellaneous Projects	1,000,000
Sewer System	2,300,000
City and URA Projects	<u>6,245,000</u>
Subtotal	\$28,445,000
Engineering	<u>3,500,000</u>
Subtotal	\$31,945,000
Contingencies	<u>4,056,908</u>
Totals	\$36,001,908

For a more detailed description of the Capital Improvement Program, see "Consulting Engineer's Report", Section II – Appendix D herein.

FUTURE INDEBTEDNESS

The Authority has established a six (6) year Capital Improvement Program (1998-2003), the details of which are found in the Consulting Engineer's Report. The 1998 Series B Bonds will fund a portion of the program. The balance of the Capital Improvement Program may require the issuance of additional bonds at various times in the future.

LITIGATION

There is no litigation pending or threatened seeking to enjoin the issuance, sale or delivery of the 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, which, in the opinion of the Authority's General Counsel, would have a material adverse effect on the Authority's financial position.

FINANCIAL STATEMENTS

The audited financial statements of the Authority for the year ended December 31, 1996 are included in Appendix B attached hereto. The financial statements referred to in the preceding sentence have been audited by and are being included herein without the consent of Maher Duessel, Certified Public Accountants, whose report with respect thereto also appears in Appendix B attached hereto.

TAX EXEMPTION

In the opinion of Co-Bond Counsel, to be delivered contemporaneously with the delivery of the Bonds, interest on the Bonds (1) is excludable from gross income for federal income tax purposes under existing laws, regulations, rulings and judicial decisions and (2) is not an item of tax preference for purposes of federal alternative minimum tax on individuals and corporations. However, Co-Bond Counsel are also of the opinion that for certain corporations, interest on the Bonds is included in the "adjusted current earnings" (i.e., alternative minimum taxable income as adjusted for certain items that would be included in the calculation of a corporation's earnings and profits under Subchapter C of the Code) and such corporations are required to include in the calculation of alternative minimum taxable income 75 percent of the excess of such corporation's adjusted current earnings over its alternative minimum taxable income (determined without regard to this adjustment and prior to reduction for certain net operating losses). See "TAX TREATMENT OF ORIGINAL ISSUE DISCOUNT AND PREMIUM - Tax Treatment of Original Issue Discount" for a discussion of circumstances under which accrued original issue discount may be excluded from gross income for federal income tax purposes by the initial purchasers of certain Bonds. The opinion to be rendered by Co-Bond Counsel on the date of delivery of the Bonds is expected to be in substantially the form of Appendix E hereto.

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

The opinion of Co-Bond Counsel will assume continuing compliance with the covenants of the Authority pertaining to those sections of the Code which affect the exclusion from gross income of interest on the Bonds for federal income tax purposes and, in addition, will rely on representations by the Authority with respect to matters solely within the knowledge of the Authority, which Co-Bond Counsel has not independently verified. If the Authority should fail to comply with such covenants, or if the representations relied upon should be determined to be inaccurate or incomplete, interest on the Bonds could become taxable from the date of delivery of the Bonds, regardless of the date on which the event causing such taxability occurs.

Except as stated above and under "TAX TREATMENT OF ORIGINAL ISSUE DISCOUNT AND PREMIUM", Co-Bond Counsel will not express any opinion as to any federal, state or local tax consequences resulting from the ownership of, receipt of interest on or disposition of the Bonds.

Although Co-Bond Counsel will render an opinion that interest on the Bonds is excludable from gross income for federal income tax purposes, the accrual or receipt of interest on the Bonds may otherwise affect the federal income tax liability of the recipient. The extent of these other tax consequences will depend upon the recipient's particular tax status or other items of income or deduction. Co-Bond Counsel will not express any opinion regarding any such consequences. Purchasers of the Bonds, particularly purchasers that are corporations (including S Corporations and foreign corporations operating branches in the United States), property and casualty insurance companies, banks, thrifts or other financial institutions, recipients of Social Security or Railroad Retirement benefits, taxpayers otherwise entitled to the earned income credit and taxpayers who may be deemed to have incurred (or continued) indebtedness to purchase or carry tax-exempt obligations are advised to consult their tax advisors as to the tax consequences of purchasing or holding the Bonds.

From time to time, there are legislative proposals in Congress that, if enacted, could alter or amend the federal tax matters referred to above or adversely affect the market value of the Bonds. It cannot be predicted whether or in what form any such proposal might be enacted or whether if enacted, it would apply to bonds issued prior to enactment. Each purchaser of the Bonds should consult his or her own tax advisor regarding any pending or proposed federal tax legislation.

TAX TREATMENT OF ORIGINAL ISSUE DISCOUNT AND PREMIUM

Tax Treatment of Original Issue Discount

The difference (if any) between the initial public offering price to the public and the principal payable at maturity with respect to the Bonds constitutes original issue discount treated as interest which is excluded from gross income for federal income tax purposes subject to the caveats and provisions described above. The Bonds sold at an original issue discount are, in the following paragraphs, referred to as "OID Bonds".

In the case of an owner of an OID Bond, the amount of original issue discount which is treated as having accrued with respect to such OID Bond is added to the cost basis of the owner in determining, for federal income tax purposes, gain or loss upon disposition of such OID Bond (including its sale, redemption or payment at maturity). Amounts received upon disposition of such OID Bond which are attributable to accrued original issue discount will be treated as tax-exempt interest, rather than as taxable gain, for federal income tax purposes.

Original issue discount is treated as compounding semiannually, at a rate determined by reference to the yield to maturity of each individual OID Bond bearing original issue discount, on days which are determined by reference to the maturity of such OID Bond. The amount treated as original issue discount on such OID Bond for a particular semiannual accrual period is equal to (i) the product of (a) the yield to maturity for such OID Bond (determined by compounding at the close of each accrual period) and (b) the amount which would have been the tax basis of such OID Bond at the beginning of the particular accrual period if held by the original purchaser, (ii) less the amount of payments on such OID Bond during the accrual period. The tax basis is determined by adding to the initial public offering price on such OID Bond the sum of the amounts which would have been treated as original issue discount for such purposes during all prior periods. If such OID Bond is sold between semiannual compounding dates, original issue discount which would have accrued for that semiannual compounding period for federal income tax purposes is to be apportioned in equal amounts among the days in such compounding period. Owners of OID Bonds should consult their own tax advisors with respect to the determination for federal income tax purposes of original issue discount accrued with respect to OID Bonds as of any date, with respect to the accrual of original issue discount for such OID Bonds purchased in the secondary markets and with respect to the state and local tax consequences of owning OID Bonds.

Tax Treatment of Premium

Certain of the Bonds will be reoffered at a price in excess of the principal amount thereof. Under the Code, the difference between the principal amount of a Premium Bond and the cost basis of such Premium Bond to an owner thereof is "bond premium." Under the Code, bond premium is amortized over the term of a Premium Bond (i.e., the maturity date of a Premium Bond or its earlier call date) for federal income tax purposes. An owner of a Premium Bond is required to decrease his or her basis in such Premium Bond by the amount of the amortizable bond premium attributable to each taxable year (or portion thereof) he or she owns such Premium Bond. The amount of the amortizable bond premium attributable to each taxable year is determined on an actuarial basis at a constant interest rate determined with respect to the yield on a Premium Bond compounded on each interest payment date. The amortization bond premium attributable to a taxable year is not deductible for federal income tax purposes. Owners of Premium Bonds (including purchasers of Premium Bonds in the secondary market) should consult their own tax advisors with respect to the precise determination for federal income tax purposes of the treatment of bond premium upon sale, redemption or other disposition of Premium Bonds and with respect to the state and local consequences of owning and disposing of Premium Bonds.

NOT ARBITRAGE BONDS

The Authority has covenanted in the Indentures with purchasers of the Bonds that it will make no use of the proceeds of such issue which, if such use reasonably had been expected on the date of issue of the Bonds, would have caused the Bonds to be arbitrage bonds; and has further covenanted in the Indentures to comply with the requirements of Section 148 of the Code, and the regulations thereunder, during the term of such issue. Officials of the Authority have executed a certificate concerning the use of the proceeds of the Bonds in conformity with regulations issued under Section 148 of the Code.

THE TRUSTEE

The obligations and duties of the Trustee are described in the Indentures, and the Trustee has undertaken only those obligations and duties which are expressly set out in the Indentures. The Trustee has not independently passed upon the validity of the Bonds, the security therefor, the adequacy of the provisions for payment thereof or the tax-exempt status of the interest on the Bonds. The Trustee has relied upon the opinion of Co-Bond Counsel for the validity and tax-exempt status of the interest on the Bonds. The Indentures expressly provide 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 Indentures, the Trustee is liable only for those damages caused by its gross negligence or willful misconduct. Under the Indentures, the Trustee is not required to take notice and is not deemed to have notice, of any default under the Indentures, except failure by the Authority to cause to be made any of the payments required to be made for payment of principal of the Bonds, when due at maturity or earlier redemption, or interest on the 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 Indentures to be delivered to the Trustee must be delivered at the principal corporate trust office of the Trustee. In the absence of any such notice, the Trustee may conclusively assume no Event of Default (as defined in the Indentures) exists, except as expressly stated above and in the Indentures. The summary of the Trustee's rights, duties, obligations and immunities contained herein is not intended to be a complete summary, and reference is made to "Summary of Indentures" – Appendix A herein for a more complete statement of the Trustee's rights, duties, obligations and immunities.

LEGAL OPINIONS

Purchase of the Bonds by the Underwriter is subject to the receipt of the approving legal opinion of Kutak Rock and Tucker Arensberg, P.C., both of Pittsburgh, Pennsylvania, Co-Bond Counsel. The unqualified approving opinion of Co-Bond Counsel will be printed on the Bonds in substantially the form attached to this Official Statement as Appendix E. Certain legal matters for the Authority will be passed upon by its General Counsel, Dawn A. Botsford, Esquire. Certain legal matters will be passed upon for the Authority by its Co-Disclosure Counsel, Thorp Reed & Armstrong and Doeppen Keevican & Weiss Professional Corporation, both of Pittsburgh, Pennsylvania.

RATINGS OF THE BONDS

Moody's Investors Service, Inc. and Standard & Poor's Ratings Group have assigned ratings of "Aaa" and "AAA", respectively, to the 1998 Series A Bonds and the 1998 Series B Bonds, with the understanding that, upon delivery of the Bonds, a policy insuring the payment when due of the principal of and interest on the Bonds will be issued by Financial Guaranty Insurance Company.

Moody's Investors Service, Inc. and Standard & Poor's Ratings Group have assigned their ratings of "Aaa" and "AAA", respectively, to the 1998 Series C Bonds with the understanding that, upon delivery of the 1998 Series C Bonds, a policy insuring the payment when due of the principal of and interest on the 1998 Series C Bonds will be issued by Financial Security Assurance Inc..

Such ratings reflect only the view of such rating agencies and are not recommendations to buy, sell or hold the Bonds. An explanation of the significance of such ratings may be obtained from the rating agencies furnishing the same.

Generally, rating agencies base their ratings on the information and materials furnished to them and on investigations, studies and assumptions by the rating agencies. There is no assurance that a particular rating will continue for any given period of time or that a rating will not be revised downward or withdrawn entirely if, in the judgment of the agency originally establishing the rating, circumstances so warrant. Any such downward revision or withdrawal could have an adverse effect on the market price of the Bonds.

CONTINUING DISCLOSURE

The Authority has entered into an undertaking (the "Undertaking") for the benefit of the holders of the Bonds to send:

(1) its annual audited financial statements (Appendix B) and its updated financial information and operating data of the type contained herein under the captions THE WATER AND SEWER SYSTEM - Water and Sewer Rates, Expenses of Operation and Financial Operations; and the Rate Covenant Analysis (as set forth in "Consulting Engineer's Report", Section VI - Appendix D) on or before July 15th of each succeeding year, or, in the case of the Authority's audited financial statements, if not then available, the Authority shall provide unaudited financial statements and supply their audited financial statements, when available, to (i) all Nationally Recognized Municipal Securities Information Repositories, which currently include; DPC Data, Inc.; Thomson Municipal Securities Inc.; Kenny Information Systems, Inc. and Bloomberg Municipal Repositories (collectively, the "Repositories"), and (ii) the state information depository in Pennsylvania (the "SID"), if any;

(2) to provide notice to the Repositories or to the Municipal Securities Rulemaking Board (the "MSRB") and to the SID, if any, of the following events, pursuant to the requirements of Section (b)(5)(i) of Securities and Exchange Commission Rule 15c2-12 (17 C.F.R. Part 240, §240.15c2-12) (the "Rule"): (i) principal and interest payment delinquencies on the Bonds (beyond any applicable grace period); (ii) an Event of Default as defined in the Indentures other than a payment default described in (i) above; (iii) unscheduled draws on the Debt Service Reserve Funds established under the Indentures reflecting financial difficulties of the Authority; (iv) unscheduled draws on the Bond Insurance reflecting financial difficulties of the Authority; (v) substitution of the Bond Insurer for the Bonds, or their failure to perform; (vi) the rendering of an adverse legal tax opinion of a nationally recognized bond counsel in connection with the Bonds, or the occurrence of an event affecting the tax-exempt status of the security for the Bonds; (vii) an amendment of or modification to rights of Bondholders effected under the Indentures or any other document or instrument relating to the Bonds; (viii) Optional or Extraordinary Optional Redemption of the Bonds under the Indentures; (ix) the legal defeasance of all or a portion of the Bonds pursuant to the terms of the Indentures; (x) release, substitution or sale of the property securing repayment of the Bonds under the Indentures; and (xi) a rating change affecting the Bonds made by any rating agency then rating the Bonds; and

(3) to notify the Repositories or the MSRB and the SID, if any, of a failure by the Authority to provide annually the information required in (1) above.

The Authority's annual financial statements for each fiscal year shall be prepared in accordance with the standards followed in preparation of the Authority's 1996 Audited Financial Statements appearing at Appendix B attached hereto, which standard is the currently effective generally accepted accounting principles ("GAAP") for government units, which may be changed to reflect changes in GAAP from time to time and audited by an independent accounting firm, but only if audited financial statements are otherwise available.

The Authority has not failed to comply with any prior such undertaking under the Rule. A failure by the Authority to comply with the Undertaking will not constitute an Event of Default under the Indentures (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 Bonds in the secondary market. Consequently, such a failure may adversely affect the transferability and liquidity of the Bonds and their market price.

COMPETITIVE SALE OF BONDS

After competitive bidding on February 23, 1998 the Bonds were awarded to the following underwriters (the "Underwriter"):

Maturity (September 1)	Underwriter		
	1998 Series A	1998 Series B	1998 Series C
2017	ABN AMRO Incorporated	William E. Simon & Sons Municipal Securities Inc.	William E. Simon & Sons Municipal Securities Inc.
2018	ABN AMRO Incorporated	William E. Simon & Sons Municipal Securities Inc.	William E. Simon & Sons Municipal Securities Inc.
2019	William E. Simon & Sons Municipal Securities Inc.	Advest, Inc.	William E. Simon & Sons Municipal Securities Inc.
2020	Lehman Brothers	Advest, Inc.	Lehman Brothers
2021	JP Morgan Securities Inc.	William E. Simon & Sons Municipal Securities Inc.	Lehman Brothers
2022	William E. Simon & Sons Municipal Securities Inc.	William E. Simon & Sons Municipal Securities Inc.	Lehman Brothers
2023	ABN AMRO Incorporated	William E. Simon & Sons Municipal Securities Inc.	Interstate/Johnson Lane Corp.
2024	William E. Simon & Sons Municipal Securities Inc.	Dain Rauscher	Interstate Johnson/Lane Corp.
2025	JP Morgan Securities Inc.	Dain Rauscher	Raymond James & Associates, Inc.
2026		Raymond James & Associates, Inc.	
2027		Belle Haven Investments L.P.	
2028		Raymond James & Associates, Inc.	
2029		William E. Simon & Sons Municipal Securities Inc.	
2030		Raymond James & Associates, Inc.	

FINANCIAL ADVISOR

Grant Street Advisors served as financial advisor with respect to the initial sale of the Bonds. The financial advisor assisted in the preparation of this Official Statement, and in other matters relating to the planning, structuring and issuance of the Bonds, and provided other advice. Grant Street Advisors acted solely as a financial advisor and not as an underwriter with respect to the initial sale of the Bonds. The principals of Grant Street Advisors are the same principals of MuniAuction, Inc., which developed and maintains the Internet website where competitive bids to purchase the Bonds were received by the Authority.

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 Bonds, the security for the payment of the Bonds and the rights of the owners thereof. All capitalized terms used herein are used with the meaning set forth in the Indentures unless otherwise so specified.

The information contained in this Official Statement 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 Official Statement 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 Official Statement nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in the affairs of the Authority since the date hereof.

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

THE PITTSBURGH WATER AND SEWER AUTHORITY

By: /s/ _____
Authorized Representative

APPENDIX A

Summary of Indentures

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SUMMARY OF INDENTURES

The Water and Sewer System First Lien Revenue Bonds, Series A of 1998 (the "1998 Series A Bonds") and Series B of 1998 (the "1998 Series B Bonds", which together with the 1998 Series A Bonds are referred to as the "1998 Bonds") are being issued and secured under the Trust Indenture dated as of October 15, 1993 (the "Original Indenture"), as amended and supplemented by the First Supplemental Indenture, dated as of July 15, 1995 and by the Second Supplemental Indenture dated as of March 1, 1998 (collectively, the "First Lien Indenture"). The Water and Sewer System Revenue Refunding Bonds, Series A of 1993 and Series B of 1993 (collectively, the "1993 Bonds"), were previously issued under the Original Indenture. Simultaneously with the issuance of the 1998 Bonds, the Authority is issuing its Water and Sewer System Subordinate Revenue Bonds, Series C of 1998 (the "Subordinate Bonds") pursuant to and secured by a Subordinate Trust Indenture, dated as of July 15, 1995, as amended and supplemented by the First Supplemental Subordinate Indenture, dated as of March 1, 1998 (collectively, the "Subordinate Indenture"). All bonds issued pursuant to the First Lien Indenture (the "Bonds") together with the Subordinate Bonds are herein referred to as the "Authority Bonds."

SUMMARY OF FIRST LIEN INDENTURE

A summary of the First Lien Indenture follows. Such summary 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.

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 improvements 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 depositories, an allowance for depreciation, any payments to pension or retirement funds and taxes.

Receipts and Revenues

The term "Receipts and Revenues" shall mean any and all rates, fees, 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.

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 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, without preference, priority or distinction as to lien or otherwise, except as otherwise provided in the First Lien Indenture, of any one Bond over any other Bond by

reason of priority in the issue, sale or authentication thereof or otherwise. The municipal bond insurance policy with respect to the 1993 Bonds is for the sole benefit and security of the 1993 Bonds. The municipal bond insurance policy issued with respect to the 1998 Bonds is for the sole benefit of the 1998 Bonds.

Additional Bonds.

The Authority may issue additional Bonds, on a parity with 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.

1998 Capital Project Fund.

Proceeds deposited in the 1998 Capital Project Fund shall be disbursed by the Trustee in payment of the cost of the 1998 Capital Project. Before each withdrawal and payment of the cost of the 1998 Capital Project from the 1998 Capital Project Fund by the Trustee, the Authority shall deliver to the Trustee a requisition signed by the Authority.

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.

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 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 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 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 and on the Subordinate 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. Moneys may be withdrawn from the Debt Service Reserve Fund to pay debt service on First Lien Bonds only up to the amount of the maximum annual debt service requirements on the First Lien Bonds. Moneys may be withdrawn from the Debt Service Reserve Fund to pay debt service on the Subordinate Bonds only up to the maximum annual debt service requirements on 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 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.

Rebate Fund.

Separate and apart from the pledge of the First Lien Indenture is a Rebate Fund. Within the Rebate Fund there is a 1993 Bonds Rebate Account and a 1998 Bonds Rebate Account. Deposits, transfers and payments from the Rebate Accounts shall be made in accordance with tax regulatory agreements entered into with respect to the respective series of Bonds.

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 ("FNMA's"); participation certificates of the General Services Administration; guaranteed mortgage-backed securities and guaranteed participation certificates of the Government National Mortgage Association ("GNMA's"); 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; Resolutions 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-1" 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-1" by Moody's and a "Short-Term CD" rating of "A-1" or better by S&P.

(f) Deposits of any bank or savings and loan association which has combined capital, surplus and undivided profits for 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, GNMMAs, FNMMAs or FHLMMCs 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-1" or "A3" or better by Moody's and "A-1" 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 insurer, 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%.
- (vi) Investment agreements approved by the bond insurer.

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.

(2) 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, 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 on Authority Bonds), 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 Authority Bonds during the then current fiscal year of the Authority.

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.

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 policy); 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 policy); 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 hereunder or thereunder; 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, the failure of the Authority to meet the rate covenant 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.

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. 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 default thereunder, shall the Trustee accelerate the payment of the 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 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 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; 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 hereunder, subject to the provisions hereof with respect to claims for principal and interest, to the payment of the principal 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 insurance policy, be deemed to be the owner of the Bonds.

Judicial Action. In case of the breach of any of the covenants or conditions of the First Lien Indenture, the Trustee shall have the right and power to take appropriate judicial proceedings for the enforcement of its rights and the rights of the Bondholders thereunder. Upon the happening of an Event of Default, the Trustee may either after entry, or without entry, proceed by suit or suits, actions or special proceedings at law 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 Bonds then outstanding and upon being indemnified. For purposes of this provision, the bond insurer shall, so long as no event of default has occurred under its insurance policy, be deemed to be the owner of the Bonds.

So long as the 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 Bondholders without the prior written consent of the bond insurer.

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 then outstanding hereunder 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 the 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 and interest of his Bonds, or the obligation of the Authority which is also absolute and unconditional, to pay the principal of and interest on each of the Bonds issued hereunder to the respective holders or registered owners thereof at the time and place in said Bonds expressed.

So long as the 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 Bondholders without the prior written consent of the bond insurer.

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 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 Bonds outstanding 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 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 herein 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 to 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 and interest of 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 insurer.

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 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

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 and in the First Lien Indenture.

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.

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.

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.

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.

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.

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.

Investment of Funds.

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

(a) (1) 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-1" 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-1+" 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-1" 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); (E) 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 or 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 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" or "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.

(2) 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:

(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 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 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.

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APPENDIX B

Authority Financial Statements

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PITTSBURGH
WATER AND SEWER
AUTHORITY

FINANCIAL STATEMENTS
AND
ADDITIONAL INFORMATION

YEAR ENDED DECEMBER 31, 1996

WITH

INDEPENDENT AUDITOR'S REPORT

MAHER DUESSEL
CERTIFIED PUBLIC ACCOUNTANTS

PITTSBURGH WATER AND SEWER AUTHORITY

Year Ended December 31, 1996

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MAHER DUESSEL
CERTIFIED PUBLIC ACCOUNTANTS

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INDEPENDENT AUDITOR'S REPORT

Board of Directors
Pittsburgh Water and Sewer Authority

We have audited the accompanying 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 year ended December 31, 1996, as listed in the accompanying 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 audit.

We conducted our audit in accordance with generally accepted auditing standards. Those standards require that we plan and perform the audit 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 audit provides 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, 1996, and the results of its operations and cash flows for the year then ended in conformity with generally accepted accounting principles.

Our audit was conducted for the purpose of forming an opinion on the basic financial statements taken as a whole. The accompanying additional information is presented for purposes of additional analysis and is not a required part of the basic financial statements. Such information has been subjected to the auditing procedures applied in the audit of the basic financial statements and, in our opinion, is fairly stated in all material respects in relation to the basic financial statements taken as a whole.

Maher Duesel

February 21, 1997

PITTSBURGH WATER AND SEWER AUTHORITY

BALANCE SHEET

(Dollars expressed in thousands)

December 31, 1996

Assets	Liabilities and Fund Equity
<p>Current assets:</p> <p>Cash and cash equivalents (nontrustered) \$ 11,620</p> <p>Billed accounts receivable, net:</p> <p style="padding-left: 20px;">Water 9,419</p> <p style="padding-left: 20px;">Wastewater treatment 2,282</p> <p style="padding-left: 40px;">Total billed accounts receivable 11,701</p> <p>Unbilled accounts receivable, net:</p> <p style="padding-left: 20px;">Water 8,167</p> <p style="padding-left: 20px;">Wastewater treatment 1,671</p> <p style="padding-left: 40px;">Total unbilled accounts receivable 9,838</p> <p>Due from the City of Pittsburgh 1,403</p> <p>Inventory 4,043</p> <p style="padding-left: 20px;">Total current assets 38,605</p> <p>Trusted funds:</p> <p>Accrued interest receivable 3,867</p> <p>Cash and cash equivalents 2,387</p> <p>Investments 130,622</p> <p style="padding-left: 20px;">Total trusted funds 136,876</p> <p>Property, plant and equipment:</p> <p>Utility plant, net of accumulated depreciation 150,464</p> <p>Nonutility plant, net of accumulated depreciation 3,010</p> <p>Capital lease assets, net of accumulated amortization 97,077</p> <p>Construction in progress, including deferred interest 44,120</p> <p style="padding-left: 20px;">Total property, plant and equipment 294,671</p> <p>Bond issue costs, net of accumulated amortization 5,150</p> <p style="padding-left: 20px;">Total assets \$ 475,302</p>	<p>Liabilities:</p> <p>Current liabilities:</p> <p>Accrued payroll and related obligations \$ 1,562</p> <p>Accounts payable and other accrued expenses 3,165</p> <p style="padding-left: 20px;">Total current liabilities 4,727</p> <p>Payable from trusted funds:</p> <p>Accounts payable 1,667</p> <p>Accrued interest 7,886</p> <p>Capital lease obligation 21,017</p> <p style="padding-left: 20px;">Total payable from trusted funds 30,570</p> <p>Deferred revenues:</p> <p>Forward float 1,617</p> <p>Wastewater treatment 1,634</p> <p style="padding-left: 20px;">Total deferred revenues 3,251</p> <p>Payroll related obligations 3,550</p> <p>Bonds payable:</p> <p>Revenue bonds 461,795</p> <p>Unamortized net bond discount (1,862)</p> <p>Unamortized refunding loss (27,939)</p> <p style="padding-left: 20px;">Total bonds payable 431,994</p> <p>Commitments and contingencies 474,092</p> <p style="padding-left: 20px;">Total liabilities 474,092</p> <p>Fund equity:</p> <p>Contributed capital 5,277</p> <p>Accumulated deficit (4,067)</p> <p style="padding-left: 20px;">Total fund equity 1,210</p> <p style="padding-left: 20px;">Total liabilities and fund equity \$ 475,302</p>

See accompanying notes

PITTSBURGH WATER AND SEWER AUTHORITY

**STATEMENT OF INCOME
AND
CHANGES IN ACCUMULATED DEFICIT**

(Dollars expressed in thousands)

For the year ended December 31, 1996

Operating Revenues:

Residential, commercial, and industrial water sales	\$ 56,568
Utility water sales	2,689
Other	240
Total operating revenues	<u>59,497</u>

Operating Expenses:

Direct operating expenses	15,641
Cooperation agreement operating expenses:	
Wastewater direct expenses	2,712
Indirect cost allocation - wastewater	2,118
Indirect cost allocation - water	2,764
Transfer costs, net	1,868
Expense of water provided by other entities:	
Subsidy of customers located in the City	1,670
Hydrants located in the City	364
Depreciation	5,082
Amortization of capitalized lease assets	2,516
Total operating expenses	<u>34,735</u>

Operating Income 24,762

Other Revenue (Expense):

Interest revenue	3,460
Interest expense	(20,407)
Amortization of bond issue costs	(334)
Total other revenue (expense)	<u>(17,281)</u>

Net Income 7,481

Accumulated Deficit:

Beginning of year	<u>(11,548)</u>
End of year	<u><u>(\$ 4,067)</u></u>

See accompanying notes.

