

NEW ISSUE

In the opinion of Mudge Rose Guthrie Alexander & Ferdon, Bond Counsel to the Authority, under existing law, and assuming compliance with the tax covenants described herein, interest on the Fiscal 1994 Bonds is excluded from gross income for Federal income tax purposes and is not a specific preference item for purposes of the Federal alternative minimum tax. Bond Counsel is further of the opinion that, under existing law, interest on the Fiscal 1994 Bonds is exempt from personal income taxes of the State of New York and its political subdivisions, including The City of New York, as described more fully herein. See, however, "TAX EXEMPTION" herein regarding certain other tax considerations.

\$1,026,025,000
New York City
Municipal Water Finance Authority
Water and Sewer System Revenue Bonds,
\$659,025,000 Fixed Rate Fiscal 1994 Series B
\$200,000,000 Adjustable Rate Fiscal 1994 Series C
\$83,500,000 Auction Rate SecuritiesSM Fiscal 1994 Series D
\$83,500,000 Inverse Rate SecuritiesSM Fiscal 1994 Series E

Dated: Date of Delivery

Due: June 15, as shown on the inside cover

The Fiscal 1994 Bonds of each Series will be issued as registered bonds and, when issued, will be registered in the name of Cede & Co., as nominee of The Depository Trust Company, New York, New York, which will act as securities depository for the Fiscal 1994 Bonds of each Series. Purchases of beneficial interests in such Bonds will be made in book-entry-only form. Purchasers will not receive certificates representing their ownership interest in the Bonds of such Series purchased by them. See "BOOK-ENTRY FORM ONLY".

Interest on the Series B Bonds will accrue from their date of delivery and will be payable semiannually on each December 15 and June 15 commencing June 15, 1994. Interest on the Series D Bonds and the Series E Bonds will accrue from their date of delivery and will be payable semiannually on each December 15 and June 15, commencing December 15, 1993. The Series D Bonds will be delivered as Auction Rate SecuritiesSM ("ARS"SM) and the Series E Bonds will be delivered as Inverse Rate SecuritiesSM ("IRS"SM). The Series B Bonds will be issued in Authorized Denominations of \$5,000 and integral multiples thereof. The Series D Bonds and the Series E Bonds will be issued in Authorized Denominations of \$50,000 and integral multiples thereof. The Series B Bonds, the Series D Bonds and the Series E Bonds are subject to redemption prior to maturity and the Series D Bonds are subject to mandatory tender, both as described herein. Certain maturities of the Series B Bonds will be insured by AMBAC Indemnity Corporation or Municipal Bond Investors Assurance Corporation. The Series D Bonds and the Series E Bonds will be insured by Municipal Bond Investors Assurance Corporation. A detailed schedule of the Fiscal 1994 Bonds is set forth inside this cover page.

The Series C Bonds will be insured by Financial Guaranty Insurance Company. The Series C Bonds will bear interest at a Daily Interest Rate from their date of delivery until converted to a Weekly Interest Rate Period or a Flexible Interest Rate Period. The Series C Bonds may be converted at the option of the Authority to or from a Weekly Interest Rate Period, a Daily Interest Rate Period or a Flexible Interest Rate Period. See "THE SERIES C BONDS — Conversion to an Alternate Interest Rate Period". Interest accruing during a Daily Interest Rate Period, a Weekly Interest Rate Period or a Flexible Interest Rate Period of less than one year will be payable on the 15th day of each calendar month. Interest accruing during a Flexible Interest Rate Period of one year or more will be payable on June 15 and December 15 of each year. Series C Bonds subject to a Daily Interest Rate Period, a Weekly Interest Rate Period or a Flexible Interest Rate Period of less than one year will be issuable in Authorized Denominations of \$100,000 or integral multiples thereof and Series C Bonds subject to a Flexible Interest Rate Period of one year or more will be issuable in Authorized Denominations of \$5,000 or integral multiples thereof.

Series C Bonds bearing interest at a Daily Interest Rate and a Weekly Interest Rate may be tendered to the Tender Agent for purchase at the option of the Owner thereof under the circumstances described herein. The Series C Bonds are also subject to mandatory tender and to redemption prior to maturity, as described herein. Payment of the Tender Option Price will be made by FGIC Securities Purchase, Inc. pursuant and subject to the terms of the Liquidity Facility described herein. Delivery of this Official Statement in conjunction with the offering of Series C Bonds may only be made in conjunction with delivery of the prospectus relating to the Liquidity Facility. The Liquidity Facility will expire on the fifth anniversary of the delivery of the Series C Bonds unless extended or terminated sooner, as set forth herein.

The proceeds of the Series B Bonds, the Series D Bonds and the Series E Bonds are expected to be used to advance refund a portion of the outstanding principal amount of the Authority's Water and Sewer System Revenue Bonds and the proceeds of the Series C Bonds are expected to be used to finance a capital renovation and improvement program of the System and to fund certain reserves.

The Bonds are special obligations of the Authority, payable solely from and secured by a pledge of and first lien on the gross revenues of the System. The Authority has no taxing power. The Fiscal 1994 Bonds are not a debt of the State of New York, The City of New York or the New York City Water Board and neither the State of New York, The City of New York nor the New York City Water Board is liable on the Fiscal 1994 Bonds.

The Series B Bonds, the Series C Bonds, the Series D Bonds and the Series E Bonds are offered when, as and if issued by the Authority and received by the Underwriters and subject to the approval of legality by Mudge Rose Guthrie Alexander & Ferdon, New York, New York, Bond Counsel. Certain legal matters will be passed upon for the Underwriters by Barnes, McGhee, Neal, Poston & Segue, New York, New York. It is anticipated that the Series B Bonds, the Series D Bonds and the Series E Bonds will be available for delivery in New York, New York, on or about November 17, 1993 and the Series C Bonds will be available for delivery in New York, New York, on or about December 2, 1993.

Smith Barney Shearson Inc.

WR Lazard, Laidlaw & Mead
Incorporated

PaineWebber Incorporated

Dillon Read & Co. Inc.

Morgan Stanley & Co.
Incorporated

Bear, Stearns & Co. Inc.

Chemical Securities, Inc.

First Albany Corporation

First American Municipals, Inc.

Goldman, Sachs & Co.

Kidder, Peabody & Co.
Incorporated

Lazard Frères & Co.

William E. Simon & Sons Municipal Securities, Inc.

November 10, 1993

SM "Auction Rate Securities", "Inverse Rate Securities", "ARS", "IRS", "Auction and Inverse Rate Securities" and "AIRS" are service marks of Smith Barney Shearson Inc.

\$1,026,025,000
New York City
Municipal Water Finance Authority
Water and Sewer System Revenue Bonds,
\$659,025,000 Fixed Rate Fiscal 1994 Series B
\$200,000,000 Adjustable Rate Fiscal 1994 Series C
\$83,500,000 Auction Rate SecuritiesSM Fiscal 1994 Series D
\$83,500,000 Inverse Rate SecuritiesSM Fiscal 1994 Series E
\$368,575,000 Series B Serial Bonds

| <u>Maturity</u> | <u>Amount</u> | <u>Rate</u> | <u>Yield</u> | <u>Maturity</u> | <u>Amount</u> | <u>Rate</u> | <u>Yield</u> |
|-----------------|---------------|-------------|--------------|-----------------|---------------|-------------|--------------|
| 2000 | \$ 8,815,000 | 4% % | 4¾ % | 2005 | \$54,485,000 | 5.20% | 5.30% |
| 2001 | 30,875,000 | 4¾ | 4.90 | 2006 | 62,005,000 | 5.30 | 5.40 |
| 2002 | 43,240,000 | 4% | 5 | 2007 | 65,290,000 | 5% | 5½ |
| 2003 | 48,770,000 | 5 | 5.10 | 2008 | 3,260,000 | 5.40 | 5.55 |
| 2004 | 51,835,000 | 5½ | 5.20 | | | | |