PITTSBURGH WATER AND SEWER AUTHORITY

STATEMENT OF CASH FLOWS

(Dollars expressed in thousands)

For the year ended December 31, 1996

Cash Provided (Used) by Operating Activities:

Operating income	\$ 24,762
Adjustments to reconcile operating income to cash provided:	
Depreciation and amortization	7,598
Increase in customer accounts receivable	(6,313)
Change in inventory	(90)
Change in due from the City of Pittsburgh	(1,276)
Change in accounts payable	2,493
Change in deferred revenue	1,634
Change in accrued payroll and related	(131)
Net adjustments	<u>3,915</u>
Cash provided by operating activities	28,677

Cash Used by Noncapital Financing Activities:

Principal paid on revenue bonds related to noncapital funds	(1,130)
Interest payments related to noncapital funds	<u>(2,234)</u>
Cash used by noncapital financing activities	(3,364)

Cash Used by Capital and Related Financing Activities:

Principal paid on revenue bonds related to capital funds	(6,850)
Interest payments related to capital funds	(24,668)
Principal paid on capital lease obligation	(38,350)
Acquisition and construction of capital assets	<u>(16,673)</u>
Cash provided by capital financing activities	(86,541)

Cash Provided (Used) by Investing Activities:

Purchase of investment securities	(150,136)
Proceeds from sale and maturities of investment securities	187,459
Interest earnings	<u>7,422</u>
Cash provided by investing activities	44,745

Decrease in Cash and Cash Equivalents (16,483)

Cash and Cash Equivalents:

Beginning of year	<u>30,490</u>
End of year	<u><u>\$ 14,007</u></u>

Cash and Cash Equivalents at End of Year:

Nontrusteed funds	\$ 11,620
Trusteed funds	2,387
	<u><u>\$ 14,007</u></u>

See accompanying notes.

PITTSBURGH WATER AND SEWER AUTHORITY

NOTES TO FINANCIAL STATEMENTS

December 31, 1996

(Dollars expressed in thousands unless otherwise indicated)

1. Organization

The Pittsburgh Water and Sewer Authority (Authority) provides water to approximately 85,000 residential, commercial, and industrial customers located in the City of Pittsburgh (City) and collects wastewater throughout the City.

The Authority is governed by a Board appointed by the Mayor of the City.

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"). 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 water 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 accumulated deficit, 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. 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

The Authority applies the accrual basis of accounting. Revenues are recognized when earned; expenses are recognized when incurred.

In applying the provisions of Governmental Accounting Standards Board (GASB) Statement No. 20, *Accounting and Financial Reporting for Proprietary Funds*, the Authority applies all GASB pronouncements and all FASB pronouncements, Accounting Principle Board Opinions, and Accounting Research Bulletins issued on or before November 30, 1989 which do not conflict with or contradict GASB pronouncements.

PITTSBURGH WATER AND SEWER AUTHORITY

NOTES TO FINANCIAL STATEMENTS

December 31, 1996

(Dollars expressed in thousands unless otherwise indicated)

Deferred interest

Earnings on funds restricted for the purpose of capital improvements, net of related interest expense, are deferred and allocated to the cost of capital assets. Accordingly, during 1996, the Authority deferred interest earnings of \$5,391 less interest expense of \$7,038.

Earnings on forward float agreements are recorded as deferred revenue and recognized as interest revenue ratably over the life of each agreement.

Cash and cash equivalents

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

Investments

Investments in non-trustee and trustee funds are recorded at cost or amortized cost, which approximates market.

Bond issue costs, premiums, and discounts

Bond issue 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 balance sheet.

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 balance sheet as an increase 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 Bonds was recorded as deferred refunding loss. The deferred refunding loss is being amortized using the effective interest method over the originally scheduled life of the defeased issue which extends to 2013. The unamortized balance is reflected as a reduction of bonds payable.

Property, plant and equipment

Property, plant, and equipment owned by the Authority are recorded at cost including that portion of deferred interest which is ultimately capitalized. Depreciation of fixed assets

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NOTES TO FINANCIAL STATEMENTS

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(Dollars expressed in thousands unless otherwise indicated)

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 40 years. Nonutility assets have estimated useful lives ranging from 5 to 10 years.

Amortization of capital lease assets is provided on the straight-line basis applying an estimated average remaining useful life of forty years from the inception of the lease.

Maintenance and repairs are charged to expense as incurred.

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 first in, first out basis.

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

The Cooperation Agreement was substantially effective January 1, 1995.

On that date, City water department employees became employees of the Authority. The Authority assumed various personnel related obligations which had accrued during the era of 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 continues to provide the

PITTSBURGH WATER AND SEWER AUTHORITY

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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.

Inventory which had been maintained by the City's water department was conveyed to the Authority and was valued at the cost of the inventory when acquired by the City.

Under the Agreements, the Authority will continue to provide up to 600 million gallons of water annually for the City's use without charge. The Authority also continues to reimburse the City for the cost of subsidizing water service to those situated in the City but beyond the Authority's service area so that those water users pay charges which mirror the Authority's rates.

System leases

The Authority had no operating leases in place during the year which were material.

The Capital Lease Agreement stipulates minimum lease payments of approximately \$101 million, all of which are to be satisfied during the initial three years of the capital lease. An initial cash payment of \$35 million (from proceeds of the 1995 Series B Bonds) was paid to the City at the inception of the Capital Lease. Simultaneously, \$5.4 million which had been prepaid by the Authority to the City under the Lease and Management Agreement was applied as a capital lease payment. The Authority paid \$38,350 under this capital lease in 1996. The final payment of \$21,017 was paid on January 2, 1997 from assets in the Trusteed Funds established for the Series B of 1995 Bonds subsequent to year end.

The Capital Lease Agreement for the System 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 of the Authority's 1996 payroll of \$6,857 was covered by the Plan. Employee contributions for the year amounted to approximately \$343.

The City's obligations relative to the Municipal Pension 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 City determined the

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Authority's associated contribution requirement for 1996 which the Authority recognized as an expense.

The January 1, 1995 Actuarial Valuation Report for the City's Municipal Pension indicated a 1995 normal cost of \$289 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 1996, together with other elements of expense for employee service during 1996 as it would be measured in accordance with APB #8, would not exceed the sum of the 1996 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.

PITTSBURGH WATER AND SEWER AUTHORITY

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(Dollars expressed in thousands unless otherwise indicated)

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. While utility and large commercial and industrial customers are billed monthly, most customers are billed quarterly based on actual or estimated meter readings. Accordingly, the Authority recognizes unbilled accounts receivable for water service provided prior to year-end that is billed during the first quarter of the new year.

Water accounts receivable are presented net of a reserve for uncollectible amounts. A provision for uncollectible accounts, based upon historical experience, is recognized coincident with recognition of revenue. Since the Authority's inception, amounts relieved from the reserve for uncollectible accounts have generally been limited to amounts collected. At December 31, 1996, the reserve for uncollectible water accounts was approximately \$7.25 million. 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. The Authority anticipates conducting a sale of lien water accounts receivable during 1997.

The Authority had an arrangement with Pennsylvania American Water Company (PAWC) to provide four to twelve million gallons of water per day for resale to PAWC customers at bulk rates. Such "utility water sales" amounted to approximately \$2.7 million during 1996. PAWC has terminated this arrangement as of September 30, 1996.

Wastewater Treatment

Although the Authority does not provide wastewater treatment, it assumed responsibility for certain wastewater treatment receivables beginning in 1996. Pursuant to a 1955 agreement, the City is responsible for paying the Allegheny County Sanitary Authority ("Alcosan") the face amounts for delinquent wastewater treatment accounts. Until 1996, the City undertook to bill and collect these delinquent wastewater treatment accounts directly. In 1996, the City and the Authority entered into a memorandum of understanding ("MOU") whereby the Authority received assets including rights to collect accounts receivable assigned by the City and assumed the City's obligation to pay Alcosan for delinquencies. Related assets and liabilities appear on the balance sheet, along with residual deferred revenue. Deferred revenue arising from assets received from the City is being amortized ratably with respect to the cost of the Alcosan delinquencies. Accordingly,

PITTSBURGH WATER AND SEWER AUTHORITY

NOTES TO FINANCIAL STATEMENTS

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(Dollars expressed in thousands unless otherwise indicated)

transactions pursuant to the MOU had no effect on Authority revenues or expenses during 1996.

5. Property, Plant, and Equipment

Cost and accumulated depreciation (or, with respect to capitalized lease assets, accumulated amortization) of property, plant, and equipment at year-end:

	<u>Cost</u>	<u>Accumulated Depreciation</u>	<u>Net</u>
Owned Assets:			
System in service	\$ 174,806	\$ 24,342	\$ 150,464
System construction in process	44,120	-	44,120
Non-utility plant	<u>6,819</u>	<u>3,809</u>	<u>3,010</u>
	225,745	28,151	197,594
Capitalized System lease	<u>100,646</u>	<u>3,569</u>	<u>97,077</u>
	<u>\$ 326,391</u>	<u>\$ 31,720</u>	<u>\$ 294,671</u>

6. Payroll and Related Obligations

Payroll and related obligations presented on the balance sheet comprise:

	<u>Current</u>	<u>Non Current</u>
Compensated absences	\$ 618	\$ 1,032
Workers' compensation	478	2,206
Early retirement incentive	59	312
Payroll, withholdings and taxes	<u>407</u>	<u>-</u>
	<u>\$ 1,562</u>	<u>\$ 3,550</u>

7. Revenue Bonds

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

PITTSBURGH WATER AND SEWER AUTHORITY

NOTES TO FINANCIAL STATEMENTS

December 31, 1996

(Dollars expressed in thousands unless otherwise indicated)

and Wastewater System Revenue Refunding Bonds, Series A of 1991 ("1991 Bonds") which currently refunded all outstanding 1985 and 1986 Bonds.

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. The principal of defeased 1991 Bonds still outstanding at December 31, 1996 was \$271,195.

The Series A-1993 and Series B-1993 Bonds bear interest at fixed rates ranging from 3.4% to 6.5%, payable semiannually at March 1 and September 1. The average effective interest rate on the 1993 Bonds, including amortization of original issue premium and excluding the 1991 refunding loss is approximately 4.98% for 1996.

Fair value of the 1993 Bonds at December 31, 1996, based on quoted market prices, is approximately \$275 million.

In July 1995, the Authority issued \$89,850, Series A Bonds ("1995 Series A Bonds"), the proceeds of which are dedicated to a capital improvement program for the System and \$103,020, Series B Bonds ("1995 Series B Bonds") to fund certain obligations of the Authority to the City under the Capital Lease Agreement for the System.

The 1995 Series A Bonds and 1995 Series B Bonds bear interest at fixed rates ranging from 4.0% to 5.6%, payable semiannually at March 1 and September 1. The average effective interest rate on the 1995 Bonds, including amortization of original issue premium/discount is approximately 4.89% for 1996.

Fair value of the 1995 Bonds at December 31, 1996, based on quoted market prices, is approximately \$197 million.

A portion of the 1993 Bonds are subject to optional and mandatory redemption in various face amounts beginning September 1, 2003. A portion of the 1995 Bonds are subject to optional and mandatory redemption in various face amounts beginning September 1, 2005. Aggregate scheduled maturities of the 1993 and 1995 Bonds are as follows:

1997	\$ 9,440
1998	12,610
1999	12,990
2000	13,520
2001	14,520
Later years	<u>398,715</u>
	<u>\$ 461,795</u>

PITTSBURGH WATER AND SEWER AUTHORITY

NOTES TO FINANCIAL STATEMENTS

December 31, 1996

(Dollars expressed in thousands unless otherwise indicated)

Interest incurred for the year ended December 31, 1996 on bonds payable, exclusive of the amortization of deferred interest and the refunding loss was approximately \$23 million. Amortization of deferred interest and the 1991 Bond refunding loss totaling \$2.6 million is included in 1996 interest cost.

In accordance with the provisions of the trust indentures for the 1993 and 1995 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 balance sheet as "Trusted Funds," at December 31, 1996 was:

Construction funds	\$ 79,541
Acquisition fund	21,032
Debt service and reserve funds	22,396
Operating reserve amount	5,368
Other funds	<u>653</u>
	<u>\$ 128,990</u>

The amounts above are net of accrued interest payable from the various funds.

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 in a Revenue Fund and disbursed therefrom as provided for in the trust indenture. This Revenue Fund constitutes the vast majority of Nontrusted funds cash and cash equivalents.

8. 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 trusted assets, as otherwise permitted by the trust indenture as supplemented and amended in 1995. Throughout the year ended December 31, 1996, the Authority invested its funds in such authorized investments.

The following is a summary of the Authority's cash deposits which were insured by the Federal Depository Insurance Company (Category 1) and cash and deposits which were not insured or collateralized in the Authority's name, but were collateralized in accordance with the requirements of Act 72 of the Commonwealth of Pennsylvania that the depository institution pool collateral for all governmental deposits and have the collateral held by an approved custodian in the institution's name (Category 3).

PITTSBURGH WATER AND SEWER AUTHORITY

NOTES TO FINANCIAL STATEMENTS

December 31, 1996

(Dollars expressed in thousands unless otherwise indicated)

<u>Total Category 1</u>	<u>Total Category 3</u>	<u>Bank Balance</u>	<u>Carrying Amount</u>
<u>\$ 300</u>	<u>\$ 12,055</u>	<u>\$ 12,355</u>	<u>\$ 12,273</u>

The GASB requires disclosure of investments (including certain amounts qualifying for classification as "cash and cash equivalents" for purposes of the Balance Sheet and Statement of Cash Flows) delineated in prescribed categories intended to give some indication of the level of risk assumed by the Authority. At December 31, 1996, all Authority investments (summarized below) met the criteria for "Category 3", which includes uninsured or unregistered investments for which the securities are held by the broker or dealer, or by its trust department or agent, but not in the Authority's name. ("Category 1" would include investments that are insured or registered or for which securities are held by the Authority or its agent in the Authority's name. "Category 2" would include uninsured and unregistered investments for which the securities are held by the broker's or dealer's trust department or agent in the Authority's name.)

	<u>Category 3</u>	<u>Market Value</u>
Categorized investments:		
Repurchase agreements	\$ 1,736	\$ 1,736
U.S. government securities	8,990	8,978
Guaranteed investment contracts	103,973	103,973
Local government securities	<u>17,657</u>	<u>17,657</u>
Total investments	<u>\$ 132,356</u>	<u>\$ 132,344</u>

9. 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 which are included in the balance sheet as Trused Funds.

To achieve complete compliance with current drinking water regulations promulgated by the Pennsylvania Safe Drinking Act, the Authority will need to address projects beyond the capital improvement program identified in connection with the issuance of the 1995 Series A Bonds. The Authority has negotiated a consent decree with the Pennsylvania Department of Environmental Protection which establishes a time table for completing agreed-upon steps through the close of the century. The ultimate nature and extent of improvements that will be necessary to comply with the consent decree is not determinable at this time, but is expected to entail amounts material to the Authority and require additional borrowing.

In addition to the matters discussed previously, various other claims and lawsuits are pending against the Authority. The ultimate outcome of these claims and lawsuits cannot

PITTSBURGH WATER AND SEWER AUTHORITY

NOTES TO FINANCIAL STATEMENTS

December 31, 1996

(Dollars expressed in thousands unless otherwise indicated)

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 has been self-insured for general liability coverage since 1987 and established a general liability self-insured escrow fund. Because of this restriction, and consideration of materiality, this fund is grouped with "Trusteed Funds" on the balance sheet. Through December 31, 1996, the Authority has not paid any claims from this fund.

PITTSBURGH
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ADDITIONAL INFORMATION

YEAR ENDED DECEMBER 31, 1996

PITTSBURGH WATER AND SEWER AUTHORITY

SCHEDULE OF TRUSTEED FUND ACTIVITY

(Dollars expressed in thousands)

Year ended December 31, 1996

	Series 1993 Bonds			Series 1995 Bonds			Total						
	Prior Construction Fund	Construction Fund	Debt Service Fund	Operating Reserve Account	Self-Insured Escrow Account	Clearing Fund		Capital Projects Fund	Series A Debt Service Fund	Debt Service Reserve Fund	Acquisition Fund	Series B Debt Service Fund	Debt Service Reserve Fund
Increases:													
Interest	\$ 284	\$ 280	\$ 324	\$ 235	\$ 12	\$ -	\$ 4,250	\$ 163	\$ 390	\$ 1,677	\$ 148	\$ 422	\$ 8,185
Other	401	-	-	-	-	-	-	-	-	-	-	-	401
Total increases	685	280	324	235	12	-	4,250	163	390	1,677	148	422	8,586
Decreases:													
Capital projects	4,894	3,587	-	-	-	-	7,317	-	-	-	-	-	15,798
Interest	-	-	13,691	-	-	-	-	4,634	-	-	4,764	-	23,089
Bond principal	-	-	5,945	-	-	-	-	-	-	-	2,035	-	7,980
Capital lease	-	-	-	-	-	-	-	-	-	40,003	-	-	40,003
Other	15	-	-	-	-	-	919	-	-	-	-	-	934
Total decreases	4,909	3,587	19,636	-	-	-	8,236	4,634	-	40,003	6,799	-	87,804
Interfund transfers:													
Nontrusteed accounts	-	-	16,359	1,168	-	-	-	577	-	-	6,262	-	24,366
Prior Construction Fund	-	-	2,527	-	-	-	-	-	-	-	-	-	2,527
1993 Construction Fund	-	-	788	-	-	-	-	-	-	-	-	-	788
1993 Debt Service Fund	(2,527)	(788)	-	-	-	-	-	-	-	-	-	-	(3,315)
1995 Capital Projects Fund	-	-	-	-	-	-	-	4,983	-	-	-	-	4,983
1995 Series A Debt Service	-	-	-	-	-	-	(4,983)	-	(389)	-	-	-	(5,372)
1995 Series A Debt Service Reserve	-	-	-	-	-	-	-	389	-	-	-	-	389
1995 Series B Debt Service	-	-	-	-	-	-	-	-	-	-	-	(509)	(509)
1995 Series B Debt Service Reserve	-	-	-	-	-	-	-	-	-	-	509	-	509
Total interfund transfers	(2,527)	(788)	19,674	1,168	-	-	(4,983)	5,949	(389)	-	6,771	(509)	24,366
Net activity	(6,751)	(4,095)	362	1,403	12	-	(8,969)	1,478	1	(38,326)	120	(87)	(51,852)
Balance at beginning of year	11,416	6,919	4,309	3,965	641	-	81,021	456	6,471	59,358	761	8,525	183,842
Balance at end of year	\$ 4,665	\$ 2,824	\$ 4,671	\$ 5,368	\$ 653	\$ -	\$ 72,052	\$ 1,934	\$ 6,472	\$ 21,032	\$ 881	\$ 8,418	\$ 128,990

PITTSBURGH WATER AND SEWER AUTHORITY

SCHEDULE OF TRUSTEED FUND COMPOSITION

(Dollars expressed in thousands)

December 31, 1996

		Carrying Value	Market Value
Prior Construction Fund:	Accrued Interest Receivable	\$ 101	\$ 101
	Goldman Sachs Treasury Backed Repurchase Agreement	4	4
	U.S. Treasury Notes, 6.75%, due 2/28/97	4,075	4,070
	Shaler Township PA Series A Refunding Bonds, 4.95%, due 2/15/97	240	240
	Shaler Township PA Series A Refunding Bonds, 5.1%, due 8/15/97	245	245
		<u>\$ 4,665</u>	<u>\$ 4,660</u>
1993 Construction Fund:	Accrued Interest Receivable	\$ 12	\$ 12
	Goldman Sachs Treasury Backed Repurchase Agreement	2	2
	Commonwealth of PA Revenue Bonds	2,810	2,810
		<u>\$2,824</u>	<u>\$2,824</u>
1993 Debt Service Fund:	Accrued Interest Receivable	\$ 215	\$ 215
	Accrued Interest Payable	(4,518)	4,518
	Goldman Sachs Treasury Backed Repurchase Agreement	1,701	1,701
	Commonwealth of PA Revenue Bonds	2,358	2,358
	U.S. Treasury Notes, 6.75%, due 2/28/97	3,292	3,284
	U.S. Treasury Notes, 5.625%, due 8/31/97	1,623	1,624
		<u>\$ 4,671</u>	<u>\$ 4,664</u>
1993 Operating Reserve Fund:	Accrued Interest Receivable	\$ 23	\$ 23
	Goldman Sachs Treasury Backed Repurchase Agreement	1	1
	Commonwealth of PA Revenue Bonds	5,344	5,344
		<u>\$ 5,368</u>	<u>\$ 5,368</u>
Self-Insured Escrow Fund:	Cash	\$ 653	\$ 653
1995 Capital Projects Fund:	<i>1995 Capital Projects Account:</i>		
	Accrued Interest Receivable	\$ 321	\$ 321
	Goldman Sachs Treasury Backed Repurchase Agreement	11	11
	Societe Generale Guaranteed Investment Contract, 5.465%, due 3/1/2000	71,212	71,212
	<i>1995 Equipment Sub-account:</i>		
	Accrued Interest Receivable	2	2
	Goldman Sachs Treasury Backed Repurchase Agreement	2	2
	Commonwealth of PA Revenue Bonds	504	504
		<u>\$ 72,052</u>	<u>\$ 72,052</u>
1995 Debt Service Series A:	Accrued Interest Receivable	\$ 15	\$ 15
	Accrued Interest Payable	(1,598)	1,598
	Commonwealth of PA Revenue Bonds	3,517	3,517
		<u>\$1,934</u>	<u>\$1,934</u>
1995 Debt Service Reserve Series A:	Accrued Interest Receivable	\$ 120	\$ 120
	Societe Generale Guaranteed Investment Contract, 5.62%, due 9/1/2025	6,352	6,352
		<u>\$ 6,472</u>	<u>\$ 6,472</u>
1995 Acquisition Fund:	Accrued Interest Receivable	\$ 2,890	\$ 2,890
	Goldman Sachs Treasury Backed Repurchase Agreement	14	14
	Westdeutsche Landwbank Girozentrale Guaranteed Insurance Contract, 5.31%, due 1/2/97	18,128	18,128
		<u>\$21,032</u>	<u>\$21,032</u>
1995 Debt Service Series B:	Accrued Interest Receivable	\$ 11	\$ 11
	Accrued Interest Payable	(1,770)	(1,770)
	Goldman Sachs Treasury Backed Repurchase Agreement	1	1
	Commonwealth of PA Revenue Bonds	2,639	2,639
		<u>\$881</u>	<u>\$881</u>
1995 Debt Service Reserve Series B:	Accrued Interest Receivable	\$ 157	\$ 157
	Societe Generale Guaranteed Investment Contract, 5.62% interest, due September 1, 2025	8,281	8,281
		<u>\$8,438</u>	<u>\$8,438</u>
	Total Trusteed Funds	<u><u>\$ 128,990</u></u>	<u><u>\$ 128,978</u></u>

APPENDIX C

Description of Service Area

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INTRODUCTION

The City of Pittsburgh is located in southwestern Pennsylvania at the point where the Allegheny and Monongahela Rivers merge to form the Ohio River. The City, which is the largest of 130 municipalities in Allegheny County and which serves as the County seat, covers an area of 55.5 square miles and has a 1990 Census population of 369,879.

The City is the hub of the Pittsburgh Standard Metropolitan Statistical Area (the "SMSA") which is composed of Allegheny, Beaver, Fayette, Washington and Westmoreland Counties. Mining and manufacturing were the region's original economic base. The City's location, however, has encouraged the region to diversify into products and services that serve the nation's major market areas. Transportation, distribution, finance, health care, education and research have become essential to the City as its traditional mining and manufacturing economies.

Pittsburgh has developed as the regional center of southwestern Pennsylvania, eastern Ohio and northern West Virginia. Services provided in the City for the region include health care, financial services and produce and goods distribution. It is the major government and communication center for the tri-state area.

Pittsburgh's Golden Triangle is one of the nation's most compact and efficient downtowns, with over 150,000 daily workers and visitors and almost 23 million square feet of total office space contained within the land area of a modest college campus. Home to internationally renowned cultural institutions, Fortune 500 firms, and several of the largest financial institutions in the world, the Golden Triangle remains the single most competitive and productive business location in the region, and the single largest job generator in Western Pennsylvania.

The economic vitality of the City and its region are further enhanced by a comprehensive transportation network. Excellent ground transportation is available through a well developed road system that includes Interstate Routes 70, 76 (Pennsylvania Turnpike), 79, 80, 276 and 279. The Pennsylvania Department of Transportation has begun work on completing the Interstate highway system through the City which will aid in the flow of traffic to and around Pittsburgh. The City is served by Pittsburgh International Airport, which is utilized by seventeen air carriers and commuter carriers, and the Allegheny County Airport, which primarily services privately owned aircraft.

ECONOMIC DEVELOPMENT

Pittsburgh's transformation in response to dramatic economic change has been the product of unparalleled partnerships. Steady business and employment growth in health care, technology, education and business services now complement a more efficient manufacturing base to compete for a global customer base, all fostered by a decade of public/private leadership initiatives. Over the past twenty years, the Pittsburgh region's economic base has adjusted to new realities, and relative to cities and regions across the globe, is well positioned to support again the creation of jobs, income and investment for its communities.

Major Initiatives

Downtown continues to be the focus of the Murphy Administration's development strategy. Of note, the City has completed Liberty Avenue and the first phase of Fifth Avenue's renovation and construction for the new Lazarus Department Store, Blue Cross, a new operations center for PNC Bank and a new GNC headquarters are well underway. Additionally, as a reflection of downtown as the heart of the region, the City has proposed the construction of a new convention center with 340,000 sf of exhibit space to extend into the Cultural District and a new baseball stadium on the North Shore. Moreover, the Pittsburgh Downtown Partnership successfully created a business improvement district to promote downtown, hire a cleaning staff, and develop downtown ambassadors. Other targeted areas, such as riverfront, industrial site re-use, and neighborhood development have resulted in an increase in business and residential interest in the City, as well.

The following pages contain a summary of the major developments the City has commenced, continued or completed in 1996. They evidence the City's renewed competitiveness and downtown's continued symbol as the premier business address.

DOWNTOWN DEVELOPMENT

Development	Location	Summary	Total Cost	Status
Pittsburgh Downtown Partnership	Central Business District	Formation of an advocacy and marketing group in 1994 for downtown businesses, residents, students and institutions. A total of six jobs have been created.		Completed
Business Improvement District (BID)	Central Business District	Formation of a BID in September 1996 to increase the marketing, safety and cleanliness of downtown. A total of 15 jobs have been created.	\$ 1,075,000	Completed
Downtown Facades		Provision of matching funds for facade renovations to buildings in downtown Pittsburgh.		
<i>Tenants / Owners</i>		<i>Buildings</i>		
Clark Building		701-717 Liberty Avenue	\$491,500	Completed
The Oyster House		801-803 Liberty Avenue	\$390,000	Completed
Larsen & Ludwig Properties		806 Penn Avenue	\$123,200	Completed
The Harris Theater		809 Liberty Avenue	\$90,700	Completed
La Prima Espresso		811 Liberty Avenue	\$60,700	Completed
Regional Industrial Development Corporation		907 - 909, 915 - 921 Penn Avenue	\$ 934,400	Completed
General Nutrition Corporation	300 Sixth Avenue	Acquisition and renovation of 246,000-sq.-ft. office building for world headquarters of GNC. A total of 673 jobs are projected to be created or retained.	\$18,000,000	Completed
Lazarus Department Store	Fifth Avenue & Wood Street	Construction of a 250,000-sq.-ft. department Store. A total of 190 jobs are projected to be created.	\$60,000,000	Site development phase: Relocation, environmental remediation demolition and design under way. Completion date: November 1998
Georgeson & Co.	Manor Building	Relocation of financial outbound call center from New York City and lease of 10,000 sq. ft. A total of 100 jobs are projected to be created.	\$ 130,000	Completed
Daxus	Penn Avenue	Renovation of 30,000-sq.-ft. historic Penn Avenue office building for Daxus headquarters. A total of 70 jobs have been retained.	\$ 2,500,000	Under construction
Downtown Parking				
First Avenue Parking Plaza	First Avenue	Construction of a 500-space parking lot.	\$ 1,700,000	Completed
Fifth Avenue Garage	Fifth Avenue & Wood Street	Construction of a 490-space below grade garage under the new Lazarus Department Store.	\$22,000,000	Under construction Completion date: November 1998
Second Avenue Parking Plaza	Second Avenue	Construction of a 900-space parking lot.	\$ 900,000	Under construction Completion date: September 1997
Penn Liberty Garage	Liberty Avenue	Construction of a 900-space garage.	\$12,500,000	Design phase Completion date: December 1998
Parking Meters: Phase I	Central Business District	Installation of approximately 200 additional parking meters downtown.	\$60,000	Completed
Library Center	Fifth & Forbes Avenues	Re-use of the historic Bank Center as a 55,000-sq.-ft. Business Information Center operated by Point Park College and the Carnegie Library. A total of 55 jobs are projected to be created or retained.	\$ 8,500,000	Completed

Development	Location	Summary	Total Cost	Status
Penn Liberty Plaza	Liberty Avenue	Renovation of the 300,000-sq.-ft. former Buyer's Mart for back-office space.	\$ 15,700,000	Under construction Completion date: December 1998
Kvaerner Metals		Lease of 170,000 sq. ft. to accommodate Kvaerner Metals' corporate headquarters. A total of 900 jobs have been retained.		
People's Energy (Division of Consolidated Natural Gas)	Chatham Center	Establishment of a new retail sales business for utility products and support services. A total of 100 jobs are projected to be created.	NA	Completed
Senator John Heinz Regional History Center	Smallman Street	Re-use of the historic, 160,000-sq.-ft. Adelman Lumber Building as a seven-story, regional history center. A total of 80 jobs have been retained.	\$ 22,000,000	Completed
International Data Response Corp.	Chatham Center	Lease of 16,000 sq. ft. for telemarketing center. A total of 400 jobs are projected to be created.	\$350,000	Completed
Infrastructure Improvements				
Liberty Avenue Reconstruction	Liberty Avenue between Seventh & 10th Streets	Reconstruction of Liberty Avenue with signalization, lighting, granite curbs, new brick sidewalk, street trees, vault reconstruction and sewer and water lines.	\$ 6,300,000	Completed
Fifth Avenue Reconstruction: Phase I	Fifth Avenue between Ross & Smithfield Streets	Reconstruction of Fifth Avenue with rustic terrazzo sidewalks, granite curbs and vault reconstruction.	\$ 5,000,000	Completed
Fifth Avenue Reconstruction: Phase 2	Fifth Avenue between Smith- field Street & Liberty Avenue	Reconstruction of Fifth Avenue with rustic terrazzo sidewalks, granite curbs and vault reconstruction.	\$ 6,000,000	Under construction
Wood Street Reconstruction: Phase 1 & 2	Wood Street between Fourth Avenue & Fort Pitt Boulevard	Reconstruction of Wood Street with rustic terrazzo sidewalks, granite curbs and vault reconstruction.	\$ 11,500,000	Pre-development Construction date: June 1997
Pittsburgh Trolley Tours	Central Business District	Purchase of trolleys for creation of a new tourist transportation business. A total of 13 jobs are projected to be created or retained.	\$249,000	Completed
Penn Avenue Place	Penn Avenue	Renovation of the former Horne's Department Store Building into office space for Highmark Blue Cross Blue Shield and ground floor retail		
Highmark Blue Cross Blue Shield		Lease of 420,000 sq. ft. to accommodate several regional offices. A total of 1,467 jobs are projected to be created or retained.	\$ 57,000,000	Completed
Civic Light Opera		Lease of 17,000 sq. ft. for academy of dance and music for children. A total of 12 jobs are projected to be retained.	\$ 1,000,000	Completed
RIVERFRONT DEVELOPMENT				
ALCOA	North Shore	Construction of a 236,000-sq.-ft. world headquarters for ALCOA. A total of 500 jobs are projected to be created or retained.	\$ 47,000,000	Under construction Completion date: June 1998
Nets, Inc.	North Shore	Relocation of a company to a 40,000 -sq.-ft. headquarters in One North Shore Center. A total of 105 jobs have been created.	\$800,000	Completed
Lincoln at the North Shore	North Shore	Construction of 232 upscale apartments with adjoining garage.	\$ 22,000,000	Under construction Completion date: December 1997
North Shore Garage	North Shore	Construction of a 650-space parking garage with ground floor retail.	\$ 10,000,000	Pre-development Completion date: 1998

Development	Location	Summary	Total Cost	Status
Pedestrian Bridge (Three Rivers Stadium)	North Shore	Construction of a 1,200-foot walkway from Point State Park to Three Rivers Stadium.	\$2,900,000	Under construction Completion date: November 1997
Three Rivers Heritage Trail	North Shore	Construction of a 2.3 mile jogging and biking trail along the north shore of the Allegheny River.	\$1,000,000	Completed
600 Waterfront Drive Washington's Landing Silicon Graphics		Construction of a 30,000-sq.-ft. office building. Tenant improvements to 10,000 sq. ft. for the sales office of a supercomputer systems supplier. A total of 30 jobs are projected to be created.	\$2,200,000 \$400,000	Completed Completed
800 Waterfront Drive	Washington's Landing	Construction of a 30,000-sq.-ft. office building.	\$2,500,000	Pre-development
Automated Health-care (Division of McKesson)	Washington's Landing	Construction of a 45,000-sq.-ft. building for company specializing in the manufacture of robotics for automated pharmaceutical dispensing. A total of 135 jobs are projected to be created.	\$3,700,000	Pre-development
Riverview Bike Trail	Central Business District / Oakland	Construction of 2.7 mile bikeway along the Monongahela River.	\$2,500,000	Design phase Completion date: October 1998
The Village at Washington's Landing: Phase 1, 2 & 3	Washington's Landing	Construction of 41 upscale, for-sale units as part of a 90-unit residential riverfront community and riverfront trail.	\$ 10,081,000	Under construction
Ft. Duquesne Riverfront Park	Central Business District	Construction of the lower riverfront park along the Allegheny River from Stanwix to Garrison Streets.	\$8,000,000	Pre-development

INDUSTRIAL SITE RE-USE DEVELOPMENT

Aristech Chemical Corporation	Pittsburgh Technology Center	Construction of 82,000-sq.-ft. office building for Aristech's Polypropylene Technical Center. A total of 270 jobs are projected to be created or retained.	\$ 16,000,000	Under construction Completion date: October 1997
2000 Technology Drive	Pittsburgh Technology Center	Construction of a 68,000-sq.-ft. office building for high-technology companies.	\$ 8,600,000	Completed
High Technology Consortium: Pittsburgh High Technology Council, Southwestern Pennsylvania Industrial Resource Center, Ben Franklin Technology Center, CEO Venture Fund, Enterprise Corp.		Lease of 25,500 sq. ft. for offices of high-technology support organizations. A total of 100 jobs have been retained.		Completed
Aerial Communications		Lease of 35,000 sq. ft. for sales and customer support office of a communications firm. A total of 125 jobs have been created.		Completed
Cutler-Hammer		Lease of 7,500 sq. ft. for sales office of a manufacturer of industrial control devices. A total of eight jobs have been created.		Completed
CMU/ NASA Robotics Engineering Consortium	Lawrenceville	Renovation of an 88,000-sq.-ft. abandoned industrial facility for a robotics research and development facility. A total of 80 jobs are projected to be created.	\$ 26,000,000	Completed
Lexington Technology Park	North Point Breeze	Acquisition and renovation of three industrial buildings totaling 400,000 sq. ft. with 600 parking spaces.	NA	Lease-up under way
Digital Tool		Renovation of 25,000 sq. ft. for expansion and relocation of computer tool design company. A total of 46 jobs are projected to be created or retained.	\$858,000	Completed

Development	Location	Summary	Total Cost	Status
GalvTech	Hays	Renovation of the 180,000-sq.-ft. former Hays Ammunition plant as a steel galvanizing facility. A total of 80 jobs have been created.	\$ 39,000,000	Completed
Roswell Park	Fairywood	Purchase and renovation of the 500,000-sq.-ft. former Lazarus Warehouse.	\$ 9,500,000	Completed
U.S. Post Office		Lease of 116,000 sq. ft. for a mail processing facility. A total of 200 jobs are projected to be created.		Pre-development
Lesco		Lease of 131,000 sq. ft. for fertilizer distributor. A total of 15 jobs have been created.		Completed
Levi's Only		Lease of 35,000 sq. ft. for a distribution facility. A total of 15 jobs are projected to be created.		Under construction
Federated Regional Logistics		Lease of 13,500 sq. ft. for a distribution facility.		Completed
Penn Interiors		Lease of 17,500 sq. ft. for warehouse.		Completed
Nine Mile Run	Squirrel Hill	Acquisition of 238 acres for residential and commercial development phase.	\$ 4,500,000	Site development Construction date: May 1998.
South Side Works	South Side	Acquisition of 130 acres for commercial, residential and retail use.	\$ 9,700,000	Rezoning under way Construction date: April 1997
University of Pittsburgh Medical Center		Construction of 80,000-sq.-ft. warehouse and distribution facility.	\$ 3,500,000	Design phase Construction date: May 1997

NEIGHBORHOOD DEVELOPMENT

Retail and Office

AUBA Triangle Shops	Hill District	Construction of a shopping center, which includes a bank, drug store, doctor's office and dry cleaner. A total of 35 jobs have been created or retained.	\$ 2,000,000	Completed
Williams Square	Hill District	Construction of a 15,000-sq.ft. office building. A total of 32 jobs are projected to be created or retained.	\$ 1,400,000	Completed
Lawrenceville Shopping Center	Lawrenceville	Construction of a shopping center, which will include a grocery store, drug store and retail shops. A total of 50 jobs are projected to be created.	\$ 5,396,200	Pre-development Construction date: May 1997
John J. Clark and Associates	East Liberty	Acquisition of a building for expansion of a marketing firm. A total of 25 jobs have been created or retained.	\$ 359,000	Completed

Manufacturing

Pittsburgh Tag Systems, Inc.	Allegheny West	Purchase of equipment for manufacturing process. A total of 106 jobs have been created or retained.	\$ 248,100	Completed
Colteryahn Dairy, Inc.	Carrick	Purchase of equipment for facility expansion. A total of 38 jobs are projected to be retained.	\$ 3,900,000	Under construction Completion date: July 1997
Little Earth Productions, Inc.	Bluff	Purchase of equipment to upgrade computer capacity. A total of 71 jobs have been created or retained.	\$ 100,000	Completed
Consumer's Produce Company, Inc.	Strip District	Construction of a 67,000-sq.-ft. produce distribution facility. A total of 80 jobs are projected to be retained.	\$ 6,600,000	Completed
Kerotest Manufacturing Corporation	Hazelwood	Construction of a 63,000-sq.-ft. facility for manufacturer of oil and gas valves. A total of 130 jobs have been retained.	\$ 7,200,000	Completed
Pittsburgh Brewing Company	Lawrenceville	Acquisition of Pittsburgh Brewing Company. A total of 275 jobs have been retained.	\$33,000,000	Completed

Development	Location	Summary	Total Cost	Status
Valspar Corporation	Manchester	Construction of a 40,000-sq.-ft. research and development facility for packaging coatings. A total of 208 jobs are projected to be created or retained.	\$ 7,600,000	Under construction Completion date: October 1997
Linett Company, Inc.	North Homewood	Acquisition of two buildings totaling 80,000 sq. ft. for expansion of a manufacturing facility. A total of 102 jobs are projected to be created or retained.	\$688,000	Completed
High Technology				
Digital Alchemy, Inc.	Troy Hill	Purchase of computer equipment. A total of 20 jobs are projected to be created or retained.	\$235,000	Completed
WiseWire, Inc.	Oakland	Purchase of computer equipment for new internet product. A total of 55 jobs have been created or retained.	\$245,000	Completed
Q-Chem, Inc.	Swisshelm Park	Purchase of new equipment for development of new chemical treatment process. A total of three jobs have been created or retained.	\$80,000	Completed
Mixed Use				
Federal North Redevelopment	Central North Side	Redevelopment of the Federal Street area into an Allegheny General Hospital research facility, offices, housing, performing arts space and retail.	\$45,000,000	Pre-construction phase: Acquisition, relocation, demolition under way.
Penn Avenue Retail	Friendship	Acquisition and renovation of buildings totaling 18,900 sq. ft. for office, retail and housing.	\$ 1,500,000	Completed
Dance Alloy		Lease of 8,200 sq. ft. for dance performance space. A total of 25 jobs have been retained.		Completed
Artist Housing		Re-use of 8,200 sq. ft. for artist housing.		Pre-development
Friendship Development Corporation		Lease of 2,500 sq. ft. and renovation of entire building for office use. A total of two jobs have been retained.		Completed
Restaurants and Entertainment				
Papa J's Mercato	Strip District	Renovation of a former warehouse into a food market and restaurant. A total of 150 jobs have been created.	\$ 1,500,000	Completed
Priory Grand Hall	East Allegheny	Renovation of St. Mary's German Catholic Church into a banquet hall. A total of 15 jobs have been created.	\$ 1,230,000	Completed
Buffalo Blues	Shadyside	Renovation of a building for a restaurant and blues bar. A total of 45 jobs have been created.	\$245,000	Completed
Housing				
Allequippa Terrace	Terrace Village	Construction and renovation of 188 for-sale and rental units for creation of mixed-income community. A total of 30 jobs are projected to be created.	\$23,980,000	Pre-development Construction date: May 1997
Western Restoration: Milliones Manor	Hill District	Renovation of former hospital into 40 apartments for senior citizens and provision of a health clinic on site. A total of four jobs have been created or retained.	\$ 5,610,900	Completed
Crawford Square: Phase I & 2	Hill District	Construction of 30 for-sale housing units for and 74 rental units	\$12,300,000	Phase 2 - Completed Phase 3 - Pre-development
Elliott Heights	Elliott	Construction of 44 rental housing units for senior citizens.	\$ 3,167,200	Pre-development
Frankstown Court: Phase I	Homewood	Construction of six for-sale units.	\$ 868,000	Completed

Development	Location	Summary	Total Cost	Status
Lynn Williams Apartments	Brighton Heights	Construction of a four-story, 43-unit building for senior citizens.	\$ 3,065,300	Completed
Page Place	Manchester	Construction of a three-story, 21-unit structure to provide independent living for people with physical disabilities.	\$ 1,667,800	Under construction Completion date: August 1997
Negley Commons	East Liberty	Construction of a three-story, 25-unit facility for the physically disabled. A total of two jobs have been created.	\$ 1,820,000	Completed
Oakbrook Circle	Westwood	Construction of 55 for-sale, single-family, detached homes.	\$ 8,064,000	Site development phase Completion date: October 1997
Foxway Commons	South Shore	Construction of 26 for-sale riverfront homes.	\$3,700,000	Completed
New Birmingham	South Shore	Construction of 32 for-sale riverfront homes.	\$4,200,000	Under construction Completion date: August 1997
South Side Lofts	South Side	Construction of 14 residential lofts.	\$1,195,400	Completed
Greenfield Terrace Apartments	Greenfield	Construction of 40 units for senior citizens.	\$2,793,400	Completed
Women's Center & Shelter		Acquisition and renovation of a building for relocation of women's center. A total of 49 jobs have been created or retained.	\$4,000,000	Completed
Manchester Housing: Phase I	Manchester	Construction of 11 for-sale homes and 20 rental units.	\$5,122,200	Under construction Completion date: December 1997
Penn Avenue Town Homes	Lawrenceville	Construction of 12 for-sale homes	\$1,281,800	Under construction Completion date: December 1997
Kelly-Hamilton Scattered Sites	Homewood	Renovation of 23 rental units.	\$443,700	Under construction Completion date: June 1997
Garfield Scattered Sites	Garfield	Renovation of 18 homes.	\$1,820,000	Under construction Completion date: December 1997
Harriet Tubman Terrace	East Liberty	Renovation of 56 units for senior citizens.	\$400,500	Completed
Towne Place	Hill District	Construction of 15 units for the disabled.	\$1,372,600	Completed
5635 Stanton Avenue	Stanton Heights	Renovation of 11 units.	\$1,419,100	Completed
Voskamp Villa/ Village	Spring Garden	Construction of 19 single-family, for-sale town homes.	\$2,323,000	Villa - Completed Village - Completion date: October 1997
Housing consumer loans	Citywide	Mortgages to first-time home-buyers and home improvement loans to existing homeowners.	\$ 69,454,700	
Additional neighborhood housing, commercial and street face programs	Citywide	Financing assistance to owners and developers of residential and commercial properties.	\$ 73,001,100	

Building Activity

According to the City's Bureau of Building Inspection, total construction value within the City in 1996 was \$250.3 million.

The Table C-1 below sets forth the number and dollar value of residential and commercial building permits issued in the City in the years 1987 to 1996:

**TABLE C-1
CITY OF PITTSBURGH
NUMBER AND VALUE OF BUILDING PERMITS, 1987-1996**

<u>Year</u>	<u>Number of Permits Issued</u>	<u>Dollar Value (In thousands)</u>
1987	3,253	154,214
1988	3,281	213,563
1989	3,233	338,506
1990	3,099	140,748
1991	3,500	146,969
1992	3,368	213,314
1993	3,363	212,451
1994	3,148	201,982
1995	3,019	158,575
1996	2,793	250,315

Source: City of Pittsburgh, Bureau of Building Inspection

ECONOMY

Employment

For more than 150 years, the City has been a center for business and industry. While the steel industry continues to be a major factor in the local economy, its importance as a source of employment in absolute and relative terms has been diminishing. As a result, the City's economy is becoming more diversified with increasing reliance on the health, education and financial industries.

TABLE C-2
CITY OF PITTSBURGH
15 LARGEST PITTSBURGH-AREA PUBLIC COMPANIES
(RANKED BY 1996 REVENUE)

	<u>1996 Revenue</u>
USX Corporation	\$23.8 billion
ALCOA	\$13.1 billion
H.J. Heinz Co.	\$9.4 billion
Westinghouse Electric Corporation	\$8.5 billion
PPG Industries Inc.	\$7.2 billion
Allegheny Teledyne Inc.	\$3.8 billion
Consolidated Natural Gas Co.	\$3.8 billion
Equitable Resources Inc.	\$1.9 billion
Armco Inc.	\$1.6 billion
DQE Inc.	\$1.2 billion
Kennametal Inc.	\$1.1 billion
General Nutrition Cos. Inc.	\$991 million
J&L Specialty Steel Inc.	\$628 million
Mine Safety Appliance Cos.	\$501 million
Interstate Hotels Co.	\$478 million

Source: Pittsburgh Business Times

As set forth in Table C-3, total employment in the City has fluctuated during the past ten years from 282,000 in 1986 to 310,000 in 1996.

TABLE C-3
CITY OF PITTSBURGH
TOTAL NUMBER OF JOBS IN THE CITY
1986-1996

1986	282,000
1987	288,500
1988	300,700
1989	307,200
1990	319,600
1991	327,600
1992	318,404
1993	314,758
1994	314,525
1995	311,101
1996	310,000

Source: City of Pittsburgh Tax Files.

TABLE C-4
RESIDENT CIVILIAN LABOR FORCE DATA
CITY, PMSA/MSA, COMMONWEALTH, U.S.
1992-1996

	<u>1992</u>	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>
Labor Force					
City of Pittsburgh	176,800	167,900	166,100	162,600	163,700
Pittsburgh PMSA/MSA ⁽¹⁾	1,032,700	1,151,900	1,137,000	1,134,600	1,146,800
Pennsylvania	6,004,000	5,885,000	5,829,000	5,838,000	5,903,000
U.S.	127,000,000	128,040,000	131,056,000	132,304,000	132,450,000
Employment					
City of Pittsburgh	165,100	156,600	155,600	152,700	155,100
Pittsburgh PMSA/MSA ⁽¹⁾	962,600	1,072,800	1,066,000	1,067,300	1,089,500
Pennsylvania	5,554,000	5,472,000	5,468,000	5,495,000	5,590,000
U.S.	117,600,000	119,306,000	123,060,000	124,900,000	124,900,000
Unemployed					
City of Pittsburgh	11,600	11,300	10,500	9,900	8,700
Pittsburgh PMSA/MSA ⁽¹⁾	70,100	79,100	71,000	67,300	57,300
Pennsylvania	450,000	413,000	361,000	343,000	313,000
U.S.	9,400,000	8,734,000	7,996,000	7,404,000	7,404,000
Unemployment Rate (%)					
City of Pittsburgh	6.6%	6.7%	6.3%	6.1%	5.3%
Pittsburgh PMSA/MSA ⁽¹⁾	6.8%	6.9%	6.2%	5.9%	5.0%
Pennsylvania	7.5%	7.0%	6.2%	5.9%	5.3%
U.S.	7.4%	6.8%	6.1%	5.6%	5.6%

(1) The figures for 1992 reflects the Pittsburgh PMSA, which includes the counties of Allegheny, Fayette, Washington and Westmoreland. The figures for the years 1993-1996 reflect the Pittsburgh MSA, which includes the counties of Allegheny, Beaver, Butler, Fayette, Washington and Westmoreland.

Source: Pennsylvania Department of Labor and Industry, Bureau of Research and Statistics.

Commercial Banks

The City is one of the major banking centers in the nation. Major banks which are headquartered in the City include PNC Bank and Mellon Bank.

Pittsburgh is a branch office city of the Cleveland District of the Federal Reserve System.

TABLE C-5
CITY OF PITTSBURGH
COMMERCIAL BANKS
RANKED BY TOTAL ASSETS

	<u>Total Assets</u> <u>as of Dec. 31, 1996</u>
PNC Bank, N.A.	\$57,285,000,000
Mellon Bank, N.A.	36,827,000,000
National City Bank of Pennsylvania	13,289,468,000
Dollar Bank Federal Savings Bank	2,535,467,000
Fidelity Savings Bank	327,900,000
Northside Bank	304,801,854
Peoples Bank of Unity	291,174,000
West View Savings Bank	267,978,000

Source: Pittsburgh Business Times

Education

Colleges and Universities

The major colleges and universities located in the Pittsburgh area are shown in Table C-6.

**TABLE C-6
PITTSBURGH AREA
COLLEGES AND UNIVERSITIES
(RANKED BY 1996 UNDERGRADUATE FULL-TIME ENROLLMENT)**

	<u>Undergraduate Enrollment</u>	
	<u>full-time</u>	<u>part-time</u>
University of Pittsburgh	17,824	4,402
Indiana University of Pennsylvania	11,904	1,176
Community College of Allegheny County (all four campuses)	7,008	10,002
Slippery Rock University	5,600	720
Clarion University of Pennsylvania	4,860	550
Duquesne University	4,827	924
Carnegie Mellon University	4,737	84
California University of Pennsylvania	4,202	639
Westmoreland County Community College	2,790	3,455
University of Pittsburgh at Johnstown	2,600	300

Source: Pittsburgh Business Times

Vocational-Technical Schools

In addition, vocational-technical schools in the area provide a broad array of training in a variety of fields. Vocational-technical training is offered by both proprietary schools and by the public school systems. There are approximately 20 proprietary vocational schools and approximately 12 public vocational schools in the City and surrounding areas.

TRANSPORTATION

Air Transportation

Pittsburgh International Airport (“PIA”) serves the tri-state region of western Pennsylvania, eastern Ohio and northern West Virginia and is located in the County, approximately 17 miles west of the City of Pittsburgh on the Southern Expressway. The primary airport service region is considered to be Allegheny County, Armstrong County, Beaver County, Butler County, Washington County and Westmoreland County.

The state-of-the-art user friendly terminal complex located between the runways opened October 1, 1992, replacing the 40-year old Main Terminal Building. It has 75 jet gates and 25 commuter gates. Built with the latest technologies and designed for incremental expansion to meet forecasted growth, the entire complex is able to expand with relative ease.

Passenger conveniences include an underground people mover system, moving walkways, easy-to-read signs and direct access to parking spaces and rental car facilities. The X-shaped airside terminal allows connecting passengers access to all 75 jet gates without changing levels or terminals.

PIA was one of the first airports in the country to adopt a shopping mall-type approach for its various retail activities. In general, the airport attempts to provide the atmosphere and selection of a shopping mall, including various brand-name outlets, while maintaining “street” pricing. As of May 1997, there were 60 operators in 99 locations in the Midfield Terminal, including 35 food and beverage locations, 37 retail locations, 16 news and gift locations, and 11 services operators.

The trend in passenger volume at PIA from 1987 through 1996 is set forth in Table C-7 below.

**TABLE C-7
CITY OF PITTSBURGH
PASSENGER VOLUME TREND
PITTSBURGH INTERNATIONAL AIRPORT**

Year	Passenger Volume	Percentage Change Over Prior Year
1987	17,457,801	9.2%
1988	17,987,040	3.0%
1989	17,145,272	-4.7%
1990	17,145,831	0.0%
1991	16,735,015	-2.4%
1992	18,748,884	12.0%
1993	18,446,663	-1.6%
1994	19,490,709	5.7%
1995	20,012,251	2.7%
1996	20,533,660	2.6%

Source: Allegheny County Department of Aviation.

PIA is currently served by the scheduled passenger flights of seven major airlines, nine commuter airlines and one foreign flag airline. PIA is also served by seven all-cargo carriers and by various charter airlines. The airlines serving PIA, other than the charter airlines, are listed below.

Scheduled Domestic Airlines

- American Airlines
- Continental Airlines
- Delta Airlines
- Northwest Airlines
- Trans World Airlines
- United Airlines
- US Airways

Commuter/Regional Airlines

- US Airways Express
- Allegheny Airlines
- Chautauqua Airlines
- Liberty Express
- Piedmont Airlines
- PSA Airlines
- American Eagle
- Comair (Delta Connection)
- Continental Express
- Mesaba Airlines (Northwest Airlines)
- Spirit Airlines
- TW Express
- United Express

Foreign Flag Airlines

- British Airways

Cargo Carriers

- Airborne Express
- Emery Worldwide
- Federal Express
- Kitty Hawk
- Superior Aviation
- United Parcel Service
- United States Postal Service

The Allegheny County Airport, located approximately nine miles southeast of downtown Pittsburgh, serves as the FAA designated reliever airport for PIA. A number of private aircraft, including corporate jets, are based at the Allegheny County Airport. There is no scheduled commercial air service at the Allegheny County Airport.