\$83,500,000 Series D Bonds(1)

| <u>Maturity</u> | <u>Amount</u> | <u>Initial Rate†</u> | <u>Price</u> | <u>Maturity</u> | <u>Amount</u> | <u>Initial Rate†</u> | <u>Price</u> |
|-----------------|---------------|----------------------|--------------|-----------------|---------------|----------------------|--------------|
| 2008 | \$25,000,000 | 2.78% | 100% | 2012 | \$16,000,000 | 2.78% | 100% |
| 2009 | 17,500,000 | 2.78 | 100 | 2013 | 25,000,000 | 2.78 | 100 |

\$83,500,000 Series E Bonds(1)

| <u>Maturity</u> | <u>Amount</u> | <u>Initial Rate†</u> | <u>Price</u> | <u>Maturity</u> | <u>Amount</u> | <u>Initial Rate†</u> | <u>Price</u> |
|-----------------|---------------|----------------------|--------------|-----------------|---------------|----------------------|--------------|
| 2008 | \$25,000,000 | 7.62% | 100% | 2012 | \$16,000,000 | 7.92% | 100% |
| 2009 | 17,500,000 | 7.72 | 100 | 2013 | 25,000,000 | 7.92 | 100 |

- \$55,000,000 5½% Series B Term Bonds Due June 15, 2011***
✓ \$33,000,000 5¾% Series B Term Bonds Due June 15, 2019, Yield 5½%(1)
(\$50,000,000 5¾% Series B Term Bonds Due June 15, 2019, Yield 5½%(2)
\$152,450,000 5½% Series B Term Bonds Due June 15, 2019, Yield 5.73%
\$200,000,000 Series C Bonds Due June 15, 2023, Price 100%(3)

- (1) To be insured by Municipal Bond Investors Assurance Corporation
(2) To be insured by AMBAC Indemnity Corporation
(3) To be insured by Financial Guaranty Insurance Company

* Not reoffered

† The Applicable Series D Bond Rates include a Service Charge of 0.28%. The Applicable Series D Bonds Rate and the Applicable Series E Bonds Rate for each subsequent Rate Period will be established pursuant to the Auction Procedures described herein in Appendix J. The Fixed Rates (as described herein) on Series D Bonds and Series E Bonds maturing in 2008, 2009, 2012 and 2013 are 5.20%, 5.25%, 5.35% and 5.35%, respectively.

SMService Mark of Smith Barney Shearson Inc.

New York City Municipal Water Finance Authority
75 Park Place, 6th Floor
New York, New York 10007
212-788-5889

| | |
|--|-----------------|
| Albert F. Appleton, <i>ex officio</i> | <i>Chairman</i> |
| Kathleen Grimm, <i>ex officio</i> | <i>Member</i> |
| Carol O'Cleireacain, <i>ex officio</i> | <i>Member</i> |
| Thomas C. Jorling, <i>ex officio</i> | <i>Member</i> |
| Arthur B. Hill | <i>Member</i> |

| | |
|------------------------|---------------------------|
| Mark Page | <i>Executive Director</i> |
| Alan Anders | <i>Treasurer</i> |
| Alexandra Altman | <i>Secretary</i> |

New York City Water Board
59-17 Junction Boulevard
8th Floor
Corona, New York 11368
718-595-3586

| | |
|----------------------------|-----------------|
| Paul J. Elston | <i>Chairman</i> |
| Leroy Carmichael | <i>Member</i> |
| Ralph da Costa Nunez | <i>Member</i> |
| Barbara Fife | <i>Member</i> |
| Gaspar V. Garcia | <i>Member</i> |
| Barry F. Sullivan | <i>Member</i> |
| James T. B. Tripp | <i>Member</i> |

| | |
|--------------------------|---------------------------|
| Steven F. Ostrega | <i>Executive Director</i> |
| William Kusterbeck | <i>Treasurer</i> |
| Michael Burke | <i>Secretary</i> |

Authority Consultants

| | |
|---------------------------|--|
| Bond Counsel | <i>Mudge Rose Guthrie Alexander & Ferdon</i> |
| Consulting Engineer | <i>Metcalf & Eddy of New York, Inc.</i> |
| Financial Advisor | <i>Prudential Securities Incorporated</i> |
| Rate Consultant | <i>Black & Veatch</i> |

This Official Statement does not constitute an offer to sell or the solicitation of an offer to buy any of the Fiscal 1994 Bonds in any jurisdiction to any person to whom it is unlawful to make such offer in such jurisdiction. No dealer, salesperson or any other person has been authorized to give any information or make any representation, other than those contained herein, in connection with the offering of any of the Fiscal 1994 Bonds and if given or made, such information or representation must not be relied upon. Neither the delivery of this Official Statement nor the sale of any of the Fiscal 1994 Bonds implies that there has been no change in the affairs of the Authority, the Board or the City or the other matters described herein since the date hereof. The information set forth herein has been provided by the Authority, the Board and the City, the Bond Insurers and the Liquidity Provider but it is not guaranteed as to its accuracy or completeness and is not to be construed as a representation by the Underwriters.

IN CONNECTION WITH THIS OFFERING, THE UNDERWRITERS MAY OVERALLOT OR EFFECT TRANSACTIONS WHICH STABILIZE OR MAINTAIN THE MARKET PRICE OF THE FISCAL 1994 BONDS AT A LEVEL ABOVE THAT WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME.

TABLE OF CONTENTS

| | Page |
|--|------|
| SUMMARY STATEMENT | iii |
| INTRODUCTORY STATEMENT | 1 |
| THE SERIES B BONDS | 2 |
| THE SERIES C BONDS | 4 |
| THE SERIES D BONDS AND THE SERIES E BONDS | 11 |
| BOND INSURANCE | 17 |
| REFUNDING PLAN | 21 |
| USE OF PROCEEDS | 21 |
| AMENDMENTS OF THE GENERAL RESOLUTION AND THE FINANCING AGREEMENT | 21 |
| SECURITY FOR THE BONDS | 23 |
| BOOK-ENTRY FORM ONLY | 25 |
| THE AUTHORITY | 28 |
| THE BOARD | 29 |
| THE SYSTEM | 30 |
| History | 30 |
| Department of Environmental Protection | 32 |
| Service Area | 33 |
| Forecasted 1994 Operating Expenditures | 35 |
| The Water System | 35 |
| Water Collection | 36 |
| Water Transmission | 37 |
| Water Distribution | 40 |
| Water Quality | 40 |
| Long Term Watershed Protection | 41 |
| Drought Response Measures | 42 |
| Long-Term Water Supply Planning | 42 |
| The Sewer System | 43 |
| Sewage Collection | 43 |
| Sewage Treatment Facilities | 43 |
| Sludge Disposal | 45 |
| GOVERNMENTAL REGULATION | 46 |
| Water Supply Regulation | 46 |
| Wastewater Regulation | 48 |
| RATES AND BILLINGS | 50 |
| FINANCIAL OPERATIONS | 56 |
| CAPITAL IMPROVEMENT AND FINANCING PROGRAMS | 58 |
| DEBT SERVICE REQUIREMENTS | 63 |
| LABOR RELATIONS | 63 |
| COVENANT OF THE STATE | 64 |
| PENDING LEGISLATION | 64 |
| LITIGATION | 64 |
| RATINGS | 65 |
| UNDERWRITING | 66 |
| APPROVAL OF LEGAL PROCEEDINGS | 66 |
| LEGALITY FOR INVESTMENT AND DEPOSIT | 66 |
| VERIFICATION OF MATHEMATICAL CALCULATIONS | 67 |
| FINANCIAL STATEMENTS | 67 |
| ENGINEERING FEASIBILITY REPORT AND FORECASTED CASH FLOWS | 67 |
| TAX EXEMPTION | 67 |
| FURTHER INFORMATION | 68 |
| APPENDIX A—REPORT ON THE ENGINEERING FEASIBILITY OF THE WATER AND SEWER SYSTEM SERVING THE CITY OF NEW YORK | A-1 |
| APPENDIX B—REPORT ON THE FORECASTED CASH FLOWS OF THE WATER AND SEWER SYSTEM SERVING THE CITY OF NEW YORK | B-1 |
| APPENDIX C—CERTAIN INFORMATION CONCERNING THE CITY OF NEW YORK | C-1 |
| APPENDIX D—GLOSSARY AND SUMMARY OF CERTAIN DOCUMENTS | D-1 |
| Summary of the Agreement | D-11 |
| Summary of the Lease | D-17 |
| Summary of the Resolution | D-20 |
| APPENDIX E—FORM OF THE OPINION OF BOND COUNSEL | E-1 |
| APPENDIX F—FINANCIAL STATEMENTS | F-1 |
| APPENDIX G—TABLE OF REFUNDED BONDS | G-1 |
| APPENDIX H—SPECIMEN INSURANCE POLICIES | H-1 |
| APPENDIX I—THE LIQUIDITY PROVIDER | I-1 |
| APPENDIX J—SUMMARY OF CERTAIN PROVISIONS RELATING TO THE SERIES D BONDS AND SERIES E BONDS AND PURCHASER'S LETTER | J-1 |

SUMMARY STATEMENT

The following is subject in all respects to the additional information contained in this Official Statement, including the appendices attached hereto. Defined terms have the same meaning herein as elsewhere in this Official Statement.

Use of Proceeds: The Series B Bonds, the Series D Bonds and the Series E Bonds are being issued to advance refund a portion of the Authority's Outstanding Water and Sewer System Revenue Bonds in an aggregate principal amount, or accreted value in the case of capital appreciation bonds, of \$750,298,032.90 and the Series C Bonds are being issued to finance a capital renovation and improvement program of the System and to fund certain reserves.

The System: The Water System provides an average of 1,462 million gallons per day (mgd) of water to approximately 807,000 accounts. It supplies water to approximately 300 square miles in the City and consists of approximately 5,784 miles of pipe, 87,091 mainline valves, 98,099 fire hydrants, 18 reservoirs and three controlled lakes. The Sewer System is primarily a combined system designed to carry both storm and sanitary flows. It is comprised of an extensive network of approximately 6,331 miles of sewer lines, 90,000 catch basins, 5,000 seepage basins and 14 treatment plants. In addition to the treatment plants, the sewage treatment facilities include one storm-overflow retention plant, 88 pump stations, five wastewater laboratories, three inner-harbor vessels for sludge transport and eight sludge dewatering facilities. The sewage treatment facilities treat approximately 1,501 mgd of dry-weather sewage. Under the Act, the Lease and the Agreement, the Board is obligated to pay the operating expenses of the System. The City is obligated to operate and maintain the System.

Capital Improvement Program: The Capital Improvement Program published in May 1993 covering the Fiscal Years 1994 through 2003 is designed to maintain a satisfactory level of service, to improve operation of the System and to address future System requirements. During those ten years, the anticipated cost is \$9.988 billion of which approximately 94% is expected to be provided from System funds. Under the Financing Agreement, the City is obligated to carry out capital improvements to the System.

Security for the Bonds:

Revenue Pledge: The Bonds are special obligations of the Authority, payable solely from and secured by a pledge of the gross revenues of the System prior to the payment of operation and maintenance costs or any other expenses.

Debt Service Reserve Fund: Upon the delivery of the Series B Bonds, the Series C Bonds, the Series D Bonds and the Series E Bonds, a Debt Service Reserve Fund will be funded in an amount equal to the maximum Adjusted Aggregate Debt Service on the Bonds.

Security for the Bonds (continued):

| | |
|--------------------------------|---|
| Rate Covenant: | The Board has covenanted to establish and collect rates, fees and charges sufficient in each Fiscal Year so that Revenues collected in such Fiscal Year will be at least equal to the sum of (i) 115% of Aggregate Debt Service on all Bonds Outstanding and on any Projected Series of Bonds (excluding Refundable Principal Installments for the payment of which funds are held in trust) payable in such Fiscal Year, and (ii) the Operating Expenses and Required Deposits for such Fiscal Year. |
| Rates: | Rates, fees and charges are imposed by the Board and are not subject to regulatory approval except for those rates charged to a limited class of upstate users representing less than 1% of Revenues and as provided under certain Federal grants. |
| Additional Bonds: | Additional Bonds secured on a parity with the Fiscal 1994 Bonds and the Outstanding Bonds may be issued under the Resolution to pay for capital improvements to the System and to refund Bonds and general obligation bonds of the City issued for water and sewer purposes. Additional Bonds may be issued subject to financial tests specified in the Resolution. |
| The Authority: | The Authority, a separate legal entity established in 1984, has the power to issue bonds, bond anticipation notes and other obligations for the purpose of financing the renovation and improvement of the System, to refund Bonds and general obligation bonds of the City issued for water or sewer purposes, to require the Board to fix rates sufficient to pay the costs of operating and financing improvements to the System and to require the City to maintain the System adequately. The Authority has no taxing power. |
| The Board: | The Board, a separate legal entity established in 1984, has leased the System from the City. It is authorized to fix and collect rates, fees and charges adequate to pay the cost of operating and financing the System. |
| The Financing Agreement: | Pursuant to the Financing Agreement, the Authority has agreed to finance all or a portion of the Capital Improvement Program, both current and work commenced in prior years, through the issuance of Bonds or other indebtedness secured by revenues of the System. |
| The Lease: | Pursuant to the Lease, the Board has acquired the System from the City for a term equal to the longer of 40 years from July 1, 1985 or until provision has been made for the repayment of all Outstanding Bonds or other indebtedness of the Authority. |

OFFICIAL STATEMENT

\$1,026,025,000

New York City Municipal Water Finance Authority

Water and Sewer System Revenue Bonds,

\$659,025,000 Fixed Rate Fiscal 1994 Series B

\$200,000,000 Adjustable Rate Fiscal 1994 Series C

\$83,500,000 Auction Rate SecuritiesSM Fiscal 1994 Series D

\$83,500,000 Inverse Rate SecuritiesSM Fiscal 1994 Series E

INTRODUCTORY STATEMENT

The purpose of this Official Statement, which includes the cover page, summary statement and the appendices hereto, is to set forth certain information pertaining to the New York City Municipal Water Finance Authority (the "Authority"), a public benefit corporation duly created and existing under the New York City Municipal Water Finance Authority Act, as amended (the "Act"); the New York City Water Board (the "Board"), a public benefit corporation created and existing under Chapter 515 of the Laws of 1984, both of which laws were enacted by the Legislature of the State of New York (the "State"); the Authority's \$659,025,000 Water and Sewer System Revenue Bonds, Fixed Rate Fiscal 1994 Series B (the "Series B Bonds"), the Authority's \$200,000,000 Water and Sewer System Revenue Bonds, Adjustable Rate Fiscal 1994 Series C (the "Series C Bonds"), the Authority's \$83,500,000 Water and Sewer System Revenue Bonds Auction Rate SecuritiesSM Fiscal 1994 Series D Bonds (the "Series D Bonds") and the Authority's \$83,500,000 Water and Sewer System Revenue Bonds Inverse Rate SecuritiesSM Fiscal 1994 Series E Bonds (the "Series E Bonds"). The Series B Bonds, the Series C Bonds, the Series D Bonds and the Series E Bonds are collectively referred to herein as the "Fiscal 1994 Bonds". Capitalized terms used in this Official Statement and not defined herein shall have the meanings ascribed thereto in "APPENDIX D — GLOSSARY AND SUMMARY OF CERTAIN DOCUMENTS — GLOSSARY" and "APPENDIX J — SUMMARY OF CERTAIN PROVISIONS RELATING TO THE SERIES D BONDS AND SERIES E BONDS AND PURCHASERS LETTER — DEFINITIONS OF CERTAIN TERMS."