Source: Pittsburgh Business Times.

Water Transportation

The Port of Pittsburgh marks the origin of the 9,000-mile inland waterway system which reaches markets in 24 states as far south as New Orleans and as far west as Sioux City. With its three major waterways, the Allegheny, Monongahela and Ohio Rivers, the Port of Pittsburgh is the largest inland port in the United States, moving more than 50 million tons of waterborne cargo each year.

Providing efficient, reliable service, Pittsburgh is the origin or destination of more tons of raw materials than any other inland port in the world. Over 24 for-hire terminals exist within the Port of Pittsburgh specializing in the handling of bulk, break-bulk and project cargo. The port complex is served by Conrail, CSX and the Norfolk Southern railroads, and a number of shortline and switching railroads.

Pittsburgh's southwestern Pennsylvania location is key to interstate shipping. Easily accessible, Pittsburgh is an overnight truck delivery away from half the nation's markets.

Rail Service

Ten percent of the total rail freight in the nation travels through southwestern Pennsylvania. Two Class I railroads, CSX and Conrail, both operate major lines in the region. Rail services are available to markets throughout the United States, Canada, and Mexico via the strategic relationships that have been forged between railroad companies. Services within the southwestern Pennsylvania region are strategic in providing direct links to all other forms of transportation.

Motor Carrier Service

The diverse transportation needs of southwestern Pennsylvania are continually met by the variety of configurations provided by the region's motor carriers.

Over 500 carriers service the region, transporting both common commodities as well as those that utilize trucks with highly specific functions.

Mass Transit

The Port Authority of Allegheny County (PAT) is the regional transit agency serving the metropolitan area of the City of Pittsburgh, Pennsylvania, is one of the largest public transit operators in the United States and provides public transportation services to nearly 245,000 riders daily and more than 72 million riders annually.

The Pittsburgh area has a strong history of transit use, and the ridership and scale of PAT's operations exceeds those of transit systems with service areas of comparable size and population. PAT has a large bus and light-rail fleet and maintains a modern system of exclusive bus roadways. PAT also provides ACCESS, a coordinated, shared-ride paratransit system offering door-to-door, advanced reservation transportation for elderly and handicapped persons.

Passenger Bus Service

Greyhound Bus Lines provides regularly scheduled interstate bus service to the City. The Port Authority of Allegheny County provides local bus and rail service. In addition, a variety of local bus companies provide intrastate, commuting, and charter services.

UTILITIES

Electricity

The City relies primarily upon coal as an energy source and is not heavily dependent upon oil and gas for the production of electricity. Some nuclear energy is used. In the region, the currently installed electric power generation capacity is 80% coal, 15% nuclear and 5% oil, the latter used mostly for peak capacity.

The electric power requirements of residential, commercial and industrial users in the City are provided primarily by the Duquesne Light Company which serves more than 569,000 customers in Allegheny and Beaver Counties and has a generating capacity in excess of 2,836,000 kilowatts. The Company is subject to regulation by the Pennsylvania Public Utilities Commission. However, recent legislation provided for the deregulation of some aspects of the electric utility business. Also, DQE Inc. and Allegheny Power have announced a proposed merger.

Natural Gas

The City's suppliers of natural gas are the Equitable Gas Company, People's Natural Gas Company, and Columbia Gas of Pennsylvania. All three are investor-owned utilities whose service areas cover large portions of Pennsylvania and neighboring states.

Water and Sewer

The Pittsburgh Water and Sewer Authority provides water service to the majority of water customers within the City and sewage collection service to the entire City. The climate and river valleys within the City region provide abundant water at reasonable cost.

Sewage treatment service is provided by ALCOSAN. Its service area includes the City, 82 neighboring municipalities in the County and parts of communities in Washington and Westmoreland Counties. ALCOSAN serves an area of 225 square miles with a population of about 1,015,000.

DEMOGRAPHIC DATA

Population

Table C-8 shows the population trends for the City, the County and the Pittsburgh Metropolitan Statistical Area (PMSA) from 1970 to 1990.

**TABLE C-8
POPULATION
CITY, COUNTY, PMSA
1970-1990**

	City of Pittsburgh		Allegheny County ⁽¹⁾		Pittsburgh PMSA ⁽²⁾	
	Population	Percentage Change	Population	Percentage Change	Population	Percentage Change
1970	520,089		1,085,044		796,229	
1980	423,938	(18.5%)	1,026,147	(5.4%)	813,809	2.2%
1990	369,879	(12.8%)	966,570	(5.8%)	720,256	(11.5%)

(1) Population of the County, excluding residents of the City.

(2) Population of the PMSA, excluding residents of the County.

Source: U.S. Census Bureau.

Housing

Housing in Pittsburgh is very affordable when compared to the nation. According to the U.S. Census, Pittsburgh has the third most affordable housing in the nation.

Detached single family housing continues to dominate residential construction in the County, although in Pittsburgh, apartment and townhouse construction predominates.

Because Pittsburgh was almost completely built up by 1950, more than 75% of the housing stock in the City is over forty years old and 50% is over sixty years old. The housing stock of the City, County, PMSA and Commonwealth is characterized as follows:

**TABLE C-9
CITY, COUNTY, PMSA, AND COMMONWEALTH
CHARACTERISTICS OF HOUSING UNITS COMPARISON**

	<u>1960</u>	<u>1970</u>	<u>1980</u>	<u>1990</u>
Total Housing Units:				
City of Pittsburgh	188,366	189,840	179,191	170,159
County of Allegheny	503,006	533,520	570,970	580,738
Pittsburgh PMSA	720,787	789,771	874,050	879,811
Pennsylvania	3,581,877	3,924,757	4,597,412	4,938,140
Percent Owner-Occupied:				
City of Pittsburgh	48.8%	50.3%	51.2%	52.3%
County of Allegheny	62.7%	64.8%	61.9%	66.2%
Pittsburgh PMSA	63.4%	67.8%	69.0%	72.6%
Pennsylvania	68.3%	68.0%	64.2%	70.6%
Median Value of Owner-Occupied Housing:				
City of Pittsburgh	\$11,000	\$12,500	\$31,500	\$41,200
County of Allegheny	12,300	16,000	43,300	57,100
Pittsburgh PMSA	12,900	15,300	42,800	51,800
Pennsylvania	10,200	13,600	39,100	69,700
Number of Persons per Housing Unit:				
City of Pittsburgh	3.1	2.8	2.4	2.5
Total County Housing Units:				
Percent of City of Pittsburgh	37.4%	35.5%	31.4%	29.3%

Source: U.S. Census of Housing

From 1960 to 1990 the number of housing units in the County increased by 15.5%, while the number of housing units in the City decreased by 9.7%. Over the same period, the number of persons per housing unit in the City decreased 19% and the population declined by 27.1%.

TABLE C-10
COUNTY OF ALLEGHENY
AVERAGE SALE PRICE OF RESIDENTIAL PROPERTY
1984 TO 1996
(MARKET TRANSACTIONS)

<u>Year</u>	<u>Average</u>
1984	\$ 62,598
1985	65,052
1986	69,002
1987	74,298
1988	78,609
1989	82,247
1990	88,623
1991	99,818
1992	102,742
1993	105,538
1994	105,399
1995	105,515
1996	106,785

Source: City of Pittsburgh, Department of City Planning
 West Penn Multi-List

The Redevelopment Authority provides low-cost home improvement loans to low- and moderate-income families utilizing Community Development Block Grant ("CDBG"), HOME, Commonwealth and local funds, and has issued its bonds for this purpose. The Redevelopment Authority also uses CDBG funds to subsidize the interest rate on rehabilitation loans made by private lenders to owners of residential properties and on property rehabilitation loans made by private lenders to businesses in designated neighborhood retail districts. The Redevelopment Authority has functioned as a loan originator under U.S. Department of Housing and Urban Development programs in which capacity the Redevelopment Authority contracts with HUD to originate twenty-year housing rehabilitation loans or rehabilitation grants funded by HUD.

The Redevelopment Authority currently has in various stages of execution redevelopment projects funded in part by the federal government, the Commonwealth and the City.

Income

The data in Table C-11 shows the trend in per capita income for the Pittsburgh PMSA, Allegheny County and Commonwealth.

TABLE C-11
PITTSBURGH PMSA, COUNTY AND COMMONWEALTH
PER CAPITA INCOME

	<u>1969</u>	<u>1979</u>	<u>1989</u>	<u>% Change</u> <u>1979-1989</u>
Pittsburgh PMSA	\$3,149	\$7,698	\$13,785	+79.1%
Allegheny County	\$3,321	\$7,986	\$15,115	+89.3%
Pennsylvania	\$3,066	\$7,077	\$14,068	+98.8%

APPENDIX D

Consulting Engineer's Report

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**THE PITTSBURGH WATER AND SEWER AUTHORITY
PITTSBURGH, PENNSYLVANIA**

**ENGINEERING AND FINANCIAL
FEASIBILITY STUDY
of
PROPOSED CAPITAL IMPROVEMENT PROGRAM
for
1998 SERIES BONDS**

February 24, 1998



**CHESTER
ENGINEERS**

441 Smithfield Street · Pittsburgh, PA 15222-2219
412-232-4411 · Fax 412-232-4420



CHESTER
ENGINEERS

Ref. No. 3548-06

February 24, 1998

Mr. Tim Equels
Executive Director
The Pittsburgh Water and Sewer Authority
441 Smithfield Street
Pittsburgh, Pennsylvania 15222-2219

Dear Mr. Equels:

Re: Engineering and Financial
Feasibility Study
Proposed Capital Improvement Program
1998 Series Bonds

We are pleased to present the attached report which evaluates the ability of The Pittsburgh Water and Sewer Authority to meet its operating expenses and other financial requirements, including the Debt Service Requirements associated with the current 1993 Series A and B Water Revenue Bonds and the proposed 1998 Series A, B and C Water Revenue Bonds.

This study for the five-year period ending December 31, 2002 indicates that the Authority's Rate Covenant of 1.20 will be satisfied in each Fiscal Year of the study period provided that the water rate increases as noted in the report are adopted.

We trust that this report will aid the Authority in arranging financing for the proposed improvements and acquisition of capital assets.

Very truly yours,

Donald W. Bertram, P.E.
Vice President
Construction Services Division

DWB/hms

Enclosure

441 Smithfield Street
Pittsburgh, Pennsylvania 15222-2219
412-232-4411; Fax 412-232-4420

THE PITTSBURGH WATER AND SEWER AUTHORITY

ENGINEERING AND FINANCIAL FEASIBILITY STUDY

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SECTION I PURPOSE AND SCOPE OF STUDY

A. PURPOSE OF STUDY

The annual Debt Service payments of The Pittsburgh Water and Sewer Authority for the current Revenue Bonds are approximately \$36,000,000 and will remain at this level until the year 2016. In 2017 these payments fall to approximately \$14,000,000 and remain at that level until all bonds are retired in 2025. It is the Authority's desire to refinance the 1995 Series A and B Bonds in order to reduce the annual Debt Service Requirements to some uniform level throughout the life of the indebtedness. As a part of this refinancing the Authority also desires to obtain new monies to continue their Capital Improvement Program through approximately the year 2000.

A Proposed Capital Improvement Program was developed which addresses the identified and anticipated needs of the Authority over the next six years (from 1998 to 2003). This total program is included as Exhibit A to this report. This report addresses the proposed Capital Improvements to be funded under the proposed 1998 Series B Bonds. The monies provided from the 1998 Series B Bonds, together with current funds, will enable the Authority to continue their Capital Improvement Program through the year 2000.

The Authority proposes to issue 1998 Series A, B and C Water and Sewer Revenue Bonds on March 2, 1998. The 1998 Series A Bonds will refinance the current 1995 Series A Bonds, the 1998 Series C Bonds will refinance the current 1995 Series B Bonds, and the 1998 Series B Bonds will provide approximately \$36,000,000 for new Capital Improvements to the Authority's Water and Sewer Systems.

The purpose of this study is to evaluate the ability of the Authority to meet its operating expenses and other financial requirements, including Debt Service Requirements associated with the current indebtedness and the proposed 1998 Series A, B and C Bonds, during the five-year period ending December 31, 2002.

B. SCOPE OF STUDY

The scope of this study includes a review of the proposed Capital Improvement Program, forecasts of operating expenses and revenue and analysis of the Authority's Rate Covenant based upon these forecasts and proposed bond issue financial requirements. The results of this study are presented in the following sections of this report:

<u>Section</u>	<u>Description</u>
II	Proposed Capital Improvement Program
III	Proposed Bond Issue
IV	Forecast of Operating Expenses
V	Revenue Forecast
VI	Rate Covenant Analysis

Backup data supporting the forecasts are included in Exhibits to the report as entitled in the Table of Contents.

The revenue forecasts as included herein are based upon the following assumed annual water rate increases, across all user segments, for the period ending December 31, 2002:

<u>Year</u>	<u>Percentage Increase</u>	<u>Effective Date</u>
1998	2.5	April 1, 1998
1999	2.5	January 1, 1999
2000	0.0	-
2001	0.0	-
2002	0.0	-

Based upon the forecasted operating expenses, revenues and annual debt service costs, the rate covenant analysis indicates that the minimum Debt Service Coverage Factor of 1.20 will be satisfied in each Fiscal Year through December 31, 2002.

**SECTION II
PROPOSED CAPITAL IMPROVEMENT PROGRAM
FOR 1998 SERIES B BOND ISSUE**

A. GENERAL

The primary objectives of the Capital Improvement Program are to insure uninterrupted service to the Authority's consumers and to enhance the system's capabilities. The Program was designed to maintain a satisfactory level of service to the Water and Sewer Systems users, to improve operating efficiency, to address future requirements and to assure a safe supply of water to its users. The current program was implemented in 1984 and has resulted in major improvements, additions and rehabilitation to all components of the Water and Sewer Systems.

In order to assure 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, additional funding is required. In determining the future funding requirements, the following factors and conditions were considered:

- Identified improvements not currently funded.
- Rehabilitation and/or replacement of existing facilities which 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 Capital Improvement Projects and URA planned redevelopment projects.
- Improvements required under current and anticipated safe drinking water standards.
- Implementation of Combined Sewer Overflow Controls as required by the U.S. Environmental Protection Agency.

Following is a brief discussion regarding each of these factors:

1. Identified Projects

A number of required improvements to the Water and Sewer Systems have been identified over the past year which are not funded under the current Capital Improvement Program. These improvements are critical for the continued safe service to the Authority's users.

2. Rehabilitation / Replacement of Aged Facilities

A significant portion of the Authority's facilities, including the Water System's pump stations, storage facilities and water distribution system and sewage collection system, is over 70 years old, with portions of the Sewer System reaching nearly 150 years in age. Due to the age of these systems, a program to rehabilitate and/or replace a portion of such facilities annually has been established. In order to maintain a high level of continuous service to the Authority's users, such annual programs must be maintained. In addition, changing development conditions within the service area place higher demands for water service and increased sewage flows in various portions of the system which exceed current system capacities.

3. Regional Sale of Water

The Authority has undertaken a very aggressive 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. The Authority's water treatment plant is capable of providing significantly more water than currently being used by its existing consumers. Sale of this available water to regional communities is a source of new revenue to the Authority. To realize this potential revenue, the Authority will be required to construct water lines or improve pumping facilities to serve some of the regional communities.

4. City and URA Projects

Under the City of Pittsburgh Six Year Capital Improvement Program a number of projects involving major street reconstruction are included. As a part of such reconstruction, water and sewer facilities within the street right-of-way must be replaced. The Pittsburgh Urban Redevelopment Authority (URA) has a number of industrial and residential redevelopment projects planned in various areas of the City. To serve such redevelopment projects, improvements to the Authority's Water and Sewer Systems are required.

5. Safe Drinking Water Standards

Current and anticipated future drinking water standards promulgated through regulations under the Pennsylvania Safe Drinking Water Act (35 P.S. 721.4) require the production of a higher quality of water

through the Authority's water treatment plant. To comply with these standards, improvements and modifications to the facility are necessary.

6. Combined Sewer Overflows

The U.S. Environmental Protection Agency (EPA) has adopted regulations regarding overflows from combined sewers during events which 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 wastewaters, 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 National Pollutant Discharge Elimination System (NPDES) discharge permits for each site. 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 will be required over the next several years to expend significant funds to inventory and monitor combined sewer overflows and to evaluate the impact on receiving streams.

Based upon the previously noted factors and conditions and evaluations of the existing Water and Sewer Systems, a Proposed Capital Improvement Program was developed which addresses the identified and anticipated needs of the Authority over the next six years (from 1998 through 2003). This total program is included in Exhibit A to this report. This feasibility study addressed the proposed Capital Improvements scheduled to be implemented during the period from 1998 through 2000, a portion of which is being funded by the 1998 Series B Bond Issue.

B. WATER DISTRIBUTION SYSTEM

Following is a listing and the estimated cost of each project included in the Proposed Capital Improvements for the Authority's Water Distribution System as addressed in this study:

PROPOSED CAPITAL IMPROVEMENT PROGRAM
WATER DISTRIBUTION SYSTEM

<u>Description</u>	<u>1998 B Bonds</u>
1. Emergency Water Line Contracts	\$800,000
2. Annual Valve Contract	1,000,000
3. Annual Water Line Contract	500,000
4. Replace Four-Inch Water Lines	400,000
5. Clean and Cement-Line	1,000,000
6. Pitometer Survey	<u>200,000</u>
TOTALS	\$3,900,000

C. PUMPING AND STORAGE FACILITIES

Following is a listing of Pumping and Storage Facility projects included in the Proposed Capital Improvement Program:

PROPOSED CAPITAL IMPROVEMENT PROGRAM
PUMPING AND STORAGE FACILITIES

<u>Description</u>	<u>1998 B Bonds</u>
1. Cover Highland Reservoir No. 1	<u>\$14,000,000</u>
TOTALS	\$14,000,000

D. WATER TREATMENT PLANT

An in-depth evaluation of the Authority's water treatment plant was conducted in early 1994 by the consulting engineering firm of Malcolm Pirnie, Inc. A portion of these improvements was funded under the 1995 Series A Bonds. To continue this program an additional \$1,000,000 is included in the proposed 1998 Series B Bonds.

PROPOSED CAPITAL IMPROVEMENT PROGRAM
WATER TREATMENT PLANT

<u>Description</u>	<u>1998 B Bonds</u>
1. Chemical, Chlorine and Sludge Handling	<u>\$1,000,000</u>
TOTALS	\$1,000,000

E. MISCELLANEOUS PROJECTS

Miscellaneous projects include funds for the acquisition of existing Water Systems in municipalities adjacent to the Authority's current service area.

PROPOSED CAPITAL IMPROVEMENT PROGRAM
MISCELLANEOUS PROJECTS

<u>Description</u>	<u>1998 B Bonds</u>
1. Acquisition of Existing Systems	<u>\$1,000,000</u>
TOTALS	\$1,000,000

F. SEWER SYSTEM

The proposed projects for the Sewer System included in the Proposed Capital Improvement Program are listed below:

PROPOSED CAPITAL IMPROVEMENT PROGRAM
SEWER SYSTEM

<u>Description</u>	<u>1998 B Bonds</u>
1. Annual Sewer Contract	\$500,000
2. Annual Manhole and Catch Basin Contract	500,000
3. Emergency Sewer Line Contracts	800,000
4. Sewer Lining Contract	<u>500,000</u>
TOTALS	\$2,300,000

G. CITY AND URA PROJECTS

Based upon information provided by the City of Pittsburgh and the Urban Redevelopment Authority, the following projects were included in the Proposed Capital Improvement Program:

PROPOSED CAPITAL IMPROVEMENT PROGRAM
CITY AND URA PROJECTS

<u>Description</u>	<u>1998 B Bonds</u>
1. South Millvale Avenue Bridge	\$100,000
2. Edgebrook Avenue Bridge	25,000
3. Second Avenue over Nine Mile Run	25,000
4. South Side Riverfront Housing - URA	1,635,000
5. South Side Industrial Development - URA	1,100,000
6. Nine Mile Run Development - URA	1,000,000
7. Aliquippa Terrace	1,000,000
8. Bedford Dwellings	1,000,000
9. New Development Initiatives	250,000
10. Federal North	<u>110,000</u>
TOTALS	\$6,245,000

H. CAPITAL IMPROVEMENT PROGRAM COST SUMMARY

Following is a summary of the total Proposed Capital Improvement Program as presented herein. This presents the estimated total costs including allowances for engineering and contingencies.

PROPOSED CAPITAL IMPROVEMENT PROGRAM
SUMMARY

<u>Description</u>	<u>1998 B Bonds</u>
Water Distribution System	\$3,900,000
Pumping and Storage Facilities	14,000,000
Water Treatment Plant	1,000,000
Miscellaneous Projects	1,000,000
Sewer System	2,300,000
City and URA Projects	<u>6,245,000</u>
SUBTOTAL	\$28,445,000
Engineering	<u>3,500,000</u>
SUBTOTAL	\$31,945,000
Contingencies	<u>4,056,908</u>
TOTALS	\$36,001,908

I. PROJECTION OF EXPENDITURES

In conjunction with the development of the Proposed Capital Improvement Program, a review was made of each project to determine the anticipated start and ending date of each and the expenditure of funds during that period. It is recognized that although this program is presented as a three-year program, the actual expenditure of funds will extend beyond the three-year period.

Following is a summary of the projection of expenditures for each year. Details as to these expenditures by each project are included in Exhibit A.

**SUMMARY
PROJECTION OF EXPENDITURES**

<u>Year</u>	<u>Series 1993 A Bonds</u>	<u>Series 1993 B Bonds</u>	<u>Series 1998 A Bonds</u>	<u>Series 1998 B Bonds</u>	<u>Total Expenditures</u>
1998	\$2,550,000	\$1,400,000	\$17,735,980	\$972,500	\$22,658,480
1999	0	0	27,557,314	9,675,000	37,232,314
2000	0	0	11,293,834	16,977,500	28,271,334
2001	0	0	1,607,000	8,376,908	9,983,908
2002	<u>0</u>	<u>0</u>	<u>170,000</u>	<u>0</u>	<u>170,000</u>
TOTALS	\$2,550,000	\$1,400,000	\$58,364,128	\$36,001,908	\$98,316,036

SECTION III PROPOSED BOND ISSUE

A. GENERAL

The Pittsburgh Water and Sewer Authority proposes to issue new Water and Sewer Revenue Bonds on March 2, 1998 to refinance the 1995 Series A and Series B Water Revenue Bonds and to provide \$36,000,000 for the Capital Improvement Program described in Section II of this report.

B. 1998 SERIES WATER AND SEWER REVENUE BOND

The 1998 Series A Bonds will be for the purpose of refinancing the current 1995 Series A Bonds of the Authority which provided funds for an \$80,000,000 Capital Improvement Program. As of January 1, 1998, approximately \$23,000,000 of these funds have been expended. Exhibit A of this report identifies the Capital Improvements to be implemented with the balance of these funds and the schedule of anticipated expenditures.

The 1998 Series C Bonds will be for the purpose of refinancing the current 1995 Series B Bonds of the Authority which provided for \$103,020,000 for the Authority to acquire the existing Water System from the City of Pittsburgh.

The 1998 Series B Bonds will provide \$36,000,000 for the Capital Improvements as discussed in Section II of this report. The Series C Bonds will be Zero Interest Bonds maturing between the year 2017 and 2030.

**TABLE III-1
1998 SERIES WATER AND SEWER REVENUE BONDS
SOURCE AND USES OF FUNDS**

	<u>Series A</u>	<u>Series B</u>	<u>Series C</u>
SOURCE OF FUNDS			
Principal	\$93,355,000	\$36,440,070	\$101,970,000
Less: Underwriter's Discount	(1,694,110)	0	(2,056,178)
Accrued Interest	13,125	0	14,404
Liquidation of existing DSRF	<u>6,352,000</u>	<u>0</u>	<u>8,282,000</u>
TOTALS	\$98,026,015	\$36,440,070	\$108,210,226
USE OF FUNDS			
Deposit to Escrow/Constr. Fund	\$92,991,986	\$36,001,908	\$101,764,018
Deposit to DSRF	4,301,704	0	5,608,740
Cost of Issuance	714,780	438,162	821,007
Accrued Interest	13,125	0	14,404
Rounding	<u>4,419</u>	<u>0</u>	<u>2,057</u>
TOTALS	\$98,026,015	\$36,440,070	\$108,210,226

C. TOTAL DEBT SERVICE REQUIREMENTS

The total Debt Service Requirements of the Authority based upon the existing Series A and B of 1993 Bonds and the proposed Series A, B and C of 1998 Bonds will be as indicated in Table III-2:

**TABLE III-2
TOTAL DEBT SERVICE PAYMENTS**

<u>Year</u>	<u>1993 Series A</u>	<u>1993 Series B</u>	<u>1998 Series A</u>	<u>1998 Series B</u>	<u>1998 Series C</u>	<u>Total</u>
1998	\$21,305,372	\$539,250	\$2,362,559	0	\$2,592,663	\$26,799,844
1999	21,306,922	539,250	4,725,118	0	5,185,326	31,756,616
2000	21,311,522	539,250	4,725,118	0	5,185,326	31,761,216
2001	21,308,610	539,250	4,725,118	0	5,185,326	31,758,304
2002	21,314,670	539,250	4,725,118	0	5,185,326	31,764,364

SECTION IV FORECAST OF OPERATING EXPENSES

A. GENERAL

The projection of Operating Expenses of The Pittsburgh Water and Sewer Authority has been forecasted based on a review of the historical expenses and the anticipated level of operations during the forecast period (1998 through 2002). The historical operating expenses have been taken from Audited Financial Statements of the Authority for the years ending December 31, 1993 through December 31, 1996 and unaudited expenses for 1997.

Operations of The Pittsburgh Water and Sewer Authority through December 31, 1994 were carried out in accordance with the Lease and Management Agreement between the Authority and the City of Pittsburgh, dated March 29, 1984. Pursuant to this agreement the City provided services necessary to operate the Water and Sewer System to the Authority with the Authority reimbursing the City for all Direct Expenses actually incurred and expended by the City. In addition, the Authority paid to the City 1) an amount equal to the Indirect Expenses billed to the Authority by the City, and 2) the Additional Payment.

The Capital Lease Agreement and Cooperation Agreement between the Authority and City as authorized in Resolution No. 47 of 1995 terminated that relationship between the City and the Authority with respect to operation and maintenance of the Water System. The Cooperation Agreement provides for the City to render certain services to the Authority as defined in the agreement. The agreement also provides for the basis of payment for such services to be rendered by the City. As of January 1, 1995 all positions in the City Water Department and certain positions in the Water and Sewer Division of the Department of Engineering and Construction were eliminated from the City of Pittsburgh budget and similar positions were created and filled by the Authority.

The forecasted Operating Expenses are based on the provisions of the Cooperation Agreement.

B. HISTORICAL OPERATING EXPENSES

Table IV-1 presents the Audited Statement of Operating Expenses of the Authority for the years ending December 31, 1993 through December 31, 1996 and unaudited 1997 expenses.