Pursuant to a lease agreement (the "Lease") between the Board and The City of New York (the "City"), dated as of July 1, 1985, as amended, the Board has leased from the City its facilities for the collection, transmission and distribution of water (the "Water System") and its facilities for the collection, treatment and disposal of sewage (the "Sewer System") (collectively, the "System"). Pursuant to the Lease, the System is operated and maintained by the Department of Environmental Protection of the City ("DEP"). The Board has also entered into a financing agreement, dated as of July 1, 1985, as amended (the "Agreement"), with the Authority and the City for the financing of capital improvements to the System through the issuance of bonds (the "Bonds") or other obligations of the Authority. Pursuant to the Lease and the Agreement, the Board has agreed to cause rates, fees and charges to be collected.

In May 1993, the City published a ten-year \$9.988 billion capital improvement program (the "CIP") for the System. The Authority estimates that substantially all of the cost of the CIP will be provided from System funds, consisting primarily of proceeds derived from the sale of the Authority's notes and bonds. See "CAPITAL IMPROVEMENT AND FINANCING PROGRAMS". The Series B Bonds and the Series C Bonds will be issued by the Authority pursuant to its Water and Sewer System General Revenue Bond Resolution adopted on November 14, 1985, as amended (the "General Resolution"), and its Twenty-first Supplemental Resolution adopted on November 10, 1993 (the "Twenty-first Supplemental Resolution"). The Series D Bonds and the Series E Bonds will be issued by the Authority pursuant to the General Resolution and the Twenty-third Supplemental Resolution adopted on November 10, 1993 (the "Twenty-third Supplemental Resolution"). The Twenty-first Supplemental Resolution and the Twenty-third Supplemental Resolution are collectively referred to herein as the "Supplemental Resolutions". The General Resolution and the Supplemental Resolutions are collectively referred to herein as the "Resolution". Pursuant to the Resolution the Authority has appointed United States Trust Company of New York, New York, New York to act as trustee (the "Trustee") thereunder as successor to Citibank, N.A. Under the Resolution, United States Trust Company of New York will continue to serve as Trustee until a successor is appointed by the Bondholders in accordance with the Resolution.

The Bonds are special obligations of the Authority, payable solely from and secured by a pledge of the Revenues, all moneys or securities in any of the funds and accounts established under the Resolution, including the Debt Service Reserve Fund, and all other moneys and securities to be received, held or set aside pursuant to the Resolution, subject only to provisions of the Resolution and the Agreement relating to the use and application thereof. The Board has covenanted in the Agreement to maintain rates, fees and charges at sufficient levels to produce in each Fiscal Year an amount equal to 115% of the Aggregate Debt Service and

SM Service Mark of Smith Barney Shearson Inc.

Projected Debt Service (excluding Refundable Principal Installments for the payment of which funds are held in trust) to become due in such Fiscal Year on Bonds, plus 100% of the operation and maintenance expenses of the System certified by the City and of Required Deposits. The Agreement requires a Consulting Engineer to review the operation and maintenance of the System, and further requires the City to operate and maintain the System in accordance with the advice and recommendations of the Consulting Engineer. See "SECURITY FOR THE BONDS".

Rates, fees and charges are imposed by the Board and are not subject to regulatory approval nor are they subject to other regulations under current law except for the rates charged to a limited class of upstate users, representing less than 1% of Revenues, or as required by certain Federal grants. See "GOVERNMENTAL REGULATION" and "RATES AND BILLINGS".

The estimates and projections contained in this Official Statement are based on, among other factors, evaluations of historical revenue and expenditure data, analyses of economic trends and current and anticipated Federal and State legislation affecting the Authority's finances. The financial projections contained herein are subject to certain contingencies which cannot be quantified and are subject to the uncertainties inherent in any attempt to predict the results of future operations. Accordingly, such projections are subject to periodic revision which may involve substantial change. Consequently, the Authority makes no representation or warranty that these estimates and projections will be realized.

Capital Improvement Program

Major investments in the City's water and sewer infrastructure have been made since the nineteenth century. Capital improvements and renovations to the System are planned and budgeted at the point of contracting for work. Therefore, the CIP describes the capital program at the point of contracting for work. Authority financing pays for actual expenditures under contracts. Accordingly, the capital cash flow, which Authority bonds finance and on which Authority financing plans are based, is for a body of capital work which in part predates the current CIP. To maintain and improve the integrity of the System, the current CIP was published in May 1993 and anticipates an investment of approximately \$9.988 billion for Fiscal Years 1994 through 2003. The Authority estimates that 94% of the cost of the CIP will be provided from System funds. For further information regarding the CIP see "CAPITAL IMPROVEMENT AND FINANCING PROGRAMS".

The following table sets forth the current CIP.

Summary of Capital Improvement Program (thousands)

| | |
|-------------------------------|--------------------|
| Water Supply | \$3,108,173 |
| Sewers | 1,178,324 |
| Water Pollution Control | 5,066,227 |
| Equipment | 635,490 |
| Total | <u>\$9,988,214</u> |

There follow in this Official Statement brief descriptions of the Authority, the Board, the System and the CIP together with other information including summaries of the terms of the Fiscal 1994 Bonds, the Resolution, the Agreement and the Lease. All references herein to the Resolution, the Agreement and the Lease are qualified by reference to such documents in their entirety, copies of which are available from the Authority. All references to the Fiscal 1994 Bonds of each Series are qualified in their entirety by reference to the definitive bond forms, and the terms and provisions thereof contained in the Resolution.

THE SERIES B BONDS

General

The Series B Bonds initially delivered to the Underwriters will be dated their date of delivery. The Series B Bonds will mature on the dates and will bear interest at the rates shown on the inside cover of this Official Statement. Interest on the Series B Bonds will be payable semi-annually on each December 15 and June 15, commencing June 15, 1994. Principal of, redemption premium, if any, and interest on the Series B Bonds will be payable in lawful money of the United States of America. The Series B Bonds will be issued only as fully registered bonds without coupons in the denomination of \$5,000 or any integral multiple thereof.

Redemption of Series B Bonds

Sinking Fund Redemption. The Series B Term Bonds due June 15, 2011 and June 15, 2019 are subject to mandatory redemption prior to maturity in part, by lot in such manner as the Trustee may reasonably determine, at a redemption price of 100% of the principal amount thereof, plus accrued interest to the redemption date, on June 15 in each of the years and in the respective principal amounts, as follows:

| \$55,000,000 Series B Bonds due June 15, 2011 | | | \$33,000,000* Series B Bonds due June 15, 2019 | | |
|--|--|---------------|---|--|---------------|
| <u>Year</u> | | <u>Amount</u> | <u>Year</u> | | <u>Amount</u> |
| 2010 | | \$24,750,000 | 2018 | | \$23,000,000 |
| 2011† | | 30,250,000 | 2019† | | 10,000,000 |

| \$50,000,000** Series B Bonds due June 15, 2019 | | | \$152,450,000 Series B Bonds due June 15, 2019 | | |
|--|--|---------------|---|--|---------------|
| <u>Year</u> | | <u>Amount</u> | <u>Year</u> | | <u>Amount</u> |
| 2015 | | \$10,000,000 | 2012 | | \$ 550,000 |
| 2016 | | 5,000,000 | 2013 | | 540,000 |
| 2017 | | 10,000,000 | 2014 | | 53,240,000 |
| 2018 | | 20,000,000 | 2015 | | 52,265,000 |
| 2019† | | 5,000,000 | 2016 | | 10,990,000 |
| | | | 2017 | | 10,635,000 |
| | | | 2018 | | 16,310,000 |
| | | | 2019† | | 7,920,000 |

† Final Maturity

* MBIA Insured Bonds

** AMBAC Insured Bonds

The Authority may from time to time direct the Trustee to purchase Series B Bonds with moneys in the Debt Service Fund, at a price not greater than par plus accrued interest to the date of such purchase and apply any Series B Bonds so purchased as a credit, at 100% of the principal amount or accreted value thereof, against and in fulfillment of a required Sinking Fund Installment on the Series B Bonds of the same maturity. The amount of any excess of the amounts so credited over the amount of such Sinking Fund Installment will be credited against future Sinking Fund Installments. To the extent the Authority's obligation to make Sinking Fund Installments in a particular year is fulfilled through such purchases, the likelihood of redemption through mandatory Sinking Fund Installments of any Series B Bonds of the maturity so purchased will be reduced for such year.

Optional Redemption. The Series B Bonds are subject to redemption prior to maturity at the option of the Authority from any moneys available therefor on and after June 15, 2004 in whole at any time or in part on any interest payment date by lot, at the redemption prices (expressed as percentages of the principal amount of such Series B Bonds to be redeemed) set forth below, plus accrued interest to the redemption date.

| <u>Redemption Period</u> <u>(both dates inclusive)</u> | <u>Optional</u> <u>Redemption</u> <u>Prices</u> |
|---|---|
| June 15, 2004 to June 14, 2005 | 101% |
| June 15, 2005 and thereafter | 100 |

Notice of Redemption. Notice of redemption is to be given by first class mail, postage prepaid, at least 30 days prior to the date fixed for redemption, to the registered owners of such Series B Bonds to be redeemed at their addresses shown on the books of registry. So long as Cede & Co., as nominee of The Depository Trust Company ("DTC"), New York, New York, is the registered owner of the Series B Bonds, such notices of redemption will be sent to DTC. No assurance can be given by the Authority that DTC and DTC Participants will promptly transmit notices of redemption to Beneficial Owners. See "BOOK-ENTRY FORM ONLY".

If, on any redemption date, moneys for the redemption of the Series B Bonds to be redeemed, together with interest thereon to the redemption date, are held by the Trustee so as to be available therefor on such date, and if notice of redemption has been mailed, then interest on the Series B Bonds to be redeemed will cease to accrue from and after the redemption date and such Series B Bonds will no longer be considered to be Outstanding under the Resolution.

THE SERIES C BONDS

General

The Series C Bonds initially delivered to the Underwriters will be dated their date of delivery, will be issued in fully registered form, will initially bear interest at a Daily Interest Rate and will mature on the date shown on the inside cover of this Official Statement. The Series C Bonds are subject to optional redemption prior to maturity as described under "Redemption of Series C Bonds" and to optional and mandatory tender for purchase as described under "Optional Tender for Purchase" and "Mandatory Tender for Purchase". The Series C Bonds may bear interest at rates established for Interest Rate Periods other than a Daily Interest Rate Period, including a Weekly Interest Rate Period and a Flexible Interest Rate Period. The Series C Bonds will continue in an Interest Rate Period until converted to another Interest Rate Period and will bear interest at a rate determined in accordance with the procedures for determining the interest rate during such Interest Rate Period. See "Conversion to an Alternate Interest Rate Period" and "Interest Rates and Determination Dates" below.

Principal and Tender Option Price of, and redemption premium, if any, and interest on, the Series C Bonds will be payable in lawful money of the United States of America. The Series C Bonds will be issued only as fully registered bonds without coupons in denominations of \$100,000 and integral multiples thereof when the Interest Rate Period is a Daily Interest Rate Period, a Weekly Interest Rate Period or a Flexible Interest Rate Period of less than one year, and in denominations of \$5,000 and integral multiples thereof when the Interest Rate Period is a Flexible Interest Rate Period of a year or more. During a Daily Interest Rate Period, a Weekly Interest Rate Period or a Flexible Interest Rate Period of less than one year, interest will be computed on the basis of a 365-day or 366-day year for the actual number of days elapsed and during a Flexible Interest Rate Period of a year or more, interest will be computed on the basis of a 360-day year of twelve 30-day months.

United States Trust Company of New York has been appointed as Tender Agent for the Series C Bonds. Smith Barney Shearson Inc. has been appointed as the exclusive Remarketing Agent for the Series C Bonds.

Record Dates and Interest Payment Dates

Record Dates. Interest on the Series C Bonds will be payable to the registered owner thereof as shown on the registration books kept by the Trustee at the close of business on the Record Date which will be the first day (whether or not a Business Day) of the calendar month during which interest thereon is payable.

Interest Payment Dates. Interest on the Series C Bonds will be payable on January 15, 1994 and thereafter on the 15th day of each calendar month when the Series C Bonds are in a Daily Interest Rate Period, a Weekly Interest Rate Period or a Flexible Interest Rate Period of less than one year and on June 15 and December 15 of each year when the Series C Bonds are in a Flexible Interest Rate Period of a year or more. If any such day is not a Business Day, then the interest will be payable on the next succeeding Business Day. The interest payable on an interest payment date during a Daily Interest Rate Period or a Weekly Interest Rate Period will be the interest which has accrued on the Series C Bonds from the first day of the preceding calendar month to the last day of such month. During a Flexible Interest Rate Period the interest payable on an interest payment date will be the interest accrued on the Series C Bonds from and after the date through which interest was paid on the prior interest payment date to and including the day before the interest payment date.

Conversion to an Alternate Interest Rate Period

At the election of the Authority, the Series C Bonds may be converted to an Interest Rate Period of a different duration on any interest payment date on which the Series C Bonds may be redeemed at a Redemption Price equal to the principal amount thereof, plus accrued interest (a "Conversion Date"). However, if any Series C Bond has been purchased by the Liquidity Provider and is registered in its name or in the name of its nominee, the Series C Bonds may be converted to another Interest Rate Period on the last day of an Interest Rate Period. Unless an election to convert to a new Interest Rate Period has been withdrawn, the Trustee is to give written notice to the registered owner of each Series C Bond of the Authority's election to convert to another Interest Rate Period and of the date on which the Interest Rate Period is to be converted. Such notice is to be given, by first class mail, not later than 15 days prior to the date on which the Interest Rate Period is to be converted and, upon transfer of a Series C Bond, by delivering a copy of such notice to each registered owner to whom a Series C Bond is transferred prior to the Conversion Date. See "Mandatory Tender for Purchase — *Mandatory Tender on Conversion Dates*".

The Series C Bonds may not be converted from an Interest Rate Period to an Interest Rate Period of another duration unless the Trustee and Tender Agent have received a Favorable Bond Counsel's Opinion by 9:00 a.m., New York City time, on the Conversion Date.

The Authority may withdraw its election to convert the Series C Bonds to another Interest Rate Period by giving notice of such withdrawal to the Trustee, the Tender Agent, the Remarketing Agent, the Insurer and the Liquidity Provider by 5:00 p.m., New York City time, on any Business Day prior to the date on which the Interest Rate Period is to be converted. If the election to convert to another Interest Rate Period is withdrawn prior to the date notice of the conversion to a different Interest Rate Period was mailed, the Series C Bonds are not to be tendered for purchase and the Interest Rate Period will remain unchanged. See "Mandatory Tender for Purchase — *Mandatory Tender on Conversion Dates*" below.