TABLE IV-1
HISTORICAL OPERATING EXPENSES
(IN THOUSANDS)

	<u>1993</u>	<u>1994</u>	<u>1995</u>	<u>1996</u>	<u>1997</u>
WATER EXPENSES					
Wages and Salaries:					
Administration	\$1,213	\$1,223	\$1,615	\$1,593	\$1,630
Operations	4,955	5,027	4,814	4,694	4,846
Engineering	138	118	287	142	260
Premium Pay	<u>474</u>	<u>468</u>	<u>544</u>	<u>569</u>	<u>527</u>
Total Wages & Salaries	6,780	6,836	7,260	6,998	7,263
Employees Pensions & Benefits	1,579	712	1,943	1,437	1,780
Miscellaneous Services	1,694	1,298	1,784	2,664	1,815
Utilities	3,682	3,566	3,099	3,140	3,805
Chemicals	1,120	1,108	721	1,661	1,650
Professional Services	0	0	322	198	387
Repairs	891	659	824	933	918
Supplies	165	144	354	164	218
Equipment	159	55	118	152	165
Materials	696	549	625	803	633
Education & Training	20	9	14	28	44
Authority General & Administration	<u>826</u>	<u>770</u>	<u>0</u>	<u>0</u>	<u>0</u>
TOTAL WATER EXPENSES	17,612	15,706	17,064	18,178	18,678
CITY EXPENSES					
Water Indirect Costs	5,788	5,098	2,856	2,326	2,810
Sewer Direct & Indirect Costs	4,046	3,651	4,868	4,830	4,579
General Obligation Debt	3,145	3,051	1,246	0	0
Additional Payment	<u>4,591</u>	<u>4,737</u>	<u>2,844</u>	<u>0</u>	<u>0</u>
TOTAL CITY EXPENSES	17,570	16,537	11,814	7,156	7,389
SUBSIDY NON-CITY CUSTOMERS	2,808	2,715	2,451	2,033	2,100
DELINQUENT SEWAGE CHARGES	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>2,500</u>
TOTAL OPERATING EXPENSES	\$37,990	\$34,958	\$31,329	\$27,367	\$30,667

C. FORECAST OF OPERATING EXPENSES

The forecasted Operating Expenses for the study period (1998 through 2002) were based on using the 1998 Budget, adjusted for proposed amendments to be acted upon at the Authority's Board meeting scheduled for February 13, 1998, as the base year. From this base year, forecasted Operating Expenses were based on the following:

1. The new labor agreement, ratified by The Pittsburgh Water and Sewer Authority in January 1998, with the American Federation of State, County and Municipal Employees (AFSCME) provided for the following scheduled salary increases:

3% effective January 1, 1998
3% effective January 1, 1999
3¼% effective January 1, 2000
3½% effective January 1, 2001

It has been assumed that similar salary increases will be negotiated with the other operating unions and given to non-union employees. For 2002 a three and one-half percent salary increase for all employees has been used.

2. Utility expenses are forecasted to hold level over the study period. The operating staff has instituted a program to reduce energy costs through its pumping operations. Due to this, together with the anticipated deregulation of the electrical utilities, it is expected that electric power costs to the Authority will remain rather constant over the study period.
3. The forecast for Subsidy to Non-City Water Customers has been held level throughout the study period. This subsidy is a result of the differential in rates between the Authority and those of Pennsylvania-American Water Company. It is anticipated that the City Council will take action to cap the subsidy level at the rate differential currently existing.
4. All other expenses have been forecasted to increase at a rate of one percent per year.

Based upon the above considerations, Table IV-2 presents the Budget for 1998, as amended, and the forecasted 1999 through 2002 Operating Expenses for The Pittsburgh Water and Sewer Authority.

**TABLE IV-2
FORECASTED OPERATING EXPENSES
(IN THOUSANDS)**

	Budget				
	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>
WATER EXPENSES					
Wages and Salaries					
Administration	\$1,669	\$1,719	\$1,775	\$1,837	\$1,901
Operations	5,801	5,975	6,169	6,385	6,609
Engineering	528	544	562	581	602
Premium Pay	<u>506</u>	<u>521</u>	<u>538</u>	<u>557</u>	<u>576</u>
Total Wages & Salaries	8,504	8,759	9,044	9,360	9,688
Employees Pensions & Benefits	1,915	1,972	2,037	2,108	2,182
Miscellaneous Services	5,027	5,077	5,128	5,179	5,231
Utilities	3,740	3,740	3,740	3,740	3,740
Chemicals	1,774	1,792	1,810	1,828	1,846
Professional Services	319	322	325	329	332
Repairs	154	156	157	159	160
Supplies	169	171	172	174	176
Equipment	167	169	170	172	174
Materials	1,124	1,135	1,147	1,158	1,170
Education & Training	<u>55</u>	<u>56</u>	<u>56</u>	<u>57</u>	<u>57</u>
TOTAL WATER EXPENSES	22,948	23,348	23,786	24,263	24,755
CITY EXPENSES					
Water Indirect Costs	1,850	1,869	1,887	1,906	1,925
Sewer Direct & Indirect Costs	2,227	2,249	2,272	2,294	2,317
General Obligation Debt	0	0	0	0	0
Additional Payment	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
TOTAL CITY EXPENSES	4,077	4,118	4,159	4,201	4,243
SUBSIDY NON-CITY CUSTOMERS	2,200	2,200	2,200	2,200	2,200
DELINQUENT SEWAGE CHARGES	<u>2,500</u>	<u>2,500</u>	<u>2,500</u>	<u>2,500</u>	<u>2,500</u>
TOTAL OPERATING EXPENSES	\$31,725	\$32,166	\$32,645	\$33,164	\$33,698

**SECTION V
REVENUE FORECAST**

A. WATER SALES FORECAST

The primary source of income to the Authority is revenue through water sales. To support the operations of the Authority and to provide sufficient funds to pay the total Annual Debt Service Costs, water rates will have to be increased over the next five years. The assumed annual amounts of these increases across all user segments are as indicated below:

<u>Year</u>	<u>Percentage Increase</u>	<u>Effective Date</u>
1998	2.5%	April 1, 1998
1999	2.5%	January 1, 1999
2000	0.0%	-
2001	0.0%	-
2002	0.0%	-

The Operating Revenue Forecast as indicated below is based on water sales (assuming a system-wide growth of 0.5% annually and the rate increases noted above), collection of delinquent sewer charges, collection of delinquent water charges, and the anticipated sale of delinquent sewer charges beginning in 1999.

**OPERATING REVENUE
(IN THOUSANDS)**

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>
Water Sales	\$51,062	\$52,601	\$52,864	\$53,128	\$53,394
Collection of Delinquent Sewer	2,000	2,000	2,000	2,000	2,000
Collection of Delinquent Water	2,000	2,000	2,000	2,000	2,000
Sale of Delinquent Sewer	<u>0</u>	<u>0</u>	<u>250</u>	<u>250</u>	<u>250</u>
TOTAL	\$55,063	\$56,851	\$57,114	\$57,378	\$57,644

B. INTEREST EARNINGS

During the study period (1998 through 2002) another source of significant revenue to the Authority is through interest earned on various restricted and unrestricted funds. These funds consist of:

- Construction Funds
- Debt Service Funds
- Debt Service Reserve Funds
- Revenue Fund

Table V-1 is a summary of the forecasted interest earnings from the various funds:

**TABLE V-1
INTEREST EARNINGS
(IN THOUSANDS)**

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>
Construction Funds	\$4,090	\$3,049	\$1,326	\$184	\$7
Debt Service Funds	372	432	436	440	445
Debt Service Reserve Funds	429	515	515	515	515
Revenue Fund	<u>904</u>	<u>1,010</u>	<u>940</u>	<u>790</u>	<u>579</u>
TOTALS	\$5,795	\$5,006	\$3,217	\$1,929	\$1,546

For details in regard to the forecasted interest earnings from each of these funds, see the following Exhibits attached hereto:

<u>Fund</u>	<u>Exhibit</u>
Construction Funds	B
Debt Service Funds	C
Debt Service Reserve Funds	D

C. TRANSFER FROM CONSTRUCTION FUND

The engineering staff employed by the Authority is assigned to projects under the Capital Improvement Program. Therefore, the salary and benefit costs of such employees are reimbursed from the Construction Fund account.

SECTION VI RATE COVENANT ANALYSIS

A. AUTHORITY RATE COVENANT

The Authority's Trust Indenture provides for the fixing and charging by the Authority of rates, rents and charges for the water and sewer service furnished by its Water and Sewer System in accordance with the following Authority Rate Covenant. Under the Indenture, the Authority has covenanted with the owners of the bonds to adopt rates complying with either of the following in each 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 percent of the Debt Service Requirements with respect to the bonds authenticated and delivered under the Indenture during the then current Fiscal Year of the Authority.

or

2. 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, 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 Fund 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 Fund and may be used to pay debt service on the Bonds or applied directly to payment of debt service of Bonds) 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 percent of the Debt Service Requirements with respect to the bonds authenticated and delivered under the Indenture during the then current Fiscal Year of the Authority.

The Rate Covenant calculations included herein are based upon Method 1 above.

B. RATE COVENANT CALCULATIONS

Based on the forecasts of 1) Water Sales, 2) Interest Earnings, 3) Operating Expenses, and 4) Debt Service Requirements presented in the proceeding sections of this report, the Coverage Factors for the years 1998 through 2002 were calculated as shown in Table VI-1.

**TABLE VI-1
DEBT SERVICE COVERAGE FACTOR
(IN THOUSANDS)**

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>
CASH BEGINNING OF YEAR	\$22,610	\$25,243	\$23,492	\$19,742	\$14,467
OPERATING REVENUE	55,063	56,851	57,114	57,378	57,644
INTEREST EARNINGS	5,795	5,006	3,217	1,929	1,546
TRANS. - CONSTR. FUND	<u>300</u>	<u>315</u>	<u>325</u>	<u>340</u>	<u>350</u>
TOTAL AVAILABLE FUNDS	83,768	87,415	84,148	79,389	74,007
OPERATING EXPENSES	<u>31,725</u>	<u>32,166</u>	<u>32,645</u>	<u>33,164</u>	<u>33,698</u>
NET AVAILABLE FOR DEBT SERVICE	52,043	55,249	51,503	46,225	40,309
DEBT SERVICE REQUIREMENTS	26,800	31,757	31,761	31,758	31,764
COVERAGE FACTOR	<u>1.94</u>	<u>1.74</u>	<u>1.62</u>	<u>1.46</u>	<u>1.27</u>
CASH AT END OF YEAR	\$25,243	\$23,492	\$19,742	\$14,467	\$8,545

As can be seen from review of Table VI-1, the Debt Service Coverage Factor of 1.20 (minimum) required by Method 1 of the Authority Rate Covenant is satisfied in each year of the study period (1999 through 2002).

EXHIBIT A

CAPITAL IMPROVEMENT PROGRAM
and

PROJECTION OF EXPENDITURES
FROM
CONSTRUCTION FUND

THE PITTSBURGH WATER AND SEWER AUTHORITY

CAPITAL IMPROVEMENT PROGRAM

1998 SERIES BOND ISSUE
January 22, 1998

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THE PITTSBURGH WATER AND SEWER AUTHORITY
 CAPITAL IMPROVEMENT PROGRAM
 1998 SERIES BOND ISSUE
 January 22, 1998

SUMMARY

Description	Budget	Paid Thru 1997	1998	1999	2000	2001	2002	2003
WATER DISTRIBUTION SYSTEM								
CURRENTLY FUNDED PROJECTS	81,261,621	71,549,299	6,320,897	2,581,425	670,000	70,000	70,000	0
PROPOSED 1998 BONDS	3,900,000	0	0	1,600,000	2,300,000	0	0	0
PROPOSED FUTURE BONDS	8,620,000	0	0	0	0	2,850,000	2,850,000	2,920,000
TOTALS	93,781,621	71,549,299	6,320,897	4,181,425	2,970,000	2,920,000	2,920,000	2,920,000
PUMPING AND STORAGE SYSTEMS								
CURRENTLY FUNDED PROJECTS	45,428,024	35,258,378	8,246,836	1,922,810	0	0	0	0
PROPOSED 1998 BONDS	14,000,000	0	0	7,000,000	7,000,000	0	0	0
PROPOSED FUTURE BONDS	0	0	0	0	0	0	0	0
TOTALS	59,428,024	35,258,378	8,246,836	8,922,810	7,000,000	0	0	0
TREATMENT PLANT								
CURRENTLY FUNDED PROJECTS	31,088,976	24,752,624	1,770,982	3,565,370	1,000,000	0	0	0
PROPOSED 1998 BONDS	1,000,000	0	0	0	1,000,000	0	0	0
PROPOSED FUTURE BONDS	5,000,000	0	0	0	0	3,000,000	2,000,000	0
TOTALS	37,088,976	24,752,624	1,770,982	3,565,370	2,000,000	3,000,000	2,000,000	0
MISCELLANEOUS TOOLS AND EQUIPMENT								
CURRENTLY FUNDED PROJECTS	3,247,102	2,870,737	203,373	172,992	0	0	0	0
PROPOSED 1998 BONDS	0	0	0	0	0	0	0	0
PROPOSED FUTURE BONDS	0	0	0	0	0	0	0	0
TOTALS	3,247,102	2,870,737	203,373	172,992	0	0	0	0
MISCELLANEOUS PROJECTS								
CURRENTLY FUNDED PROJECTS	9,915,771	7,972,422	943,349	500,000	500,000	0	0	0
PROPOSED 1998 BONDS	1,000,000	0	1,000,000	0	0	0	0	0
PROPOSED FUTURE BONDS	1,500,000	0	0	0	0	500,000	500,000	500,000
TOTALS	12,415,771	7,972,422	1,943,349	500,000	500,000	500,000	500,000	500,000
SEWER SYSTEM								
CURRENTLY FUNDED PROJECTS	54,091,058	35,819,220	9,309,017	7,112,821	1,650,000	200,000	0	0
PROPOSED 1998 BONDS	2,300,000	0	0	300,000	2,000,000	0	0	0
PROPOSED FUTURE BONDS	10,350,000	0	0	0	0	3,450,000	3,450,000	3,450,000
TOTALS	66,741,058	35,819,220	9,309,017	7,412,821	3,650,000	3,650,000	3,450,000	3,450,000
CITY, URA AND OTHER PROJECTS								
CURRENTLY FUNDED PROJECTS	32,426,390	23,096,294	7,717,846	1,287,250	325,000	0	0	0
PROPOSED 1998 BONDS	6,245,000	0	945,000	5,300,000	0	0	0	0
PROPOSED FUTURE BONDS	23,397,050	0	0	0	4,250,000	12,587,050	6,200,000	360,000
TOTALS	62,068,440	23,096,294	8,662,846	6,587,250	4,575,000	12,587,050	6,200,000	360,000

ENGINEERING AND CONSTRUCTION MANGEMENT

CURRENTLY FUNDED PROJECTS	29,514,436	2,924,285	1,230,000	0	0	0	0
PROPOSED 1998 BONDS	0	0	1,750,000	1,750,000	0	0	0
PROPOSED FUTURE BONDS	0	0	0	0	2,750,000	2,000,000	0
TOTALS	29,514,436	2,924,285	2,980,000	1,750,000	2,750,000	2,000,000	1,000,000

CONTINGENCIES

CURRENTLY FUNDED PROJECTS	0	649,338	1,000,000	0	0	0	0
PROPOSED 1998 BONDS	0	0	1,455,000	2,601,908	0	0	0
PROPOSED FUTURE BONDS	0	0	0	0	2,500,000	1,750,000	1,500,000
TOTALS	0	649,338	2,455,000	2,601,908	2,500,000	1,750,000	1,500,000

TOTALS

CURRENTLY FUNDED PROJECTS	230,833,410	38,085,923	19,372,668	4,145,000	270,000	70,000	0
PROPOSED 1998 BONDS	0	1,945,000	17,405,000	16,651,908	0	0	0
PROPOSED FUTURE BONDS	0	0	0	4,250,000	27,637,050	18,750,000	9,730,000
TOTALS	230,833,410	40,030,923	36,777,668	25,046,908	27,907,050	18,820,000	9,730,000

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CIP98B Exh. No.	Line	Description	Budget	Paid Thru 1997	1998		1999		2000	2001	2002	2003
					1998	1999	2000	2001				
WATER DISTRIBUTION SYSTEM												
EXISTING BONDS												
COMPLETED PROJECTS												
AS OF DECEMBER 1, 1997												
A-6	D-3	Small Meters w/remotes	2,300,000	2,298,542	1,458	0	0	0	0	0	0	0
2A-1	8	City Asphalt	370,000	351,372	18,628	0	0	0	0	0	0	0
2A-1	17B	Large Meters	67,896	54,471	13,425	0	0	0	0	0	0	0
2A-1	47	Annual Waterline-1995	778,268	770,277	7,991	0	0	0	0	0	0	0
3A-1	1	Grandview/Stuben	315,000	298,200	16,800	0	0	0	0	0	0	0
4A-1	4A	Reimburse - Fox Chapel	400,000	353,505	46,495	0	0	0	0	0	0	0
4A-1	11A	Fire Hydrants	197,000	188,900	8,100	0	0	0	0	0	0	0
Totals Active Projects			4,428,164	4,315,267	112,897	0	0	0	0	0	0	0
FUNDED PROJECTS TO BE BID												
3A-1	8	Howley Street	200,000	0	200,000	0	0	0	0	0	0	0
3A-1	9	Harker Street	230,000	0	230,000	0	0	0	0	0	0	0
4A-1	1	Dinwiddle Street	500,000	0	500,000	0	0	0	0	0	0	0
4A-1	2	William Street - Arlington to Cola	550,000	0	0	550,000	0	0	0	0	0	0
4A-1	4	Water Service to Fox Chapel	1,100,000	0	1,100,000	0	0	0	0	0	0	0
4A-1	6	Party Line Separations	750,000	0	250,000	250,000	0	0	0	0	0	0
4A-1	7	City Asphalt	300,000	0	20,000	70,000	70,000	0	70,000	70,000	0	0
4A-1	8	Emergency Waterline Contracts	661,425	0	500,000	161,425	0	0	0	0	0	0
4A-1	9	Annual Valve Contract - 1997	675,000	0	675,000	0	0	0	0	0	0	0
4A-1	10	Annual Waterline Contract - 1997	500,000	0	500,000	0	0	0	0	0	0	0
4A-1	10A	Annual Waterline Contract - 1998	500,000	0	0	500,000	0	0	0	0	0	0
4A-1	11	Fire Hydrants	403,000	0	203,000	200,000	0	0	0	0	0	0
4A-1	12	Purchase of Meters	450,000	0	150,000	150,000	0	0	0	0	0	0
4A-1	13	Purchase of Materials	600,000	0	200,000	200,000	0	0	0	0	0	0
4A-1	15	Wiltsie Street	200,000	0	200,000	0	0	0	0	0	0	0
4A-1	16	Kramer Way	0	0	0	0	0	0	0	0	0	0
4A-1	17	Pius Street	380,000	0	380,000	0	0	0	0	0	0	0
4A-1	18	Lincoln Pump Sta-Suction & Disc.	900,000	0	400,000	500,000	0	0	0	0	0	0
4A-1	19	Clean and Cement Line	500,000	0	500,000	0	0	0	0	0	0	0
4A-1	20	Pitometer Survey	200,000	0	200,000	0	0	0	0	0	0	0
Totals Projects to be Bid			9,599,425	0	6,208,000	2,581,425	670,000	70,000	70,000	70,000	0	0
TOTALS - CURRENTLY FUNDED PROJECTS			81,261,621	71,549,299	6,320,897	2,581,425	670,000	70,000	70,000	70,000	0	0

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Line	Description	Budget	Paid Thru 1997	1998	1999	2000	2001	2002	2003
PROPOSED 1998 BONDS									
5A-1 1	Party Line Separation	0	0	0	0	0	0	0	0
5A-1 2	City Asphalt	0	0	0	0	0	0	0	0
5A-1 3	Emergency Waterline Contracts	800,000	0	0	300,000	500,000	0	0	0
5A-1 4	Annual Valve Contract	1,000,000	0	0	500,000	500,000	0	0	0
5A-1 5	Annual Waterline Contract	500,000	0	0	500,000	0	0	0	0
5A-1 6	Fire Hydrants	0	0	0	0	0	0	0	0
5A-1 7	Water Meters	0	0	0	0	0	0	0	0
5A-1 8	Purchase of Materials	0	0	0	0	0	0	0	0
5A-1 9	Replace 4-Inch Waterlines	400,000	0	0	200,000	200,000	0	0	0
5A-1 10	Clean and Cement Line	1,000,000	0	0	500,000	500,000	0	0	0
5A-1 11	Pitometer Survey	200,000	0	0	100,000	100,000	0	0	0
	Total Proposed 1998 Bonds	3,900,000	0	0	1,600,000	2,300,000	0	0	0

PROPOSED FUTURE BONDS

5A-1 1	Party Line Separation	750,000	0	0	0	0	250,000	250,000	250,000
5A-1 2	City Asphalt	70,000	0	0	0	0	0	0	70,000
5A-1 3	Emergency Waterline Contracts	1,500,000	0	0	0	0	500,000	500,000	500,000
5A-1 4	Annual Valve Contract	1,500,000	0	0	0	0	500,000	500,000	500,000
5A-1 5	Annual Waterline Contract	1,500,000	0	0	0	0	500,000	500,000	500,000
5A-1 6	Fire Hydrants	0	0	0	0	0	0	0	0
5A-1 7	Water Meters	0	0	0	0	0	0	0	0
5A-1 8	Purchase of Materials	0	0	0	0	0	0	0	0
5A-1 9	Replace 4-Inch Waterlines	1,200,000	0	0	0	0	400,000	400,000	400,000
5A-1 10	Clean and Cement Line	1,500,000	0	0	0	0	500,000	500,000	500,000
5A-1 11	Pitometer Survey	600,000	0	0	0	0	200,000	200,000	200,000
	Total Proposed Future Bonds	8,620,000	0	0	0	0	2,850,000	2,850,000	2,920,000

SUMMARY WATER DISTRIBUTION SYSTEM

Description	Budget	Paid Thru 1997	1998	1999	2000	2001	2002	2003
CURRENTLY FUNDED PROJECTS	81,261,621	71,549,299	6,320,897	2,581,425	670,000	70,000	70,000	0
PROPOSED 1998 BONDS	3,900,000	0	0	1,600,000	2,300,000	0	0	0
PROPOSED FUTURE BONDS	8,620,000	0	0	0	0	2,850,000	2,850,000	2,920,000
TOTALS	93,781,621	71,549,299	6,320,897	4,181,425	2,970,000	2,920,000	2,920,000	2,920,000

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CIP98B Exh. No.	Line	Description	Budget	Paid Thru 1997	1998	1999	2000	2001	2002	2003	
											PUMPING AND STORAGE SYSTEM
EXISTING BONDS											
COMPLETED PROJECTS											
AS OF DECEMBER 1, 1997											
ACTIVE PROJECTS											
3A-2	2	Millvale Pump Station	320,000	301,048	18,952	0	0	0	0	0	
3A-2	4	Lanpher Reservoir - Landscaping	150,000	0	150,000	0	0	0	0	0	
4A-2	1	Lanpher Reservoir - Valves	940,000	934,357	5,643	0	0	0	0	0	
4A-2	2	Lanpher Reservoir - Cover	3,200,000	2,778,095	421,905	0	0	0	0	0	
4A-2	11	McNaugher Reservoir	1,200,000	749,664	450,336	0	0	0	0	0	
Totals Active Projects			5,810,000	4,763,164	1,046,836	0	0	0	0	0	
FUNDED PROJECTS TO BE BID											
4A-2	3	Venturi Program	250,000	0	0	250,000	0	0	0	0	
4A-2	4	Switchgear at Pump Stations	500,000	0	250,000	250,000	0	0	0	0	
4A-2	5	Limitorque Operators - Brilliant	750,000	0	300,000	450,000	0	0	0	0	
4A-2	6	Electric Check Valves - Brilliant	750,000	0	300,000	450,000	0	0	0	0	
4A-2	7	Pumps, Motors & Switchgear at Highland	250,000	0	250,000	0	0	0	0	0	
4A-2	8	HVAC Improvements at Pump Stations	272,810	0	0	272,810	0	0	0	0	
4A-2	9	Inspect 72-inch River Crossing Lines	100,000	0	100,000	0	0	0	0	0	
4A-2	13	Highland No. 2 Reservoir - Cover	6,000,000	0	6,000,000	0	0	0	0	0	
4A-2	14	Howard Pump Station	250,000	0	0	250,000	0	0	0	0	
Totals Projects to be Bid			9,122,810	0	7,200,000	1,922,810	0	0	0	0	
TOTALS - CURRENTLY FUNDED PROJECTS			45,428,024	35,258,378	8,246,836	1,922,810	0	0	0	0	
PROPOSED 1998 BONDS											
5A-2	1	Highland No. 1 Reservoir - Cover	14,000,000	0	0	7,000,000	7,000,000	0	0	0	
Total Proposed 1998 Bonds			14,000,000	0	0	7,000,000	7,000,000	0	0	0	
PROPOSED FUTURE BONDS											
Total Proposed Future Bonds			0	0	0	0	0	0	0	0	

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CIP98B
 Exh.
 No. Line

Description	Budget	Paid Thru 1997	1998	1999	2000	2001	2002	2003
Description	Budget	Paid Thru 1997	1998	1999	2000	2001	2002	2003
CURRENTLY FUNDED PROJECTS	45,428,024	35,258,378	8,246,836	1,922,810	0	0	0	0
PROPOSED 1998 BONDS	14,000,000	0	0	7,000,000	7,000,000	0	0	0
PROPOSED FUTURE BONDS	0	0	0	0	0	0	0	0
TOTALS	59,428,024	35,258,378	8,246,836	8,922,810	7,000,000	0	0	0

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CIP98B Exh. No.	Line	Description	Budget	Paid Thru 1997	1998		1999	2000	2001	2002	2003
					TREATMENT PLANT	EXISTING BONDS					
COMPLETED PROJECTS											
AS OF DECEMBER 1, 1997											
ACTIVE PROJECTS											
2A-10	16	Chemical Solution Lines	245,000	238,428	6,572	0	0	0	0	0	0
2A-10	17	Clarifier Inlet Flume	250,000	199,828	50,172	0	0	0	0	0	0
4A-3	7	Pilot Plant	700,000	30,762	469,238	200,000	0	0	0	0	0
Totals Active Projects			1,195,000	469,018	525,982	200,000	0	0	0	0	0
FUNDED PROJECTS TO BE BID											
4A-3	1	Rehab. Water Quality Laboratory	800,000	0	0	800,000	0	0	0	0	0
4A-3	2	Filter Backwash System	300,370	0	0	300,370	0	0	0	0	0
4A-3	3	Chemicals, Chlorine & Sludge Handling	4,000,000	0	1,000,000	2,000,000	1,000,000	0	0	0	0
4A-3	4	Hydrofluosilicic Acid	65,000	0	0	65,000	0	0	0	0	0
4A-3	5	Clearwell Inspection	45,000	0	45,000	0	0	0	0	0	0
4A-3	6	East and West Intake Structures	400,000	0	200,000	200,000	0	0	0	0	0
Totals Projects to be Bid			5,610,370	0	1,245,000	3,365,370	1,000,000	1,000,000	0	0	0
TOTALS - CURRENTLY FUNDED PROJECTS			31,088,976	24,752,624	1,770,982	3,565,370	1,000,000	1,000,000	0	0	0
PROPOSED 1998 BONDS											
5A-3	1	Chemical, Chlorine & Sludge Handling	1,000,000	0	0	0	1,000,000	0	0	0	0
Total Proposed 1998 Bonds			1,000,000	0	0	0	1,000,000	0	0	0	0
PROPOSED FUTURE BONDS											
5A-3	1	Chemical, Chlorine & Sludge Handling	5,000,000	0	0	0	0	3,000,000	2,000,000	0	0
Total Proposed Future Bonds			5,000,000	0	0	0	0	3,000,000	2,000,000	0	0