If a Favorable Bond Counsel's Opinion can not be obtained, or if the election to convert was withdrawn after notice of the election to convert to another Interest Rate Period was mailed, or if the Remarketing Agent has notified the Tender Agent that it has been unable to remarket the Series C Bonds on the Conversion Date, the Series C Bonds will continue in a Daily Interest Rate Period or a Weekly Interest Rate Period if the existing Interest Rate Period was a Daily Interest Rate Period or a Weekly Interest Rate Period, and will be converted to a Weekly Interest Rate Period if the existing Interest Rate Period was a Flexible Interest Rate Period, which Interest Rate Periods will be in effect from and after the date on which the Interest Rate Period was to be converted.

Interest Rates and Determination Dates

General. The rate at which the Series C Bonds will bear interest during any Interest Rate Period will be the minimum rate which the Remarketing Agent determines to be necessary to enable the Series C Bonds to be sold at a price equal to the principal amount thereof, plus accrued interest thereon, if any, from the preceding Record Date if the Series C Bonds bear interest at a Daily Interest Rate or a Weekly Interest Rate, and from the day following the day through which interest has been paid on the prior interest payment date if the Series C Bonds bear interest at a Flexible Interest Rate. However, for a description of the Daily Interest Rate to apply on any day which is not a Business Day, see "Daily Interest Rate Period" below.

The Series C Bonds, other than Purchased Bonds, may not, while a Liquidity Facility is in effect, bear interest at a rate greater than 12% per annum. Purchased Bonds and all Series C Bonds when no Liquidity Facility is in effect may bear interest at a rate greater than 12% per annum, but in no event greater than 25% per annum.

Daily Interest Rate Period. The Daily Interest Rate for any Business Day is to be determined by the Remarketing Agent and announced by 9:30 a.m., New York City time, on such Business Day. For any day which is not a Business Day, the Daily Interest Rate will be the Daily Interest Rate for the immediately preceding Business Day.

If a Daily Interest Rate for a Business Day has not been determined by the Remarketing Agent or if the Daily Interest Rate determined by the Remarketing Agent can not for any reason be in effect for such Business Day, the Daily Interest Rate for such Business Day will be the last Daily Interest Rate determined by the Remarketing Agent until a Daily Interest Rate can be determined by the Remarketing Agent, but in no event for more than seven consecutive days. The Daily Interest Rate for each day thereafter, until a Daily Interest Rate can be determined by the Remarketing Agent, will be 70% of the interest rate on 30-day high-grade unsecured commercial paper notes sold through dealers by major corporations reported by *The Wall Street Journal* on the Business Day on which such rate will be in effect or, if not reported on that Business Day, on the immediately preceding Business Day on which such rate was reported by *The Wall Street Journal*.

Weekly Interest Rate Period. Except as described below, the Weekly Interest Rate is to be determined by the Remarketing Agent and announced by 9:00 a.m., New York City time, on Wednesday of each week or, if Wednesday is not a Business Day, on the next succeeding Business Day. Each Weekly Interest Rate will be in effect for a seven-day period commencing on Wednesday and continuing through the next succeeding Tuesday. However, if the Conversion Date upon which an Interest Rate Period has been converted to a Weekly Interest Rate Period is not a Wednesday, the initial Weekly Interest Rate will commence on the Conversion Date and will continue through the next succeeding Tuesday which may be less than seven days. The Weekly Interest Rate for such Weekly Interest Rate Period will be determined by the Remarketing Agent and announced by 9:00 a.m., New York City time, on the Conversion Date.

If a Weekly Interest Rate has not been determined by the Remarketing Agent or if the Weekly Interest Rate determined by the Remarketing Agent can not for any reason be in effect, the Weekly Interest Rate will be the last Weekly Interest Rate determined by the Remarketing Agent until a Weekly Interest Rate can be determined by the Remarketing Agent, but in no event for more than two consecutive seven-day periods. The Weekly Interest Rate thereafter, until a Weekly Interest Rate can be determined by the Remarketing Agent, will be 70% of the interest rate on 30-day high-grade unsecured commercial paper notes sold through dealers by major corporations reported by *The Wall Street Journal* on the day on which the interest rate would otherwise have been determined by the Remarketing Agent or, if not reported on that day, on the immediately preceding Business Day on which such rate was reported by *The Wall Street Journal*.

Flexible Interest Rate Period. Except as described below, the Flexible Interest Rate for any Flexible Interest Rate Period is to be determined by the Remarketing Agent and announced by 9:00 a.m., New York City time, on the first Business Day of the Flexible Interest Rate Period and will be in effect from the first day of such Flexible Interest Rate Period through the day prior to the commencement of the next Interest Rate Period. Each Flexible Interest Rate Period is to commence on the 15th day of a calendar month and is to extend to the 15th day of any succeeding calendar month to and including June 15, 2023, the maturity date of the Series C Bonds. However, if the Conversion Date on which an Interest Rate Period was converted to a Flexible Interest Rate Period is not the 15th day of a calendar month, the Flexible Interest Rate Period will commence on the Conversion Date. Unless converted to an Interest Rate Period of a different duration, each Flexible Interest Rate Period will be of the same duration as the preceding Flexible Interest Rate Period.

If a Flexible Interest Rate Period has not been determined by the Remarketing Agent or if the Flexible Interest Rate determined by the Remarketing Agent can not for any reason be in effect for a Flexible Interest Rate Period, the Interest Rate Period for the Series C Bonds will convert to a Weekly Interest Rate Period which will be in effect from the day on which the prior Flexible Interest Rate Period ended.

Optional Tender for Purchase

General. A Series C Bond or any portion thereof equal to an Authorized Denomination may be tendered for purchase, at the Tender Option Price, at the option of its registered owner on any Business Day during a Daily Interest Rate Period or a Weekly Interest Rate Period upon giving notice of the registered owner's election to tender in the manner and at the times described below. Notice of an election to tender a Series C Bond registered in the name of Cede & Co., as nominee of DTC, is to be given by the DTC Participant on behalf of the Beneficial Owner of the Series C Bond and will not be given by DTC. Notice of

the election to tender for purchase a Series C Bond registered in any other name is to be given by the registered owner of such Series C Bond or its attorney-in-fact.

The notice is to state the name of the registered owner or the Beneficial Owner and the principal amount of the Series C Bond, the principal amount of the Series C Bond to be tendered for purchase and the Business Day on which the Series C Bond or portion thereof to be tendered for purchase is to be purchased.

Daily Interest Rate Period. During a Daily Interest Rate Period a DTC Participant or the registered owner of a Series C Bond must give telephonic (promptly confirmed by tested telex or telecopier) or written notice of its irrevocable election to tender such Series C Bond or a portion thereof for purchase to the Tender Agent, at its Delivery Office, and to the Remarketing Agent by no later than 10:30 a.m., New York City time, on the Business Day on which such Series C Bond is to be purchased.

Weekly Interest Rate Period. During a Weekly Interest Rate Period a DTC Participant or the registered owner of a Series C Bond must give written notice of its irrevocable election to tender such Series C Bond or a portion thereof for purchase at its option to the Tender Agent, at its Delivery Office, and to the Remarketing Agent by no later than 5:00 p.m., New York City time, on any Business Day which is at least seven days prior to the Business Day on which such Series C Bond or portion thereof is to be purchased.

Mandatory Tender for Purchase

Mandatory Tender on the Last Day of a Flexible Interest Rate Period. Each Series C Bond bearing interest at a Flexible Interest Rate other than to its maturity date is required to be tendered for purchase at the Tender Option Price on the last day of each Flexible Interest Rate Period. At least 15 days prior to the end of a Flexible Interest Rate Period of one year or more the Tender Agent will give written notice to the registered owner of each Series C Bond that the Series C Bonds are to be tendered for purchase on the last day of the Flexible Interest Rate Period by sending a copy of the notice by first class mail.