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Description	Budget	SUMMARY TREATMENT PLANT						
		Paid Thru 1997	1998	1999	2000	2001	2002	2003
CURRENTLY FUNDED PROJECTS	31,088,976	24,752,624	1,770,982	3,565,370	1,000,000	0	0	0
PROPOSED 1998 BONDS	1,000,000	0	0	0	1,000,000	0	0	0
PROPOSED FUTURE BONDS	5,000,000	0	0	0	0	3,000,000	2,000,000	0
TOTALS	37,088,976	24,752,624	1,770,982	3,565,370	2,000,000	3,000,000	2,000,000	0

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CIP98B Exh. No.	Line	Description	Budget	Paid Thru 1997	1998	1999	2000	2001	2002	2003
COMPLETED PROJECTS										
AS OF DECEMBER 1, 1997										
EXISTING BONDS										
MISCELLANEOUS TOOLS AND EQUIPMENT										
4A-4	1B	6 Dump Trucks	426,288	419,988	6,300	0	0	0	0	0
4A-4	1C	Parts for Clarifier	44,686	0	44,686	0	0	0	0	0
4A-4	1E	Clarifier Flights	12,184	0	12,184	0	0	0	0	0
4A-4	1B	PRV for Millvale Pump Station	1,175	0	1,175	0	0	0	0	0
Totals Active Projects			484,333	419,988	64,345	0	0	0	0	0
FUNDED PROJECTS TO BE BID										
3A-4	1	Miscellaneous Tools & Equipment	139,028	0	139,028	0	0	0	0	0
4A-4	1	Miscellaneous Tools & Equipment	172,992	0	0	172,992	0	0	0	0
Totals Projects to be Bid			312,020	0	139,028	172,992	0	0	0	0
TOTALS - CURRENTLY FUNDED PROJECTS			3,247,102	2,870,737	203,373	172,992	0	0	0	0
PROPOSED 1998 BONDS										
5A-4	1	Miscellaneous Tools & Equipment	0	0	0	0	0	0	0	0
Total Proposed 1998 Bonds			0	0	0	0	0	0	0	0
PROPOSED FUTURE BONDS										
5A-4	1	Miscellaneous Tools & Equipment	0	0	0	0	0	0	0	0
Total Proposed Future Bonds			0	0	0	0	0	0	0	0
SUMMARY MISCELLANEOUS TOOLS AND EQUIPMENT										
MISCELLANEOUS TOOLS AND EQUIPMENT										
			Budget	Paid Thru 1997	1998	1999	2000	2001	2002	2003
CURRENTLY FUNDED PROJECTS			3,247,102	2,870,737	203,373	172,992	0	0	0	0
PROPOSED 1998 BONDS			0	0	0	0	0	0	0	0
PROPOSED FUTURE BONDS			0	0	0	0	0	0	0	0
TOTALS			3,247,102	2,870,737	203,373	172,992	0	0	0	0

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CIP98B Exh. No.	Line	Description	Budget	Paid Thru		1998		1999		2000		2001		2002		2003	
				1997	1998	1998	1999	2000	2001	2002	2003						
COMPLETED PROJECTS																	
AS OF DECEMBER 1, 1997																	
ACTIVE PROJECTS																	
2A-12	1B	CADD - Sewer System	500,000	414,691	85,309	0	0	0	0	0	0	0	0	0	0	0	0
2A-13	1C	Computer Hydraulic Modeling	506,034	504,251	1,783	0	0	0	0	0	0	0	0	0	0	0	0
4A-5	1A	CADD - THRU 1997	200,000	133,478	66,522	0	0	0	0	0	0	0	0	0	0	0	0
4A-5	2	Billing System	2,200,000	2,010,265	189,735	0	0	0	0	0	0	0	0	0	0	0	0
Totals Active Projects			3,406,034	3,062,685	343,349	0	0	0	0	0	0	0	0	0	0	0	0
FUNDED PROJECTS TO BE BID																	
4A-5	1	AM/FM (CADD) System	1,300,000	0	300,000	500,000	0	0	0	0	0	0	0	0	0	0	0
4A-5	3	Underground Fuel Tanks	300,000	0	300,000	0	0	0	0	0	0	0	0	0	0	0	0
Totals Projects to be Bid			1,600,000	0	600,000	500,000	0	0	0	0	0	0	0	0	0	0	0
TOTALS - CURRENTLY FUNDED PROJECTS																	
			9,915,771	7,972,422	943,349	500,000	0	0	0	0	0	0	0	0	0	0	0
PROPOSED 1998 BONDS																	
5A-5	1	AM/FM (CADD) System	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5A-5	2	Acquisition of Existing Systems	1,000,000	0	1,000,000	0	0	0	0	0	0	0	0	0	0	0	0
Total Proposed 1998 Bonds			1,000,000	0	1,000,000	0	0	0	0	0	0	0	0	0	0	0	0
PROPOSED FUTURE BONDS																	
5A-5	1	AM/FM (CADD) System	1,500,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5A-5	2	Acquisition of Existing Systems	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total Proposed Future Bonds			1,500,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
SUMMARY MISCELLANEOUS PROJECTS																	
				Paid Thru		1998		1999		2000		2001		2002		2003	
				1997		1998		1999		2000		2001		2002		2003	
CURRENTLY FUNDED PROJECTS			9,915,771	7,972,422	943,349	500,000	0	0	0	0	0	0	0	0	0	0	0
PROPOSED 1998 BONDS			1,000,000	0	1,000,000	0	0	0	0	0	0	0	0	0	0	0	0
PROPOSED FUTURE BONDS			1,500,000	0	0	0	0	0	0	0	0	0	0	0	0	0	0
TOTALS			12,415,771	7,972,422	1,943,349	500,000	0	0	0	0	0	0	0	0	0	0	0

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CIP98B Exh. No.	Line	Description	Budget	Paid Thru 1997	1998 SEWER SYSTEM	1999	2000	2001	2002	2003
COMPLETED PROJECTS										
AS OF DECEMBER 1, 1997										
ACTIVE PROJECTS										
2B-1	53A	Provost/Fairhaven A	365,000	365,000	0	0	0	0	0	0
2B-1	53B	Provost/Fairhaven A	417,256	417,256	0	0	0	0	0	0
2B-4	3F	Flow Meters	55,885	52,867	3,018	0	0	0	0	0
3B-1	9	Kenton Way Steps	150,000	0	0	150,000	0	0	0	0
4B-1	1B	1997 Annual Sewer	727,931	246,147	481,784	0	0	0	0	0
4B-1	2B	1997 Catch Basin/Man Hole	686,949	62,264	624,685	0	0	0	0	0
4B-1	3B	7th and Ft. Duquesne - Emergency	200,000	929,157	(729,157)	0	0	0	0	0
4B-1	3D	Anthony Street - Emergency	250,000	305,701	(55,701)	0	0	0	0	0
4B-1	4A	MH/CB Frames	137,179	126,535	10,644	0	0	0	0	0
4B-1	13	1997 Sewer Lining	1,500,000	0	1,500,000	0	0	0	0	0
Totals Active Projects			4,490,200	2,504,927	1,835,273	150,000	0	0	0	0
FUNDED PROJECTS TO BE BID										
2B-1	77	Bryant Street	290,000	0	290,000	0	0	0	0	0
2B-1	78	Berkshire Dtreot	200,000	0	200,000	0	0	0	0	0
2B-1	79	Chartiers Street	180,000	0	180,000	0	0	0	0	0
2B-4	3	Equipment, Tools & Vehicles	8,024	0	8,024	0	0	0	0	0
2B-4	4	Equipment, Tools & Vehicles	200,000	0	200,000	0	0	0	0	0
3B-1	1	Ellsworth/Morewood	250,000	0	250,000	0	0	0	0	0
3B-1	6	Sewer Line Emergencies	80,831	0	80,831	0	0	0	0	0
4B-1	1	Annual Sewer Contract - 1999	500,000	0	0	500,000	0	0	0	0
4B-1	2	Annual Manhole/Catch Basin Contract	500,000	0	0	500,000	0	0	0	0
4B-1	3	Emergency Sewer Line Contracts	639,889	0	439,889	0	0	0	0	0
4B-1	4	Equipment, Tools & Vehicles	612,821	0	0	212,821	200,000	0	0	0
4B-1	5	Sewage Pump Station Improvements	500,000	0	250,000	250,000	0	0	0	0
4B-1	6	CSO's Engineering	1,500,000	0	500,000	500,000	0	0	0	0
4B-1	7	CSO's Implementation	1,000,000	0	200,000	400,000	400,000	0	0	0
4B-1	8	McNielly Road	400,000	0	0	400,000	0	0	0	0
4B-1	9	Dawn Avenue	300,000	0	300,000	0	0	0	0	0
4B-1	10	Maddock Place	75,000	0	75,000	0	0	0	0	0
4B-1	11	Streets Tun/Lincoln Place	350,000	0	0	350,000	0	0	0	0
4B-1	12	California Avenue	1,200,000	0	800,000	400,000	0	0	0	0
4B-1	14	Merchant Street	2,000,000	0	1,000,000	1,000,000	0	0	0	0
4B-1	15	Carnegie Mellon	2,000,000	0	1,000,000	1,000,000	0	0	0	0

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Exh.	No.	Line	Description	Budget	Paid Thru 1997	1998	1999	2000	2001	2002	2003
4B-1	16		South 11th Street	150,000	0	0	150,000	0	0	0	0
4B-1	18		Ellisworth/Morewood	750,000	0	750,000	0	0	0	0	0
4B-1	19		Dinwiddle Street	750,000	0	750,000	0	0	0	0	0
4B-1	20		Verner Avenue	50,000	0	0	50,000	0	0	0	0
4B-1	21		Sewer Cleaning & TV Inspection	300,000	0	0	150,000	150,000	0	0	0
4B-1	22		Unsewered Areas	800,000	0	0	400,000	400,000	0	0	0
4B-1	23		Annual Sewer Lining - 1999	500,000	0	0	500,000	0	0	0	0
4B-1	24		22nd Street Sewer	200,000	0	200,000	0	0	0	0	0
Totals Projects to be Bid				16,286,565	0	7,473,744	6,962,821	1,650,000	200,000	0	0
TOTALS - CURRENTLY FUNDED PROJECTS				54,091,058	35,819,220	9,309,017	7,112,821	1,650,000	200,000	0	0

PROPOSED 1998 BONDS

5B-1	1		Annual Sewer Contract	500,000	0	0	0	500,000	0	0	0
5B-1	2		Annual Manhole/Catch Basin Contract	500,000	0	0	0	500,000	0	0	0
5B-1	3		Emergency Sewer Line Contracts	800,000	0	0	300,000	500,000	0	0	0
5B-1	4		Equipment, Tools & Vehicles	0	0	0	0	0	0	0	0
5B-1	5		CSO/SSO - Engineering	0	0	0	0	0	0	0	0
5B-1	6		CSO/SSO - Implementation	0	0	0	0	0	0	0	0
5B-1	7		Sewer Lining Contract	500,000	0	0	0	500,000	0	0	0
5B-1	8		Sewer Cleaning & TV Inspection	0	0	0	0	0	0	0	0
5B-1	9		Unsewered Areas	0	0	0	0	0	0	0	0
Total Proposed 1998 Bonds				2,300,000	0	0	300,000	2,000,000	0	0	0

PROPOSED FUTURE BONDS

5B-1	1		Annual Sewer Contract	1,500,000	0	0	0	0	500,000	500,000	500,000
5B-1	2		Annual Manhole/Catch Basin Contract	1,500,000	0	0	0	0	500,000	500,000	500,000
5B-1	3		Emergency Sewer Line Contracts	1,500,000	0	0	0	0	500,000	500,000	500,000
5B-1	4		Equipment, Tools & Vehicles	0	0	0	0	0	0	0	0
5B-1	5		CSO/SSO - Engineering	1,500,000	0	0	0	0	500,000	500,000	500,000
5B-1	6		CSO/SSO - Implementation	1,200,000	0	0	0	0	0	0	0
5B-1	7		Sewer Lining Contract	1,500,000	0	0	0	0	400,000	400,000	400,000
5B-1	8		Sewer Cleaning & TV Inspection	450,000	0	0	0	0	500,000	500,000	500,000
5B-1	9		Unsewered Areas	1,200,000	0	0	0	0	150,000	150,000	150,000
Total Proposed Future Bonds				10,350,000	0	0	0	0	3,450,000	3,450,000	3,450,000

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CIP98B Exh. No.	Line	Description	Budget	Paid Thru 1997	1998	1999	2000	2001	2002	2003
		Description	Budget	Paid Thru 1997	1998	1999	2000	2001	2002	2003
		CURRENTLY FUNDED PROJECTS	54,091,058	35,819,220	9,309,017	7,112,821	1,650,000	200,000	0	0
		PROPOSED 1998 BONDS	2,300,000	0	0	300,000	2,000,000	0	0	0
		PROPOSED FUTURE BONDS	10,350,000	0	0	0	0	3,450,000	3,450,000	3,450,000
		TOTALS	66,741,058	35,819,220	9,309,017	7,412,821	3,650,000	3,650,000	3,450,000	3,450,000

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CIP98B Exh. No.	Line	Description	Budget	Paid Thru 1997	CITY, URA AND OTHER PROJECTS							
					1998	1999	2000	2001	2002	2003		
COMPLETED PROJECTS												
AS OF DECEMBER 1, 1997			12,214,064	12,214,064	0	0	0	0	0	0	0	0
ACTIVE PROJECTS												
2A-2	1	Grant/Liberty - Phase III	1,335,000	1,189,566	145,434	0	0	0	0	0	0	0
2A-2	6	Arlington Avenue - Phase II	1,228,825	1,223,009	5,816	0	0	0	0	0	0	0
2A-2	34	Walbridge Street	685,001	587,204	97,797	0	0	0	0	0	0	0
2A-2	35	Stonelea Street	215,000	197,838	17,162	0	0	0	0	0	0	0
2A-2	36	Crawford/Roberts - URA	4,945,000	4,263,346	281,654	400,000	0	0	0	0	0	0
2A-2	41	Washington Landing - URA	700,000	682,737	17,263	0	0	0	0	0	0	0
2A-2	42	Fifth Avenue/Ross - Phase I	620,000	623,203	(3,203)	0	0	0	0	0	0	0
4C-1	1	Fifth Avenue - Phase II	1,325,000	882,058	242,942	200,000	0	0	0	0	0	0
4C-1	10	Meadow Street Bridge	10,000	9,718	282	0	0	0	0	0	0	0
4C-1	14A	S.S River Front Housing - URA	1,170,000	613,597	556,403	0	0	0	0	0	0	0
4C-1	15	S.S Industrial Development - URA	2,310,000	0	2,310,000	0	0	0	0	0	0	0
4C-1	16A	North Shore - Lincoln - URA	100,000	74,230	25,770	0	0	0	0	0	0	0
4C-1	16B	North Shore - ALCOA - URA	200,000	0	200,000	0	0	0	0	0	0	0
4C-1	18	Allegheng Riverfront Park	550,000	0	550,000	0	0	0	0	0	0	0
4C-1	19	OakBrook (Warrior Hill) - URA	705,000	494,014	210,986	0	0	0	0	0	0	0
4C-1	21	Smallman Street - Sidewalks	92,000	0	92,000	0	0	0	0	0	0	0
4C-1	24	Indus/West Point/Wapallo	67,000	0	67,000	0	0	0	0	0	0	0
4C-1	26	First Avenue	43,000	41,710	1,290	0	0	0	0	0	0	0
4C-1	27	Alger-Raff	49,000	0	49,000	0	0	0	0	0	0	0
4C-1	32	Grandview Crest - Ura	40,000	0	40,000	0	0	0	0	0	0	0
Totals Active Projects			16,389,826	10,882,230	4,907,596	600,000	0	0	0	0	0	0
FUNDED PROJECTS TO BE BID												
2A-2	13	Harpen Road-Colby to Evergreen	220,000	0	0	220,000	0	0	0	0	0	0
4C-1	2	Wood Street - Phase I	1,104,000	0	1,104,000	0	0	0	0	0	0	0
4C-1	5	Suffolk/Coleman/Penelope	161,000	0	161,000	0	0	0	0	0	0	0
4C-1	6	South 30th Street	136,000	0	28,750	107,250	0	0	0	0	0	0
4C-1	7	Ft. Pitt Boulevard	325,000	0	0	325,000	0	0	0	0	0	0
4C-1	9	Panther Hollow Bridge	130,000	0	0	130,000	0	0	0	0	0	0
4C-1	12	Station Square Road	40,000	0	40,000	0	0	0	0	0	0	0
4C-1	14	S.S River Front Housing - URA	65,000	0	65,000	0	0	0	0	0	0	0
4C-1	17	Nine Mile Run Redevelopment - URA	1,000,000	0	1,000,000	0	0	0	0	0	0	0

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Exh. No.	Line	Description	Budget	Paid Thru 1997	1998	1999	2000	2001	2002	2003
CIP98B										
4C-1	20	New Residential Initiatives - URA	0							
4C-1	22	Pioneer Avenue - Phase I	200,000	0	200,000	0	0	0	0	0
4C-1	23	Pioneer Avenue - Phase II	81,000	0	81,000	0	0	0	0	0
4C-1	28	Chartiers/Hillboro	10,000	0	10,000	0	0	0	0	0
4C-1	29	Virginia/Woodruff	65,500	0	65,500	0	0	0	0	0
4C-1	30	Kramer Way	155,000	0	155,000	0	0	0	0	0
4C-1	31	Biglow Boulevard	75,000	0	75,000	0	0	0	0	0
		Totals Projects to be Bid	55,000	0	55,000	0	0	0	0	0
			3,822,500	0	2,810,250	687,250	325,000	0	0	0
		TOTALS - CURRENTLY FUNDED PROJECTS	32,426,390	23,096,294	7,717,846	1,287,250	325,000	0	0	0
		PROPOSED 1998 BONDS								
5C-1	1	Wood Street - Phase II	0	0	0	0	0	0	0	0
5C-1	2	Ft. Duquesne Boulevard	0	0	0	0	0	0	0	0
5C-1	3	Smithfield Street	0	0	0	0	0	0	0	0
5C-1	4	McArdle Roadway	0	0	0	0	0	0	0	0
5C-1	5	River Avenue	0	0	0	0	0	0	0	0
5C-1	6	Neighborhood Streets	0	0	0	0	0	0	0	0
5C-1	7	West Ohio Street Bridge	0	0	0	0	0	0	0	0
5C-1	8	South Milvale Avenue Bridge	100,000	0	0	100,000	0	0	0	0
5C-1	9	South Highland Avenue Bridge	0	0	0	0	0	0	0	0
5C-1	10	Carnahan Road Bridge	0	0	0	0	0	0	0	0
5C-1	11	Edgebrook Avenue Bridge	25,000	0	0	25,000	0	0	0	0
5C-1	12	Second Avenue over Nine Mile	25,000	0	0	25,000	0	0	0	0
5C-1	13	S.S River Front Housing - URA	1,635,000	0	835,000	800,000	0	0	0	0
5C-1	14	S.S Industrial Development - URA	1,100,000	0	0	1,100,000	0	0	0	0
5C-1	15	Nine Mile Run Redevelopment - URA	1,000,000	0	0	1,000,000	0	0	0	0
5C-1	16	Allequippa Terrace	1,000,000	0	0	1,000,000	0	0	0	0
5C-1	17	Bedford Dwellings	1,000,000	0	0	1,000,000	0	0	0	0
5C-1	18	New Development Initiatives	250,000	0	0	250,000	0	0	0	0
5C-1	19	Federal North	110,000	0	110,000	0	0	0	0	0
		Total Proposed 1998 Bonds	6,245,000	0	945,000	5,300,000	0	0	0	0
		PROPOSED FUTURE BONDS								
5C-1	1	Wood Street - Phase II	525,000	0	0	0	0	525,000	0	0
5C-1	2	Ft. Duquesne Boulevard	3,520,000	0	0	0	0	3,520,000	0	0
5C-1	3	Smithfield Street	2,100,000	0	0	0	0	0	2,100,000	0
5C-1	4	McArdle Roadway	1,050,000	0	0	0	0	0	1,050,000	0
5C-1	5	River Avenue	210,000	0	0	0	0	0	0	210,000
5C-1	6	Neighborhood Streets	392,050	0	0	0	0	92,050	150,000	150,000

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Line No.	Description	Budget	Paid Thru 1997	1998	1999	2000	2001	2002	2003
5C-1 7	West Ohio Street Bridge	200,000	0	0	0	0	200,000	0	0
5C-1 8	South Milvale Avenue Bridge	0	0	0	0	0	0	0	0
5C-1 9	South Highland Avenue Bridge	100,000	0	0	0	0	0	100,000	0
5C-1 10	Carnahan Road Bridge	50,000	0	0	0	0	0	50,000	0
5C-1 11	Edgebrook Avenue Bridge	0	0	0	0	0	0	0	0
5C-1 12	Second Avenue over Nine Mile	0	0	0	0	0	0	0	0
5C-1 13	S.S River Front Housing - URA	0	0	0	0	0	0	0	0
5C-1 14	S.S Industrial Development - URA	3,000,000	0	0	0	1,000,000	2,000,000	0	0
5C-1 15	Nine Mile Run Redevelopment - URA	2,500,000	0	0	0	1,000,000	1,500,000	0	0
5C-1 16	Allequippa Terrace	5,000,000	0	0	0	1,000,000	2,500,000	1,500,000	0
5C-1 17	Bedford Dwellings	4,000,000	0	0	0	1,000,000	2,000,000	1,000,000	0
5C-1 18	New Development Initiatives	750,000	0	0	0	250,000	250,000	250,000	0
5C-1 19	Federal North	0	0	0	0	0	0	0	0
	Total Proposed Future Bonds	23,397,050	0	0	0	4,250,000	12,587,050	6,200,000	360,000

SUMMARY - CITY, URA AND OTHER PROJECTS

Description	Budget	Paid Thru 1997	1998	1999	2000	2001	2002	2003
CURRENTLY FUNDED PROJECTS	32,426,390	23,096,294	7,717,846	1,287,250	325,000	0	0	0
PROPOSED 1998 BONDS	6,245,000	0	945,000	5,300,000	0	0	0	0
PROPOSED FUTURE BONDS	23,397,050	0	0	0	4,250,000	12,587,050	6,200,000	360,000
TOTALS	62,068,440	23,096,294	8,662,846	6,587,250	4,575,000	12,587,050	6,200,000	360,000

THE PITTSBURGH WATER AND SEWER AUTHORITY
 CAPITAL IMPROVEMENT PROGRAM
 1998 SERIES BOND ISSUE
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CIP98B Exh. No.	Line	Description	Budget	Paid Thru 1997	1998		1999		2000	2001	2002	2003
					Engineering and Construction Management	Existing Bonds	Engineering and Construction Management	Existing Bonds				
COMPLETED PROJECTS												
AS OF DECEMBER 1, 1997			23,738,270	23,738,270	0	0	0	0	0	0	0	0
ACTIVE PROJECTS												
Att. 2A	E	Bodnar Real Estate - Property Appraisal	20,000	8,450	6,550	5,000	0	0	0	0	0	0
Att. 2A	E	Baker - Herron Hill & Bedford	715,000	712,007	2,993	0	0	0	0	0	0	0
Att. 2A	E	D'Appolonia - Highland # 2	150,000	146,072	3,928	0	0	0	0	0	0	0
Att. 2A	E	GAI - Misc. Sewer Design	530,000	489,397	40,603	0	0	0	0	0	0	0
Att. 2A	E	Killiam - Various Water Lines	465,000	456,516	8,484	0	0	0	0	0	0	0
Att. 2A	E	Malcom Pirnie - Plant Chlorination	515,000	362,486	52,514	100,000	0	0	0	0	0	0
Att. 2A	E	Montg. Wilson - Lanpher Reservoir	900,000	722,240	177,760	0	0	0	0	0	0	0
Att. 2A	E	Motorola - Cable Repair	10,000	6,635	3,365	0	0	0	0	0	0	0
Att. 2A	E	MS Consultants - Millvale Pump Station	400,000	164,222	235,778	0	0	0	0	0	0	0
Att. 2A	E	Pirnie - Baker - Highland # 1	255,000	245,336	9,664	0	0	0	0	0	0	0
Att. 2A	E	PennDOT - Permits	25,000	21,068	3,932	0	0	0	0	0	0	0
Att. 2A	E	Prop. Owners - Rights of Way	20,000	12,910	2,090	5,000	0	0	0	0	0	0
4D-1	1	DEC Reimbursement	500,000	359,763	70,237	70,000	0	0	0	0	0	0
4D-1	1	Baker - Fox Chapel	300,000	162,530	87,470	50,000	0	0	0	0	0	0
4D-1	1	Buckhart Horn - Sewage Pump Stations	100,000	88,671	11,329	0	0	0	0	0	0	0
4D-1	1	CH2M Hill - Highland # 2	225,000	168,000	57,000	0	0	0	0	0	0	0
4D-1	1	Chester - Constr. Management	2,000,000	1,412,041	587,959	0	0	0	0	0	0	0
4D-1	1	Chester - Flow Monitoring - Streets Run	39,100	36,100	3,000	0	0	0	0	0	0	0
4D-1	1	Chester - Evaluation	83,000	79,841	3,159	0	0	0	0	0	0	0
4D-1	1	Peterson Consulting - Special	71,881	71,881	0	0	0	0	0	0	0	0
4D-1	1	SPEC - Energy Study	50,000	50,000	0	0	0	0	0	0	0	0
Totals Active Projects			7,373,981	5,776,166	1,367,815	230,000	0	0	0	0	0	0
FUNDED PROJECTS TO BE BID												
Engineering & Construction Management			2,556,470	0	1,556,470	1,000,000	0	0	0	0	0	0
Totals Projects to be Bid			2,556,470	0	1,556,470	1,000,000	0	0	0	0	0	0
TOTALS - CURRENTLY FUNDED PROJECTS			33,668,721	29,514,436	2,924,285	1,230,000	0	0	0	0	0	0
PROPOSED 1998 BONDS												
5D-1	1	Engineering & Construction Management	3,500,000	0	0	1,750,000	1,750,000	0	0	0	0	0
Total Proposed 1998 Bonds			3,500,000	0	0	1,750,000	1,750,000	0	0	0	0	0

THE PITTSBURGH WATER AND SEWER AUTHORITY
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CIP98B
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Line	Description	Budget	PROPOSED FUTURE BONDS						
			Paid Thru 1997	1998	1999	2000	2001	2002	2003
5D-1	1 Engineering & Construction Mangement	5,750,000	0	0	0	0	2,750,000	2,000,000	1,000,000
	Total Proposed Future Bonds	5,750,000	0	0	0	0	2,750,000	2,000,000	1,000,000