Mandatory Tender on Conversion Dates. Each Series C Bond is to be tendered for purchase at the Tender Option Price on a Conversion Date or, if it is not a Business Day, on the next succeeding Business Day. In addition, each Series C Bond is to be tendered for purchase on the interest payment date on which the Interest Rate Period was to be converted if the election to convert the Series C Bonds to a different Interest Rate Period was withdrawn after notice of the election to convert to another Interest Rate Period was mailed.

Mandatory Tender Upon Termination or Expiration of the Liquidity Facility. Each Series C Bond is to be tendered for purchase at the Tender Option Price on the first Business Day which is at least two days prior to the stated expiration date of the Liquidity Facility (unless it expires on the maturity date of the Series C Bonds) or the date on which the Liquidity Facility is to be terminated unless the term of the Liquidity Facility has been extended or the Liquidity Facility has been replaced with an alternate Liquidity Facility at least 30 days prior to the expiration date or seven days prior to the termination date. Written notice of the expiration date or termination date of a Liquidity Facility and of the date on which the Series C Bonds are to be tendered for purchase is to be given by the Tender Agent to each registered owner of a Series C Bond by first class mail and, upon transfer of a Series C Bond, by delivering a copy of such notice to each registered owner to which a Series C Bond is transferred. For a description of the conditions on which the Liquidity Facility may be terminated by the Liquidity Provider, see "Liquidity Facility" below.

The Series C Bonds will not be subject to mandatory tender for purchase upon termination of the Liquidity Facility by the Liquidity Provider or the Authority or upon expiration of the Liquidity Facility on its stated expiration date if the Authority obtains an alternate Liquidity Facility and the rating agencies which then rate the Series C Bonds confirm that the short-term rating on the Series C Bonds will not be reduced or withdrawn as a result of the change of the Liquidity Provider.

Series C Bonds Deemed Purchased

The Series C Bonds or portions thereof required to be purchased upon a tender at the option of the registered owner thereof or upon a mandatory tender will be deemed to have been tendered and purchased for

all purposes of the Resolution, irrespective of whether such Series C Bonds have been presented and surrendered to the Tender Agent, if on the tender date moneys sufficient to pay the Tender Option Price thereof are held by the Tender Agent. The former registered owner of a Series C Bond tendered or deemed to have been tendered and purchased will have no claim thereunder or under the Resolution or otherwise for payment of any amount other than the Tender Option Price, and such Series C Bond or portion thereof will no longer be Outstanding for purposes of the Resolution.

Tender Option Price and Payment

The Tender Option Price of a Series C Bond will be the principal amount of the Series C Bond to be purchased, plus accrued and unpaid interest from the preceding Record Date when the Series C Bonds bear interest at a Daily Interest Rate or a Weekly Interest Rate and to the tender date when the Series C Bonds bear interest at a Flexible Interest Rate.

The Tender Option Price of a Series C Bond held in a book-entry-only system will be paid, in same-day funds, to DTC in accordance with DTC's standard procedures for effecting same-day payments, as described herein under the heading "BOOK-ENTRY ONLY SYSTEM". Payment will be made without presentation and surrender of the Series C Bonds to the Tender Agent and DTC will be responsible for effecting payment of the Tender Option Price to the DTC Participants.

The Tender Option Price of any other Series C Bonds will be paid, in same-day funds, only after presentation and surrender of the Series C Bond to the Tender Agent at its Delivery Office. Payment will be made by 5:00 p.m., New York City time, on the later of the tender date or the Business Day on which a Series C Bond is presented and surrendered to the Tender Agent if it is presented and surrendered, in the case of a Series C Bond not in a Daily Interest Rate Period, by 10:00 a.m., New York City time, on such day, and, in the case of a Series C Bond in a Daily Interest Rate Period, by 12:00 noon, New York City time, on such day. The Tender Option Price of a Series C Bond not in a Daily Interest Rate Period presented and surrendered after 10:00 a.m., New York City time, and of a Series C Bond in a Daily Interest Rate Period presented and surrendered after 12:00 noon, New York City time, will be paid by 5:00 p.m., New York City time, on the following Business Day. If the tender date on which a Tender Option Price is payable is not a Business Day, the Tender Option Price will be paid on the following Business Day.

The Tender Option Price is payable solely, and in the following order of priority, from the proceeds of the remarketing of Series C Bonds tendered for purchase, monies made available by the Liquidity Provider under the Liquidity Facility and the Revenues of the System or other moneys available to the Authority. The Revenues have been pledged to secure payment of the Tender Option Price which pledge is of equal rank and priority as the pledge of the Revenues to secure payment of the principal and Redemption Price of and interest on the Bonds. See "Remarketing of Series C Bonds Upon Tender" and "Liquidity Facility".

Each Series C Bond tendered for purchase, when presented to the Tender Agent for surrender, must be accompanied by a duly executed instrument of transfer in form satisfactory to the Tender Agent or such presentation and surrender will not have been effectively made.

Remarketing of Series C Bonds Upon Tender

Pursuant to the Remarketing Agreement, the Remarketing Agent is required to use its best efforts to remarket Series C Bonds tendered or deemed tendered for purchase. The Remarketing Agreement sets forth, among other things, certain conditions to the Remarketing Agent's obligations to remarket Series C Bonds. If any of the conditions are not satisfied, or if the Remarketing Agent is otherwise unable to remarket any Series C Bonds, the Tender Option Price of such Series C Bonds will be paid from amounts obtained from the Liquidity Provider under the Liquidity Facility, if any, as described below, or from Revenues or other moneys available to the Authority.

On each purchase date, the Remarketing Agent is to give notice to the Tender Agent specifying the principal amount of Series C Bonds which have been tendered for purchase and remarketed. The Tender Agent is, on such purchase date, to obtain funds under the Liquidity Facility in accordance with its terms in an

amount equal to the difference between the Tender Option Price of the Series C Bonds subject to purchase and the remarketing proceeds available to the Tender Agent.

Liquidity Facility

The Authority may, but is not required to, keep in effect one or more Liquidity Facilities for the benefit of the Owners of the Series C Bonds, which will require the Liquidity Provider to purchase or to provide monies to purchase all or any portion of Series C Bonds tendered for purchase.

In connection with the Series C Bonds the Authority has provided a Liquidity Facility in the form of a Standby Bond Purchase Agreement (the "Standby Purchase Agreement") by and between the Authority and FGIC Securities Purchase, Inc. ("FGIC-SPI"). Each registered owner of a Series C Bond will be entitled to the benefits of the Standby Purchase Agreement under which FGIC-SPI has agreed to make available to the Tender Agent, upon receipt of an appropriate demand for payment, the Tender Option Price for Series C Bonds tendered for purchase and not remarketed. The FGIC-SPI commitment (the "Commitment") under the Standby Purchase Agreement is sufficient to pay a Tender Option Price equal to the Outstanding principal of and up to 50 days' interest on the Series C Bonds at an assumed interest rate of 12% per annum.

Series C Bonds the Tender Option Price of which was paid from monies made available under the Standby Purchase Agreement will be registered in the name of FGIC-SPI or its nominee and all interest accruing thereon from the last date to which interest was paid will accrue for the benefit of and be payable to FGIC-SPI. The obligation of the Authority to repay amounts advanced by FGIC-SPI under the Standby Purchase Agreement to purchase Series C Bonds will be evidenced by the Series C Bonds purchased by FGIC-SPI.

The scheduled expiration date of the Standby Purchase Agreement is December 2, 1998.