SUMMARY ENGINEERING AND CONSTRUCTION MANGEMENT

Description	Budget	Paid Thru						
		1997	1998	1999	2000	2001	2002	2003
CURRENTLY FUNDED PROJECTS	33,668,721	29,514,436	2,924,285	1,230,000	0	0	0	0
PROPOSED 1998 BONDS	3,500,000	0	0	1,750,000	1,750,000	0	0	0
PROPOSED FUTURE BONDS	5,750,000	0	0	0	0	2,750,000	2,000,000	1,000,000
TOTALS	42,918,721	29,514,436	2,924,285	2,980,000	1,750,000	2,750,000	2,000,000	1,000,000

THE PITTSBURGH WATER AND SEWER AUTHORITY
 CAPITAL IMPROVEMENT PROGRAM
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CIP98B Exh. No.	Line	Description	Budget	Paid Thru 1997	1998 CONTINGENCIES			2000	2001	2002	2003	
					EXISTING BONDS	PROPOSED 1998 BONDS	PROPOSED FUTURE BONDS					
		1991 BONDS	157,679	0	157,679	0	0	0	0	0	0	
		1993 BONDS	179,566	0	179,566	0	0	0	0	0	0	
		1995 BONDS	1,312,093	0	312,093	1,000,000	0	0	0	0	0	
		TOTALS - CURRENTLY FUNDED PROJECTS	1,649,338	0	649,338	1,000,000	0	0	0	0	0	
		CONTINGENCIES	4,056,908	0	0	1,455,000	2,601,908	0	0	0	0	
		Total Proposed 1998 Bonds	4,056,908	0	0	1,455,000	2,601,908	0	0	0	0	
		CONTINGENCIES	5,750,000	0	0	0	0	2,500,000	1,750,000	1,500,000	0	
		Total Proposed Future Bonds	5,750,000	0	0	0	0	2,500,000	1,750,000	1,500,000	0	
		SUMMARY CONTINGENCIES										
		Budget		Paid Thru 1997	1998	1999	2000	2001	2002	2003		
		1,649,338	0	0	649,338	1,000,000	2,601,908	0	0	0	0	
		4,056,908	0	0	0	1,455,000	2,601,908	0	0	0	0	
		5,750,000	0	0	0	0	0	2,500,000	1,750,000	1,500,000	0	
		TOTALS	11,456,246	0	649,338	2,455,000	2,601,908	2,500,000	1,750,000	1,500,000	0	

EXHIBIT B

**EARNED INTEREST
CONSTRUCTION FUNDS**

THE PITTSBURGH WATER AND SEWER AUTHORITY

cfint

SUMMARY
CONSTRUCTION FUND INTEREST

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>
Prior	57,375	---	---	---	---
1993	31,500	---	---	---	---
1998A	2,614,073	1,457,727	412,360	55,938	6,600
1998B	1,387,218	1,590,942	913,799	128,154	---
	=====	=====	=====	=====	=====
TOTAL	4,090,166	3,048,669	1,326,159	184,092	6,600

**THE PITTSBURGH WATER AND SEWER AUTHORITY
INTEREST FROM CONSTRUCTION FUNDS**

PRIOR CONSTRUCTION FUND

Balance as of January 1, 1998	2,550,000
Estimated Drawdown in 1998	<u>2,550,000</u>
Balance as of January 1, 1999	0

		Interest Earnings <u>@4 Percent</u>
Average Balance in 1998	1,275,000	57,375

1993 CONSTRUCTION FUND

Balance as of January 1, 1998	1,400,000
Estimated Drawdown in 1998	<u>1,400,000</u>
Balance as of January 1, 1999	0

		Interest Earnings <u>@4 Percent</u>
Average Balance in 1998	700,000	31,500

**THE PITTSBURGH WATER AND SEWER AUTHORITY
INTEREST INCOME FROM 1998 A CONSTRUCTION FUND**

98A-CF	Beginning		Interest	Investment	Ending	Annual	Annual
Date	Balance	Draw	@ 5.20%	Earnings	Balance	Draw	Earnings
Dec 97					58,399,629.00		
Jan 98	58,399,629.00	1,477,998.38	5.200%	253,065.06	56,921,630.63		
Feb 98	56,921,630.63	1,477,998.38	5.200%	246,660.40	55,443,632.25		
Mar 98	55,443,632.25	1,477,998.38	5.200%	240,255.74	53,965,633.88		
Apr 98	53,965,633.88	1,477,998.38	5.200%	233,851.08	52,487,635.50		
May 98	52,487,635.50	1,477,998.38	5.200%	227,446.42	51,009,637.13		
Jun 98	51,009,637.13	1,477,998.38	5.200%	221,041.76	49,531,638.75		
Jul 98	49,531,638.75	1,477,998.38	5.200%	214,637.10	48,053,640.38		
Aug 98	48,053,640.38	1,477,998.38	5.200%	208,232.44	46,575,642.00		
Sep 98	46,575,642.00	1,477,998.38	5.200%	201,827.78	45,097,643.63		
Oct 98	45,097,643.63	1,477,998.38	5.200%	195,423.12	43,619,645.25		
Nov 98	43,619,645.25	1,477,998.38	5.200%	189,018.46	42,141,646.88		
Dec 98	42,141,646.88	1,477,998.38	5.200%	182,613.80	40,663,648.50	17,735,980.50	2,614,073.17
Jan 99	40,663,648.50	2,296,442.88	5.200%	176,209.14	38,367,205.63		
Feb 99	38,367,205.63	2,296,442.88	5.200%	166,257.89	36,070,762.75		
Mar 99	36,070,762.75	2,296,442.88	5.200%	156,306.64	33,774,319.88		
Apr 99	33,774,319.88	2,296,442.88	5.200%	146,355.39	31,477,877.00		
May 99	31,477,877.00	2,296,442.88	5.200%	136,404.13	29,181,434.13		
Jun 99	29,181,434.13	2,296,442.88	5.200%	126,452.88	26,884,991.25		
Jul 99	26,884,991.25	2,296,442.88	5.200%	116,501.63	24,588,548.38		
Aug 99	24,588,548.38	2,296,442.88	5.200%	106,550.38	22,292,105.50		
Sep 99	22,292,105.50	2,296,442.88	5.200%	96,599.12	19,995,662.63		
Oct 99	19,995,662.63	2,296,442.88	5.200%	86,647.87	17,699,219.75		
Nov 99	17,699,219.75	2,296,442.88	5.200%	76,696.62	15,402,776.88		
Dec 99	15,402,776.88	2,296,442.88	5.200%	66,745.37	13,106,334.00	27,557,314.50	1,457,727.06
Jan 00	13,106,334.00	941,152.83	5.200%	56,794.11	12,165,181.17		
Feb 00	12,165,181.17	941,152.83	5.200%	52,715.79	11,224,028.33		
Mar 00	11,224,028.33	941,152.83	5.200%	48,637.46	10,282,875.50		
Apr 00	10,282,875.50	941,152.83	5.200%	44,559.13	9,341,722.67		
May 00	9,341,722.67	941,152.83	5.200%	40,480.80	8,400,569.83		
Jun 00	8,400,569.83	941,152.83	5.200%	36,402.47	7,459,417.00		
Jul 00	7,459,417.00	941,152.83	5.200%	32,324.14	6,518,264.17		
Aug 00	6,518,264.17	941,152.83	5.200%	28,245.81	5,577,111.33		
Sep 00	5,577,111.33	941,152.83	5.200%	24,167.48	4,635,958.50		
Oct 00	4,635,958.50	941,152.83	5.200%	20,089.15	3,694,805.67		
Nov 00	3,694,805.67	941,152.83	5.200%	16,010.82	2,753,652.83		
Dec 00	2,753,652.83	941,152.83	5.200%	11,932.50	1,812,500.00	11,293,834.00	412,359.66
Jan 01	1,812,500.00	133,958.33	5.200%	7,854.17	1,678,541.67		
Feb 01	1,678,541.67	133,958.33	5.200%	7,273.68	1,544,583.33		
Mar 01	1,544,583.33	133,958.33	5.200%	6,693.19	1,410,625.00		
Apr 01	1,410,625.00	133,958.33	5.200%	6,112.71	1,276,666.67		
May 01	1,276,666.67	133,958.33	5.200%	5,532.22	1,142,708.33		
Jun 01	1,142,708.33	133,958.33	5.200%	4,951.74	1,008,750.00		
Jul 01	1,008,750.00	133,958.33	5.200%	4,371.25	874,791.67		
Aug 01	874,791.67	133,958.33	5.200%	3,790.76	740,833.33		
Sep 01	740,833.33	133,958.33	5.200%	3,210.28	606,875.00		
Oct 01	606,875.00	133,958.33	5.200%	2,629.79	472,916.67		
Nov 01	472,916.67	133,958.33	5.200%	2,049.31	338,958.33		
Dec 01	338,958.33	133,958.33	5.200%	1,468.82	205,000.00	1,607,500.00	55,937.92
Jan 02	205,000.00	14,166.67	5.200%	888.33	190,833.33		
Feb 02	190,833.33	14,166.67	5.200%	826.94	176,666.67		
Mar 02	176,666.67	14,166.67	5.200%	765.56	162,500.00		
Apr 02	162,500.00	14,166.67	5.200%	704.17	148,333.33		
May 02	148,333.33	14,166.67	5.200%	642.78	134,166.67		
Jun 02	134,166.67	14,166.67	5.200%	581.39	120,000.00		
Jul 02	120,000.00	14,166.67	5.200%	520.00	105,833.33		
Aug 02	105,833.33	14,166.67	5.200%	458.61	91,666.67		
Sep 02	91,666.67	14,166.67	5.200%	397.22	77,500.00		

**THE PITTSBURGH WATER AND SEWER AUTHORITY
INTEREST INCOME FROM 1998 A CONSTRUCTION FUND**

98A-CF

Date	Beginning Balance	Draw	Interest @ 5.20%	Investment Earnings	Ending Balance	Annual Draw	Annual Earnings
Oct 02	77,500.00	14,166.67	5.200%	335.83	63,333.33		
Nov 02	63,333.33	14,166.67	5.200%	274.44	49,166.67		
Dec 02	49,166.67	14,166.67	5.200%	213.06	35,000.00	170,000.00	6,608.33
Jan 03	35,000.00	5,833.33	5.200%	151.67	29,166.67		
Feb 03	29,166.67	5,833.33	5.200%	126.39	23,333.33		
Mar 03	23,333.33	5,833.33	5.200%	101.11	17,500.00		
Apr 03	17,500.00	5,833.33	5.200%	75.83	11,666.67		
May 03	11,666.67	5,833.33	5.200%	50.56	5,833.33		
Jun 03	5,833.33	5,833.33	5.200%	25.28	0.00	35,000.00	530.83

**THE PITTSBURGH WATER AND SEWER AUTHORITY
INTEREST INCOME FROM 1998 B CONSTRUCTION FUND**

98C-CF Date	Beginning Balance	Draw	Interest @ 5.20%	Investment Earnings	Ending Balance	Annual Draw	Annual Earnings
Mar 98	36,001,908.00		5.200%	0.00	36,001,908.00		
Apr 98	36,001,908.00	108,055.56	5.200%	156,008.27	35,893,852.44		
May 98	35,893,852.44	108,055.56	5.200%	155,540.03	35,785,796.89		
Jun 98	35,785,796.89	108,055.56	5.200%	155,071.79	35,677,741.33		
Jul 98	35,677,741.33	108,055.56	5.200%	154,603.55	35,569,685.78		
Aug 98	35,569,685.78	108,055.56	5.200%	154,135.31	35,461,630.22		
Sep 98	35,461,630.22	108,055.56	5.200%	153,667.06	35,353,574.67		
Oct 98	35,353,574.67	108,055.56	5.200%	153,198.82	35,245,519.11		
Nov 98	35,245,519.11	108,055.56	5.200%	152,730.58	35,137,463.56		
Dec 98	35,137,463.56	108,055.56	5.200%	152,262.34	35,029,408.00	972,500.00	1,387,217.75
Jan 99	35,029,408.00	806,250.00	5.200%	151,794.10	34,223,158.00		
Feb 99	34,223,158.00	806,250.00	5.200%	148,300.35	33,416,908.00		
Mar 99	33,416,908.00	806,250.00	5.200%	144,806.60	32,610,658.00		
Apr 99	32,610,658.00	806,250.00	5.200%	141,312.85	31,804,408.00		
May 99	31,804,408.00	806,250.00	5.200%	137,819.10	30,998,158.00		
Jun 99	30,998,158.00	806,250.00	5.200%	134,325.35	30,191,908.00		
Jul 99	30,191,908.00	806,250.00	5.200%	130,831.60	29,385,658.00		
Aug 99	29,385,658.00	806,250.00	5.200%	127,337.85	28,579,408.00		
Sep 99	28,579,408.00	806,250.00	5.200%	123,844.10	27,773,158.00		
Oct 99	27,773,158.00	806,250.00	5.200%	120,350.35	26,966,908.00		
Nov 99	26,966,908.00	806,250.00	5.200%	116,856.60	26,160,658.00		
Dec 99	26,160,658.00	806,250.00	5.200%	113,362.85	25,354,408.00	9,675,000.00	1,590,941.72
Jan 00	25,354,408.00	1,414,791.67	5.200%	109,869.10	23,939,616.33		
Feb 00	23,939,616.33	1,414,791.67	5.200%	103,738.34	22,524,824.67		
Mar 00	22,524,824.67	1,414,791.67	5.200%	97,607.57	21,110,033.00		
Apr 00	21,110,033.00	1,414,791.67	5.200%	91,476.81	19,695,241.33		
May 00	19,695,241.33	1,414,791.67	5.200%	85,346.05	18,280,449.67		
Jun 00	18,280,449.67	1,414,791.67	5.200%	79,215.28	16,865,658.00		
Jul 00	16,865,658.00	1,414,791.67	5.200%	73,084.52	15,450,866.33		
Aug 00	15,450,866.33	1,414,791.67	5.200%	66,953.75	14,036,074.67		
Sep 00	14,036,074.67	1,414,791.67	5.200%	60,822.99	12,621,283.00		
Oct 00	12,621,283.00	1,414,791.67	5.200%	54,692.23	11,206,491.33		
Nov 00	11,206,491.33	1,414,791.67	5.200%	48,561.46	9,791,699.67		
Dec 00	9,791,699.67	1,414,791.67	5.200%	42,430.70	8,376,908.00	16,977,500.00	913,798.80
Jan 01	8,376,908.00	1,379,166.67	5.200%	36,299.93	6,997,741.33		
Feb 01	6,997,741.33	1,379,166.67	5.200%	30,323.55	5,618,574.67		
Mar 01	5,618,574.67	1,379,166.67	5.200%	24,347.16	4,239,408.00		
Apr 01	4,239,408.00	1,379,166.67	5.200%	18,370.77	2,860,241.33		
May 01	2,860,241.33	1,379,166.67	5.200%	12,394.38	1,481,074.67		
Jun 01	1,481,074.67	1,481,074.67	5.200%	6,417.99	(0.00)	8,275,000.00	128,153.77

EXHIBIT C

**EARNED INTEREST
DEBT SERVICE FUNDS**

dsfin

THE PITTSBURGH WATER AND SEWER AUTHORITY

SUMMARY DEBT SERVICE FUND INTEREST

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>
1993	273,552	277,113	281,482	285,091	289,591
1998A	46,831	73,754	73,876	73,876	73,876
1998C	51,392	80,937	81,071	81,071	81,071
	=====	=====	=====	=====	=====
TOTAL	371,775	431,804	436,429	440,038	444,538

**THE PITTSBURGH WATER AND SEWER AUTHORITY
INTEREST FROM FORWARD FLOAT AGREEMENT
DEBT SERVICE FOR 1993 A & B BONDS**

<u>DATE</u>	<u>INTEREST</u>	<u>ANNUAL</u>
01-MAR-95	55,619.00	
01-SEP-95	123,139.00	178,758.00
01-MAR-96	83,464.00	
01-SEP-96	146,084.00	229,548.00
01-MAR-97	85,796.00	
01-SEP-97	158,117.00	243,913.00
01-MAR-98	91,615.00	
01-SEP-98	181,937.00	273,552.00
01-MAR-99	91,589.00	
01-SEP-99	185,524.00	277,113.00
01-MAR-00	92,431.00	
01-SEP-00	189,051.00	281,482.00
01-MAR-01	91,469.00	
01-SEP-01	193,622.00	285,091.00
01-MAR-02	91,489.00	
01-SEP-02	198,102.00	289,591.00
01-MAR-03	92,245.00	
01-SEP-03	220,931.00	313,176.00
01-MAR-04	92,359.00	
01-SEP-04	207,602.00	<u>299,961.00</u>
		2,672,185.00

**THE PITTSBURGH WATER AND SEWER AUTHORITY
INTEREST INCOME FROM 1998 A DEBT SERVICE FUND**

98ii

<u>Date</u>	<u>Int. Deposit</u>	<u>Princ. Deposit</u>	<u>Withdrawal</u>	<u>Interest @ 5.20%</u>	<u>Balance</u>	<u>Earned Interest</u>
Mar 98	393,759.78	0.00	0.00	0.00	393,759.78	
Apr 98	393,759.78	0.00	0.00	1,706.29	789,225.85	
May 98	393,759.78	0.00	0.00	3,419.98	1,186,405.61	
Jun 98	393,759.78	0.00	0.00	5,141.09	1,585,306.48	
Jul 98	393,759.78	0.00	0.00	6,869.66	1,985,935.92	
Aug 98	393,759.78	0.00	0.00	8,605.72	2,388,301.43	
Sep 98	393,759.78	0.00	2,362,558.75	10,349.31	429,851.76	
Oct 98	393,759.78	0.00	0.00	1,862.69	825,474.23	
Nov 98	393,759.78	0.00	0.00	3,577.06	1,222,811.07	
Dec 98	393,759.78	0.00	0.00	5,298.85	1,621,869.70	46,830.65
Jan 99	393,759.78	0.00	0.00	7,028.10	1,975,826.93	
Feb 99	393,759.78	0.00	0.00	8,561.92	2,378,148.63	
Mar 99	393,759.78	0.00	2,362,558.75	10,305.31	419,654.97	
Apr 99	393,759.78	0.00	0.00	1,818.50	815,233.25	
May 99	393,759.78	0.00	0.00	3,532.68	1,212,525.71	
Jun 99	393,759.78	0.00	0.00	5,254.28	1,611,539.77	
Jul 99	393,759.78	0.00	0.00	6,983.34	2,012,282.89	
Aug 99	393,759.78	0.00	0.00	8,719.89	2,414,762.56	
Sep 99	393,759.78	0.00	2,362,558.75	10,463.97	456,427.56	
Oct 99	393,759.78	0.00	0.00	1,977.85	852,165.20	
Nov 99	393,759.78	0.00	0.00	3,692.72	1,249,617.69	
Dec 99	393,759.78	0.00	0.00	5,415.01	1,648,792.48	73,753.57
Jan 00	393,759.78	0.00	0.00	7,144.77	1,975,943.46	
Feb 00	393,759.78	0.00	0.00	8,562.42	2,378,265.66	
Mar 00	393,759.78	0.00	2,362,558.75	10,305.82	419,772.51	
Apr 00	393,759.78	0.00	0.00	1,819.01	815,351.30	
May 00	393,759.78	0.00	0.00	3,533.19	1,212,644.27	
Jun 00	393,759.78	0.00	0.00	5,254.79	1,611,658.84	
Jul 00	393,759.78	0.00	0.00	6,983.85	2,012,402.48	
Aug 00	393,759.78	0.00	0.00	8,720.41	2,414,882.67	
Sep 00	393,759.78	0.00	2,362,558.75	10,464.49	456,548.19	
Oct 00	393,759.78	0.00	0.00	1,978.38	852,286.34	
Nov 00	393,759.78	0.00	0.00	3,693.24	1,249,739.37	
Dec 00	393,759.78	0.00	0.00	5,415.54	1,648,914.68	73,875.91
Jan 01	393,759.78	0.00	0.00	7,145.30	1,975,943.85	
Feb 01	393,759.78	0.00	0.00	8,562.42	2,378,266.05	
Mar 01	393,759.78	0.00	2,362,558.75	10,305.82	419,772.90	
Apr 01	393,759.78	0.00	0.00	1,819.02	815,351.70	
May 01	393,759.78	0.00	0.00	3,533.19	1,212,644.67	
Jun 01	393,759.78	0.00	0.00	5,254.79	1,611,659.24	
Jul 01	393,759.78	0.00	0.00	6,983.86	2,012,402.88	
Aug 01	393,759.78	0.00	0.00	8,720.41	2,414,883.07	
Sep 01	393,759.78	0.00	2,362,558.75	10,464.49	456,548.59	
Oct 01	393,759.78	0.00	0.00	1,978.38	852,286.75	
Nov 01	393,759.78	0.00	0.00	3,693.24	1,249,739.77	
Dec 01	393,759.78	0.00	0.00	5,415.54	1,648,915.09	73,876.46
Jan 02	393,759.78	0.00	0.00	7,145.30	1,975,943.71	
Feb 02	393,759.78	0.00	0.00	8,562.42	2,378,265.91	
Mar 02	393,759.78	0.00	2,362,558.75	10,305.82	419,772.76	
Apr 02	393,759.78	0.00	0.00	1,819.02	815,351.56	

**THE PITTSBURGH WATER AND SEWER AUTHORITY
INTEREST INCOME FROM 1998 A DEBT SERVICE FUND**

98ii

<u>Date</u>	<u>Int. Deposit</u>	<u>Princ. Deposit</u>	<u>Withdrawal</u>	<u>Interest @ 5.20%</u>	<u>Balance</u>	<u>Earned Interest</u>
May 02	393,759.78	0.00	0.00	3,533.19	1,212,644.53	
Jun 02	393,759.78	0.00	0.00	5,254.79	1,611,659.10	
Jul 02	393,759.78	0.00	0.00	6,983.86	2,012,402.73	
Aug 02	393,759.78	0.00	0.00	8,720.41	2,414,882.93	
Sep 02	393,759.78	0.00	2,362,558.75	10,464.49	456,548.45	
Oct 02	393,759.78	0.00	0.00	1,978.38	852,286.61	
Nov 02	393,759.78	0.00	0.00	3,693.24	1,249,739.63	
Dec 02	393,759.78	0.00	0.00	5,415.54	1,648,914.95	73,876.46

**THE PITTSBURGH WATER AND SEWER AUTHORITY
INTEREST INCOME FROM 1998 C DEBT SERVICE FUND**

98iib

<u>Date</u>	<u>Int. Deposit</u>	<u>Princ. Deposit</u>	<u>Withdrawal</u>	<u>Interest @ 5.20%</u>	<u>Balance</u>	<u>Earned Interest</u>
Mar 98	432,110.52	0.00	0.00	0.00	432,110.52	
Apr 98	432,110.52	0.00	0.00	1,872.48	866,093.52	
May 98	432,110.52	0.00	0.00	3,753.07	1,301,957.11	
Jun 98	432,110.52	0.00	0.00	5,641.81	1,739,709.44	
Jul 98	432,110.52	0.00	0.00	7,538.74	2,179,358.71	
Aug 98	432,110.52	0.00	0.00	9,443.89	2,620,913.11	
Sep 98	432,110.52	0.00	2,592,663.13	11,357.29	471,717.79	
Oct 98	432,110.52	0.00	0.00	2,044.11	905,872.42	
Nov 98	432,110.52	0.00	0.00	3,925.45	1,341,908.39	
Dec 98	432,110.52	0.00	0.00	5,814.94	1,779,833.85	51,391.78
Jan 99	432,110.52	0.00	0.00	7,712.61	2,168,265.20	
Feb 99	432,110.52	0.00	0.00	9,395.82	2,609,771.54	
Mar 99	432,110.52	0.00	2,592,663.13	11,309.01	460,527.94	
Apr 99	432,110.52	0.00	0.00	1,995.62	894,634.08	
May 99	432,110.52	0.00	0.00	3,876.75	1,330,621.35	
Jun 99	432,110.52	0.00	0.00	5,766.03	1,768,497.89	
Jul 99	432,110.52	0.00	0.00	7,663.49	2,208,271.90	
Aug 99	432,110.52	0.00	0.00	9,569.18	2,649,951.60	
Sep 99	432,110.52	0.00	2,592,663.13	11,483.12	500,882.12	
Oct 99	432,110.52	0.00	0.00	2,170.49	935,163.13	
Nov 99	432,110.52	0.00	0.00	4,052.37	1,371,326.02	
Dec 99	432,110.52	0.00	0.00	5,942.41	1,809,378.95	80,936.90
Jan 00	432,110.52	0.00	0.00	7,840.64	2,168,393.21	
Feb 00	432,110.52	0.00	0.00	9,396.37	2,609,900.10	
Mar 00	432,110.52	0.00	2,592,663.13	11,309.57	460,657.06	
Apr 00	432,110.52	0.00	0.00	1,996.18	894,763.76	
May 00	432,110.52	0.00	0.00	3,877.31	1,330,751.59	
Jun 00	432,110.52	0.00	0.00	5,766.59	1,768,628.70	
Jul 00	432,110.52	0.00	0.00	7,664.06	2,208,403.28	
Aug 00	432,110.52	0.00	0.00	9,569.75	2,650,083.55	
Sep 00	432,110.52	0.00	2,592,663.13	11,483.70	501,014.63	
Oct 00	432,110.52	0.00	0.00	2,171.06	935,296.21	
Nov 00	432,110.52	0.00	0.00	4,052.95	1,371,459.68	
Dec 00	432,110.52	0.00	0.00	5,942.99	1,809,513.20	81,071.17
Jan 01	432,110.52	0.00	0.00	7,841.22	2,168,393.77	
Feb 01	432,110.52	0.00	0.00	9,396.37	2,609,900.67	
Mar 01	432,110.52	0.00	2,592,663.13	11,309.57	460,657.63	
Apr 01	432,110.52	0.00	0.00	1,996.18	894,764.33	
May 01	432,110.52	0.00	0.00	3,877.31	1,330,752.16	
Jun 01	432,110.52	0.00	0.00	5,766.59	1,768,629.27	
Jul 01	432,110.52	0.00	0.00	7,664.06	2,208,403.85	
Aug 01	432,110.52	0.00	0.00	9,569.75	2,650,084.12	
Sep 01	432,110.52	0.00	2,592,663.13	11,483.70	501,015.21	
Oct 01	432,110.52	0.00	0.00	2,171.07	935,296.80	
Nov 01	432,110.52	0.00	0.00	4,052.95	1,371,460.27	
Dec 01	432,110.52	0.00	0.00	5,942.99	1,809,513.79	81,071.78
Jan 02	432,110.52	0.00	0.00	7,841.23	2,168,393.76	
Feb 02	432,110.52	0.00	0.00	9,396.37	2,609,900.65	
Mar 02	432,110.52	0.00	2,592,663.13	11,309.57	460,657.61	
Apr 02	432,110.52	0.00	0.00	1,996.18	894,764.31	

**THE PITTSBURGH WATER AND SEWER AUTHORITY
INTEREST INCOME FROM 1998 C DEBT SERVICE FUND**

98iib

<u>Date</u>	<u>Int. Deposit</u>	<u>Princ. Deposit</u>	<u>Withdrawal</u>	<u>Interest @ 5.20%</u>	<u>Balance</u>	<u>Earned Interest</u>
May 02	432,110.52	0.00	0.00	3,877.31	1,330,752.14	
Jun 02	432,110.52	0.00	0.00	5,766.59	1,768,629.26	
Jul 02	432,110.52	0.00	0.00	7,664.06	2,208,403.84	
Aug 02	432,110.52	0.00	0.00	9,569.75	2,650,084.11	
Sep 02	432,110.52	0.00	2,592,663.13	11,483.70	501,015.19	
Oct 02	432,110.52	0.00	0.00	2,171.07	935,296.78	
Nov 02	432,110.52	0.00	0.00	4,052.95	1,371,460.25	
Dec 02	432,110.52	0.00	0.00	5,942.99	1,809,513.77	81,071.78

EXHIBIT D

**EARNED INTEREST
DEBT SERVICE RESERVE FUNDS**

dsrfin

THE PITTSBURGH WATER AND SEWER AUTHORITY

**SUMMARY
DEBT SERVICE RESERVE FUND INTEREST**

	<u>1998</u>	<u>1999</u>	<u>2000</u>	<u>2001</u>	<u>2002</u>
1998A	186,400	223,700	223,700	223,700	223,700
1998C	243,000	291,650	291,650	291,650	291,650
	=====	=====	=====	=====	=====
TOTAL	429,400	515,350	515,350	515,350	515,350

THE PITTSBURGH WATER AND SEWER AUTHORITY

dsrfinA

INTEREST EARNINGS
DEBT SERVICE RESERVE FUND

1. **1998 SERIES A BONDS**

FUND AMOUNT 4,301,704.16
INTEREST RATE 5.20 PERCENT

<u>Year</u>		<u>Interest</u>
1998	(TEN MONTHS)	186,400
1999		223,700
2000		223,700
2001		223,700
2002		223,700

2. **1998 SERIES C BONDS**

FUND AMOUNT 5,608,739.59
INTEREST RATE 5.20 PERCENT

<u>Year</u>		<u>Interest</u>
1998	(TEN MONTHS)	243,000
1999		291,650
2000		291,650
2001		291,650
2002		291,650

APPENDIX E

Form of Co-Bond Counsel Opinion

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[FORM OF OPINION OF CO-BOND COUNSEL]

March 2, 1998

To the Purchasers of the
Above-Described Bonds:

Ladies and Gentlemen:

We have acted as Co-Bond Counsel in connection with the issuance of the \$93,355,000, aggregate principal amount, Water and Sewer System First Lien Revenue Bonds, Series A of 1998 (the "1998 Series A Bonds"), the \$36,440,069.70, aggregate principal amount, Water and Sewer System First Lien Revenue Bonds, Series B of 1998 (the "1998 Series B Bonds") and the \$101,970,000, aggregate principal amount, Water and Sewer System Subordinate Revenue Bonds, Series C of 1998 (the "1998 Series C Bonds", and together with the 1998 Series A Bonds and the 1998 Series B Bonds, the "Bonds") by The Pittsburgh Water and Sewer Authority (the "Authority"). The 1998 Series A Bonds and the 1998 Series B Bonds will be issued under a Trust Indenture, dated as of October 15, 1993, as amended and supplemented by a First Supplemental Indenture dated as of July 15, 1995 and by a Second Supplemental Indenture dated as of March 1, 1998, between the Authority and PNC Bank, National Association, as Trustee (collectively, the "First Lien Indenture"). The 1998 Series C Bonds will be issued under a Subordinate Trust Indenture, dated as of July 15, 1995, as supplemented by a First Supplemental Subordinate Indenture dated as of March 1, 1998, between the Authority and PNC Bank, National Association, as Trustee (collectively, the "Subordinate Indenture", and together with the First Lien Indenture, the "Indentures").

The 1998 Series A Bonds have been issued in order to provide for the refunding of the Authority's outstanding 1995 Series A Bonds and to pay all costs of issuance with respect to the 1998 Series A Bonds. Proceeds of the 1998 Series B Bonds will be used to pay for capital improvements to the Authority's Water and Sewer System and to pay all costs of issuance with respect to the 1998 Series B Bonds. Proceeds of the 1998 Series C Bonds will be used to provide for the refunding of the Authority's outstanding 1995 Series B Bonds and to pay all costs of issuance with respect to the 1998 Series C Bonds.

The 1998 Series A Bonds and the 1998 Series B Bonds are secured by a first lien pledge and the 1998 Series C Bonds are secured by a subordinate pledge of the Receipts and Revenues of the Authority, after deduction of the proper expenses of the operation, maintenance and repair of the Water and Sewer System.

As Co-Bond Counsel, we have examined the Indentures, certified copies of all of the proceedings relating to the issuance of the Bonds, including the certification of the Authority that the Authority does not expect that the proceeds of the Bonds will be used in a manner which would cause the Bonds to be arbitrage bonds within the meaning of Sections 103(b)(2) and 148 of the Internal Revenue Code of 1986, as amended (the "Code"), specimens of the forms of the Bonds, the Municipality Authorities Act of 1945, P.L. 382, as amended (the "Act"), the constitution of the Commonwealth, and such other public records and documents and matters of law as we deemed appropriate in order to render the opinions set forth herein.

In rendering the opinions set forth below, we have relied upon the genuineness, authenticity, truthfulness and completeness of all documents, records and other instruments examined by us. Except as set forth in paragraph 5 below, our opinions are given only with respect to the laws of the Commonwealth of Pennsylvania as enacted and construed on the date hereof. All capitalized terms used herein not otherwise defined are used with the meaning set forth in the Indentures.

Based upon and subject to the foregoing, we are of the opinion that:

To the Purchasers of the
Above Described Bonds
March 2, 1998
Page 2

1. The Authority is a public instrumentality and body corporate and politic duly organized pursuant to the Act and is validly existing and in good standing under the Act. The Authority has full legal right, power and authority to enter into the Indentures, to issue, sell and deliver the Bonds and to carry out and consummate all other transactions to be carried out and consummated by it as contemplated by the Indentures.

2. The Indentures have been executed and delivered by the Authority and constitute valid and binding limited obligations of the Authority enforceable against it in accordance with their terms.

3. The Bonds have been duly authorized, executed, issued and delivered by the Authority and constitute valid and binding obligations of the Authority enforceable in accordance with their terms and are entitled to the benefits and security of the respective Indentures.

4. 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. Under existing laws, regulations, rulings and judicial decisions, and pursuant to Section 103 of the Code, interest on the Bonds (including any original issue discount properly allocable to a holder and treated as interest) is excludable from gross income for federal income tax purposes; furthermore, such interest is not an item of tax preference for purposes of the federal individual and corporate alternative minimum tax.

The interest on the Bonds is includable in the "adjusted current earnings" (*i.e.*, alternative minimum taxable income as adjusted for certain items, including those items that would be included in the calculation of a corporation's earnings and profits under Subchapter C of the Code) of certain corporations. Each such corporation is required to include 75 percent of the excess of such corporation's adjusted current earnings over its alternative minimum taxable income in the calculation of alternative minimum taxable income (determined without regard to this adjustment and prior to reduction for certain net operating losses).

The accrual or receipt of interest on the Bonds may otherwise affect the federal income tax liability of the recipient. The extent of these other tax consequences will depend upon the recipient's particular status or other items of income or deduction. We express no opinion regarding any such consequences.

In rendering the opinion set forth above, we have assumed continued compliance with certain covenants of the Authority pertaining to the Bonds which are designed to meet the requirements of the Code and the regulations thereunder. In addition, we have relied on representations by the Authority with respect to matters solely within the knowledge of the Authority which we have not independently verified. If the Authority should fail to comply with such covenants, or if the representations relied upon should be determined to be inaccurate or incomplete, interest on the Bonds could become included in gross income retroactively to the date of issue of the Bonds, regardless of the date on which the event causing such taxability occurs.

It is to be understood that the rights of the owners of the Bonds and the enforceability of the Bonds and the Indentures may be subject to bankruptcy, insolvency, reorganization, moratorium and other similar laws affecting creditors' rights heretofore or hereafter enacted and that their enforcement may also be subject to the exercise of judicial discretion in appropriate cases.

The scope of our engagement has not extended beyond the examinations and rendering of the opinions expressed herein; such opinions are based on existing law and regulations, and no opinion is expressed as of any subsequent date or with respect to any pending legislation. We have not been engaged or undertaken to review the accuracy, completeness or sufficiency of the Official Statement or other offering material relating to the Bonds (except to the extent, if any, stated in the Official Statement) and we express no opinion relating thereto (excepting only the matters set forth in our opinion in the Official Statement).

Very truly yours,

APPENDIX F

Forms of Municipal Bond Insurance Policies

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**1998 Series A Bonds
and
1998 Series B Bonds**

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Financial Guaranty Insurance
 Company
 115 Broadway
 New York, NY 10006
 (212) 312-3000
 (800) 352-0001



A GE Capital Company

Municipal Bond Debt Service Reserve Fund Policy

Issuer:	Policy Number:
Bonds: _____, together with any parity obligations issued under the authorizing document, as amended and supplemented, and secured by the same debt service reserve fund	Control Number: 0010001
Paying Agent:	Premium:
	Maximum Amount:
	Termination Date:

Financial Guaranty Insurance Company ("Financial Guaranty"), a New York stock insurance company, in consideration of the payment of the premium and subject to the terms of this Policy, hereby unconditionally and irrevocably agrees to pay the paying agent named above or its successor, as paying agent for the Bonds (the "Paying Agent"), for the benefit of Bondholders, that portion (not to exceed the Maximum Amount set forth above) of the amount required to pay principal and interest (but not any prepayment premium) on the Bonds which shall become Due for Payment but shall be unpaid by reason of Nonpayment by the Issuer. No payment shall be due hereunder for any event of Nonpayment that occurs after the Termination Date set forth above.

Financial Guaranty will make such payment to the Paying Agent on the date such principal or interest becomes Due for Payment or on the Business Day next following the day on which Financial Guaranty shall have received Notice of Nonpayment, whichever is later. Upon such disbursement, Financial Guaranty shall become entitled to reimbursement therefor (together with interest thereon) all as provided in the Debt Service Reserve Fund Policy Agreement between the Issuer and Financial Guaranty dated as of the Effective Date of this Policy. The Maximum Amount shall be automatically reinstated when and to the extent that the Issuer repays amounts disbursed hereunder, but shall not be reinstated to the extent of amounts received by Financial Guaranty constituting interest on amounts disbursed to the Paying Agent pursuant to this Policy. Financial Guaranty shall provide Notice to the Paying Agent of any reinstatement of any portion of the Maximum Amount within one Business Day of such reinstatement.

This Policy is non-cancellable for any reason, including the failure of the Issuer to reimburse Financial Guaranty for any payment made hereunder.

As used herein, the term "Bondholder" means, as to a particular Bond, the person other than the Issuer who, at the time of Nonpayment, is entitled under the terms of such Bond to payment thereof. "Due for Payment" means, when referring to the principal of a Bond, 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 and means, when referring to interest on a Bond, the stated date for payment of interest. "Nonpayment" in respect of a Bond means the failure of the Issuer to have provided

Financial Guaranty Insurance
Company
115 Broadway
New York, NY 10006
(212) 312-3000
(800) 352-0001

A GE Capital Company



Municipal Bond Debt Service Reserve Fund Policy

sufficient funds to the Paying Agent for payment in full of all principal and interest Due for Payment on such Bond and includes any payment of principal or interest made to a Bondholder by or on behalf of the issuer of such Bond which has been recovered from such Bondholder 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 telegraphic notice, subsequently confirmed in writing, or written notice by registered or certified mail, from the Paying Agent for the Bonds to Financial Guaranty or from Financial Guaranty to the Paying Agent, as the case may be. "Business Day" means any day other than a Saturday, Sunday or a day on which the Paying Agent is authorized by law to remain closed.

In Witness Whereof, Financial Guaranty has caused this Policy to be affixed with its corporate seal and to be signed by its duly authorized officer in facsimile to become effective and binding upon Financial Guaranty by virtue of the countersignature of its Secretary or other Designated Officer.

SPECIMEN


President

Effective Date:

Secretary/Designated Officer

State Street Bank and Trust Company, N.A., acknowledges that it has agreed to perform the duties of Fiscal Agent under this Policy.

COUNTERSIGNATURE:



Authorized Officer

Licensed Resident Agent

Financial Guaranty Insurance
Company
115 Broadway
New York, NY 10006
(212) 312-3000
(800) 352-0001



A GE Capital Company

Endorsement To Financial Guaranty Insurance Company Insurance Policy

Policy Number:

Control Number: 0010001

It is further understood that the term "Nonpayment" in respect of a Bond includes any payment of principal or interest made to a Bondholder by or on behalf of the issuer of such Bond which has been recovered from such Bondholder 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.

NOTHING HEREIN SHALL BE CONSTRUED TO WAIVE, ALTER, REDUCE OR AMEND COVERAGE IN ANY OTHER SECTION OF THE POLICY. IF FOUND CONTRARY TO THE POLICY LANGUAGE, THE TERMS OF THIS ENDORSEMENT SUPERSEDE THE POLICY LANGUAGE.

In Witness Whereof, Financial Guaranty has caused this Endorsement to be affixed with its corporate seal and to be signed by its duly authorized officer in facsimile to become effective and binding upon Financial Guaranty by virtue of the countersignature of its Secretary or other Designated Officer.

SPECIMEN


President

Effective Date:

Secretary/Designated Officer

Acknowledged as of the Effective Date written above:

COUNTERSIGNATURE:



Authorized Officer

State Street Bank and Trust Company, N.A., as Fiscal Agent

Licensed Resident Agent

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1998 Series C Bonds

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**FINANCIAL
SECURITY
ASSURANCE.**

**MUNICIPAL BOND
INSURANCE POLICY**

ISSUER:

Policy No.:

BONDS:

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 of, 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 provided 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.

FINANCIAL SECURITY ASSURANCE INC.

By _____
Authorized Officer

A subsidiary of Financial Security Assurance Holdings Ltd.
350 Park Avenue, New York, N.Y. 10022-6022

(212) 826-0100

Form 500NY (5/80)

APPENDIX G

Schedule of Compound Accreted Values

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Compound Accreted Value Table per \$ 5,000 Maturity Value

Stated Maturity Date	9/1/17	9/1/18	9/1/19	9/1/20	9/1/21	9/1/22	9/1/23	9/1/24	9/1/25	9/1/26	9/1/27	9/1/28	9/1/29	9/1/30
Reoffering Yield	5.179%	5.208%	5.220%	5.220%	5.260%	5.260%	5.260%	5.250%	5.250%	5.250%	5.310%	5.275%	5.304%	5.25%
Initial Stated Value	1,845.05	1,742.95	1,651.45	1,568.50	1,476.15	1,401.45	1,330.55	1,266.50	1,202.55	1,141.80	1,115.60	1,021.75	961.35	935.40
3/2/98														
9/1/98	1,892.56	1,788.08	1,694.31	1,609.21	1,514.75	1,438.10	1,365.35	1,299.56	1,233.94	1,171.60	1,093.73	1,048.55	986.70	959.70
3/1/99	1,941.57	1,834.64	1,738.53	1,651.21	1,554.59	1,475.92	1,401.26	1,333.67	1,266.33	1,202.36	1,122.77	1,076.20	1,012.87	984.77
9/1/99	1,991.84	1,882.42	1,783.91	1,694.30	1,595.48	1,514.74	1,438.11	1,368.68	1,299.57	1,233.92	1,152.58	1,104.59	1,039.73	1,010.50
3/1/00	2,043.42	1,931.43	1,830.47	1,738.53	1,643.44	1,554.58	1,475.93	1,404.61	1,333.69	1,266.31	1,183.18	1,133.72	1,067.30	1,036.90
9/1/00	2,096.34	1,982.26	1,878.90	1,783.90	1,687.50	1,595.46	1,514.75	1,441.48	1,368.69	1,299.55	1,214.60	1,163.62	1,095.61	1,063.99
3/1/01	2,150.62	2,033.33	1,927.26	1,830.46	1,724.70	1,633.42	1,554.59	1,479.32	1,404.62	1,333.66	1,246.84	1,194.31	1,124.66	1,091.78
9/1/01	2,206.31	2,086.28	1,977.57	1,878.24	1,770.06	1,680.49	1,595.47	1,518.15	1,441.49	1,368.67	1,279.95	1,225.81	1,154.49	1,120.31
3/1/02	2,263.44	2,140.61	2,029.18	1,927.26	1,816.61	1,724.68	1,637.43	1,558.00	1,479.33	1,404.60	1,313.93	1,258.14	1,185.11	1,149.57
9/1/02	2,322.06	2,196.35	2,082.14	1,977.56	1,864.39	1,770.04	1,680.50	1,598.90	1,518.14	1,441.47	1,348.81	1,291.33	1,216.54	1,179.61
3/1/03	2,382.17	2,253.24	2,136.49	2,029.17	1,913.42	1,816.60	1,724.69	1,640.87	1,558.02	1,479.31	1,384.62	1,325.39	1,248.80	1,210.42
9/1/03	2,443.87	2,312.23	2,192.25	2,082.14	1,963.73	1,864.37	1,770.05	1,683.94	1,598.92	1,518.14	1,421.39	1,360.34	1,281.92	1,242.05
3/1/04	2,507.16	2,372.44	2,249.47	2,136.48	2,015.39	1,913.41	1,816.61	1,728.15	1,640.89	1,557.99	1,459.12	1,396.22	1,315.91	1,274.50
9/1/04	2,572.08	2,434.21	2,308.18	2,192.24	2,068.40	1,963.73	1,864.38	1,773.51	1,683.96	1,598.89	1,497.86	1,433.05	1,350.81	1,307.79
3/1/05	2,638.68	2,497.60	2,368.42	2,249.46	2,122.80	2,015.37	1,913.41	1,820.07	1,728.16	1,640.86	1,537.63	1,470.84	1,386.64	1,341.96
9/1/05	2,707.01	2,562.64	2,430.24	2,308.17	2,178.63	2,068.38	1,963.74	1,867.84	1,773.53	1,683.93	1,578.46	1,509.64	1,423.41	1,377.02
3/1/06	2,777.11	2,629.37	2,493.67	2,368.41	2,235.92	2,122.78	2,015.38	1,916.87	1,820.08	1,728.14	1,620.36	1,549.45	1,461.16	1,412.99
9/1/06	2,849.02	2,697.84	2,558.75	2,430.23	2,294.73	2,178.61	2,068.39	1,967.19	1,867.86	1,773.50	1,663.39	1,590.32	1,499.91	1,449.91
3/1/07	2,922.80	2,768.09	2,625.53	2,493.66	2,355.08	2,235.90	2,122.79	2,018.83	1,916.89	1,820.06	1,707.55	1,632.27	1,539.68	1,487.78
9/1/07	2,998.48	2,840.17	2,694.06	2,558.74	2,417.02	2,294.71	2,178.62	2,071.82	1,967.21	1,867.83	1,752.88	1,675.32	1,572.65	1,526.65
3/1/08	3,076.13	2,914.13	2,764.38	2,625.52	2,480.59	2,355.06	2,235.91	2,126.21	2,018.85	1,916.86	1,799.42	1,719.50	1,622.43	1,566.54
9/1/08	3,155.79	2,990.01	2,836.53	2,694.05	2,543.83	2,417.00	2,294.72	2,182.02	2,071.84	1,967.18	1,847.20	1,764.86	1,665.46	1,607.46
3/1/09	3,237.51	3,067.87	2,910.56	2,764.37	2,612.78	2,480.56	2,355.07	2,239.30	2,126.23	2,018.82	1,896.24	1,811.40	1,709.63	1,649.46
9/1/09	3,321.34	3,147.76	2,986.52	2,836.52	2,681.50	2,545.80	2,417.01	2,298.08	2,182.04	2,071.81	1,946.59	1,859.18	1,754.97	1,692.55
3/1/10	3,407.35	3,229.73	3,064.47	2,910.55	2,752.02	2,612.76	2,480.58	2,358.41	2,239.32	2,126.20	1,998.27	1,908.22	1,801.51	1,736.77
9/1/10	3,495.58	3,313.83	3,144.46	2,986.51	2,824.40	2,681.47	2,545.81	2,420.32	2,298.11	2,182.01	2,051.32	1,958.54	1,849.28	1,782.14
3/1/11	3,586.10	3,400.12	3,226.53	3,064.46	2,898.68	2,751.99	2,612.77	2,483.85	2,358.43	2,239.29	2,105.78	2,010.20	1,898.33	1,828.70
9/1/11	3,678.96	3,488.66	3,310.74	3,144.44	2,974.92	2,824.37	2,681.49	2,549.05	2,420.34	2,298.07	2,161.69	2,063.22	1,948.67	1,876.47
3/1/12	3,774.23	3,579.51	3,397.15	3,226.51	3,053.16	2,898.65	2,752.01	2,615.96	2,483.87	2,358.39	2,219.09	2,117.64	2,000.35	1,925.50
9/1/12	3,872.96	3,672.72	3,485.81	3,310.73	3,133.45	2,974.89	2,824.39	2,684.63	2,549.07	2,420.30	2,278.00	2,173.49	2,053.40	1,975.80
3/1/13	3,972.23	3,768.35	3,576.79	3,397.14	3,215.86	3,033.12	2,898.67	2,755.10	2,615.99	2,483.83	2,338.48	2,230.82	2,107.86	2,027.42
9/1/13	4,075.09	3,866.48	3,670.15	3,485.80	3,300.44	3,133.43	2,974.90	2,827.42	2,684.66	2,549.03	2,400.57	2,289.65	2,163.76	2,080.38
3/1/14	4,180.61	3,967.16	3,765.94	3,576.78	3,387.24	3,215.83	3,053.14	2,901.64	2,755.13	2,615.95	2,464.31	2,350.04	2,221.14	2,134.73
9/1/14	4,288.87	4,070.47	3,864.23	3,670.14	3,476.33	3,300.41	3,133.44	2,977.81	2,827.45	2,684.62	2,529.73	2,412.03	2,280.04	2,190.50
3/1/15	4,399.93	4,176.46	3,965.09	3,765.93	3,567.76	3,387.21	3,215.85	3,055.98	2,901.67	2,755.09	2,596.90	2,475.64	2,340.51	2,247.73
9/1/15	4,513.86	4,285.22	4,068.58	3,864.22	3,661.59	3,476.29	3,300.43	3,136.20	2,977.84	2,827.41	2,665.84	2,540.94	2,402.58	2,306.45
3/1/16	4,630.75	4,396.81	4,174.76	3,965.07	3,757.89	3,567.72	3,387.23	3,218.52	3,056.01	2,901.63	2,736.62	2,607.96	2,466.30	2,366.71
9/1/16	4,750.66	4,511.30	4,283.73	4,068.56	3,856.72	3,661.55	3,476.31	3,303.01	3,136.23	2,977.80	2,809.28	2,676.74	2,531.70	2,428.54
3/1/17	4,873.68	4,628.77	4,395.53	4,174.75	3,958.15	3,757.85	3,567.74	3,389.71	3,218.56	3,055.96	2,883.87	2,747.34	2,598.84	2,491.98
9/1/17	5,000.00	4,749.31	4,510.25	4,283.71	4,062.25	3,856.68	3,661.57	3,478.69	3,303.04	3,136.18	2,960.43	2,819.80	2,667.77	2,557.09
3/1/18	5,000.00	4,872.98	4,627.97	4,395.52	4,169.09	3,958.11	3,757.87	3,570.01	3,389.75	3,218.51	3,039.03	2,894.17	2,738.51	2,623.89
9/1/18	5,000.00	4,999.93	4,748.76	4,510.24	4,278.73	4,062.21	3,856.70	3,663.72	3,478.73	3,302.99	3,119.72	2,970.51	2,811.14	2,692.44
3/1/19	5,000.00	5,000.00	4,872.71	4,627.96	4,391.27	4,169.05	3,958.13	3,759.90	3,570.05	3,389.70	3,202.55	3,048.85	2,885.69	2,762.78
9/1/19	5,000.00	4,948.75	4,748.75	4,500.00	4,278.69	4,062.23	3,858.59	3,663.76	3,478.67	3,297.58	3,287.58	3,129.27	2,962.22	2,834.96
3/1/20	5,000.00	4,872.69	4,625.28	4,391.22	4,169.07	3,959.88	3,759.93	3,569.99	3,374.86	3,259.99	3,211.80	3,040.78	2,909.02	2,804.78
9/1/20	5,000.00	4,746.93	4,506.71	4,278.72	4,063.83	3,858.63	3,663.70	3,464.46	3,296.51	3,121.42	2,985.02	2,850.00	2,715.42	2,603.00
3/1/21	5,000.00	4,871.77	4,625.24	4,391.25	4,170.50	3,959.92	3,759.92	3,569.92	3,383.46	3,264.44	3,204.20	3,063.00	2,928.54	2,814.00
9/1/21	5,000.00	4,746.88	4,500.00	4,279.98	4,063.87	3,858.57	3,663.70	3,456.44	3,296.51	3,138.46	3,050.87	2,917.70	2,789.17	2,674.00
3/1/22	5,000.00	4,871.72	4,625.26	4,392.33	4,170.54	3,959.86	3,759.93	3,569.99	3,374.86	3,259.99	3,211.80	3,040.78	2,909.02	2,804.78
9/1/22	5,000.00	4,746.93	4,506.71	4,278.72	4,063.83	3,858.63	3,663.70	3,464.46	3,296.51	3,121.42	2,985.02	2,850.00	2,715.42	2,603.00
3/1/23	5,000.00	4,871.77	4,625.24	4,391.25	4,170.50	3,959.92	3,759.92	3,569.92	3,383.46	3,264.44	3,204.20	3,063.00	2,928.54	2,814.00
9/1/23	5,000.00	4,746.88	4,500.00	4,279.98	4,063.87	3,858.57	3,663.70	3,456.44	3,296.51	3,138.46	3,050.87	2,917.70	2,789.17	2,674.00
3/1/24	5,000.00	4,871.72	4,625.26	4,392.33	4,170.54	3,959.86	3,759.93	3,569.99	3,374.86	3,259.99	3,211.80	3,040.78	2,909.02	2,804.78
9/1/24	5,000.00	4,746.93	4,506.71	4,278.72	4,063.83	3,858.63	3,663.70	3,464.46	3,296.51	3,121.42	2,985.02	2,850.00	2,715.42	2,603.00
3/1/25	5,000.00	4,871.77	4,625.24	4,391.25	4,170.50	3,959.92	3,759.92	3,569.92	3,383.46	3,264.44	3,204.20	3,063.00	2,928.54	2,814.00
9/1/25	5,000.00	4,746.88	4,500.00	4,279.98	4,063.87	3,858.57	3,663.70	3,456.44	3,296.51	3,138.46	3,050.87	2,917.70	2,789.17	2,674.00
3/1/26	5,000.00	4,871.72	4,625.26	4,392.33	4,170.54	3,959.86	3,759.93	3,569.99	3,374.86	3,259.99	3,211.80	3,040.78	2,909.02	2,804.78
9/1/26	5,000.00	4,746.93	4,506.71	4,278.72	4,063.83	3,858.63	3,663.70	3,464.46	3,296.51	3,121.42	2,985.02	2,850.00	2,715.42	2,603.00
3/1/27	5,000.00	4,871.77	4,625.24	4,391.25	4,170.50	3,959.92	3,759.92	3,569.92	3,383.46	3,264.44	3,204.20	3,063.00	2,928.54	2,814.00
9/1/27	5,000.00	4,746.88	4,500.00	4,279.98	4,063.87	3,858.57	3,663.70	3,456.44	3,296.51	3,138.46	3,050.87	2,917.70		

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