The obligation of the FGIC-SPI to purchase Series C Bonds pursuant to the terms and conditions of the Standby Purchase Agreement is irrevocable. However, the Standby Purchase Agreement, upon the happening of a Termination Event, may be terminated by FGIC-SPI upon 15 days notice. A Termination Event includes (i) a failure by the Authority to pay FGIC-SPI's fees, (ii) a default by the Authority under the Resolution, (iii) a default by the Authority in the payment of principal of or premium or interest on any indebtedness, including payments guaranteed by the Authority, or in the payment under any lease, mortgage or conditional sales contract securing monies borrowed by another governmental entity, (iv) the occurrence and continuance of a default under the Financing Agreement, (v) the commencement of a proceeding seeking the liquidation, reorganization or other relief under any bankruptcy or insolvency law or seeking the appointing of a trustee, receiver, liquidator, custodian or other similar official of a substantial part of the Authority's property, (vi) the Authority makes a general assignment for the benefit of its creditors or fails generally to pay its debts as they become due, (vii) the invalidity or unenforceability of any material provision of the Standby Purchase Agreement, the Resolution, the Remarketing Agreement or a related document or if the Authority contests the validity or enforceability of a material provision of any such document or (viii) the Board fails to pay to the Authority or the City amounts required to be paid to them under the Financing Agreement.

The Authority has the right to terminate the Standby Purchase Agreement at any time. However, the Series C Bonds will be subject to mandatory tender for purchase prior to the date on which the Standby Purchase Agreement is terminated by FGIC-SPI or the Authority unless each of the rating agencies which then rate the Series C Bonds have confirmed that the short-term rating assigned by it to the Series C Bonds will not be reduced or withdrawn as a result of a change in the Liquidity Provider. See "Mandatory Tender for Purchase — *Mandatory Tender Upon Termination or Expiration of the Liquidity Facility*" above.

The preceding is a summary of certain provisions expected to be included in the Standby Purchase Agreement and the proceedings under which the Series C Bonds are to be issued, and is subject in all respects to the underlying documents, copies of which will be available for inspection during business hours at the office of the Tender Agent. Information regarding FGIC-SPI is included herein as "APPENDIX I — THE LIQUIDITY PROVIDER". Neither the Authority nor the Underwriters make any representation with respect to the information in "APPENDIX I — THE LIQUIDITY PROVIDER".

A Prospectus Supplement is required to be delivered in connection with the offering of the obligations of FGIC-SPI under the Standby Purchase Agreement issued by FGIC-SPI in support of the Series C Bonds. A Registration Statement with respect thereto has been filed under the Securities Act of 1933, as amended. The Authority does not make any representation with respect to the information in the Prospectus Supplement or the Registration Statement.

For a description of the Liquidity Facility, see the accompanying Prospectus and Prospectus Supplement of FGIC-SPI, the initial Liquidity Provider. Delivery of this Official Statement in conjunction with the offering of the Series C Bonds may only be made in conjunction with the delivery of such Prospectus and Prospectus Supplement.

Redemption of Series C Bonds

Optional Redemption — Daily or Weekly Interest Rate Periods. The Series C Bonds, while they bear interest at a Daily Interest Rate or a Weekly Interest Rate, are subject to redemption prior to maturity at the option of the Authority, on any Bond Payment Date for the Series C Bonds, as a whole or in part, at the redemption price of 100% of the principal amount of the Series C Bonds to be redeemed, plus accrued interest to the redemption date.

Optional Redemption — Flexible Interest Rate Period. The Series C Bonds, other than Purchased Bonds, while they bear interest at a Flexible Interest Rate, are subject to redemption prior to maturity at the option of the Authority, in whole at any time or in part on any Bond Payment Date, (i) at the redemption price of 100% of the principal amount of the Series C Bonds to be redeemed if such redemption occurs on the first day of a Flexible Interest Rate Period and (ii) if on any other date, at the times and at the redemption prices (expressed as percentages of unpaid principal amount) set forth below, plus, in each case, accrued interest to the redemption date.

| <u>Length of Flexible Interest Rate Period from first day of Flexible Interest Rate Period (expressed in years)</u> | <u>Redemption Prices</u> |
|---|--|
| greater than 15 | after 10 years at 101%, declining by ½%, every year to 100% |
| less than or equal to 15 and greater than 10 | after 7 years at 101%, declining by ½% every year to 100% |
| less than or equal to 10 and greater than 7 | after 5 years at 101%, declining by ½% every year to 100% |
| less than or equal to 7 and greater than 4 | after 3 years at 100½%, declining by ½% every year to 100% |
| less than or equal to 4 | after 2 years at 100% |

Optional Redemption — Purchased Bonds. The Series C Bonds which are Purchased Bonds are subject to redemption prior to maturity at the option of the Authority at any time, in whole or in part, at the redemption price of 100% of the principal amount of the Purchased Bonds to be redeemed, plus accrued interest to the redemption date.

In the event of a redemption of a portion of the Series C Bonds, the Purchased Bonds may be redeemed prior to the redemption of any other Series C Bonds.

Notice of Redemption

Notice of redemption is to be given by first class mail, postage prepaid, at least 30 days prior to the date fixed for redemption, to the registered owners of such Bonds to be redeemed at their addresses shown on the books of registry. So long as Cede & Co., as nominee of DTC, is the registered owner of the Series C Bonds, notice of redemption is to be sent to DTC. No assurance can be given by the Authority that DTC and DTC Participants will promptly transmit notices of redemption to Beneficial Owners.

If, on any redemption date, moneys for the redemption of the Series C Bonds to be redeemed, together with interest thereon to the redemption date, are held by the Trustee so as to be available therefor on such date, and if notice of redemption has been mailed, then interest on the Series C Bonds to be redeemed will cease to accrue from and after the redemption date and such Series C Bonds will no longer be considered to be Outstanding under the Resolution.

INTEREST RATE PERIOD TABLE FOR SERIES C BONDS

| | DAILY RATE | WEEKLY RATE | FLEXIBLE RATE |
|-------------------------------------|---|---|---|
| Interest Payment Date | 15th day of each calendar month | 15th day of each calendar month | 15th day of each calendar month if the Flexible Rate Period is less than one year or June 15th and December 15th if the rate period is one year or more |
| Record Date | First day of the calendar month | First day of the calendar month | First day of the calendar month |
| Date of Interest Rate Determination | Not later than 9:30 a.m. on each Business Day | Not later than 9:00 a.m. on each Wednesday or, if not a Business Day, on the next Business Day | Not later than 9:00 a.m. on the first Business Day of the Flexible Interest Rate Period |
| Commencement of Rate Period | Each Business Day | On conversion to a Weekly Interest Rate Period and on each Wednesday thereafter | On the 15th day of a month or on any Conversion Date to a Flexible Interest Rate Period |
| Purchase Date | Any Business Day | Any Business Day | Last day of the Flexible Interest Rate Period |
| Notice Period for Optional Tenders | Written or telephonic (confirmed by tested telex or telecopier) notice by 10:30 a.m. on Purchase Date | Written notice not later than 5:00 p.m. on any Business Day not less than seven days prior to the Purchase Date | No optional tenders |
| Tender Date for Tendered Bonds | Not later than 12:00 noon on the Purchase Date | Not later than 10:00 a.m. on the Purchase Date | Not later than 10:00 a.m. on the Purchase Date |
| Payment Date for Tendered Bonds | Not later than 5:00 p.m. on the Purchase Date if bonds are presented by 12:00 noon on Purchase Date | Not later than 5:00 p.m. on the Purchase Date if bonds are presented by 10:00 a.m. on Purchase Date | Not later than 5:00 p.m. on the Purchase Date if bonds are presented by 10:00 a.m. on Purchase Date |

THE SERIES D BONDS AND THE SERIES E BONDS

General

The Series D Bonds and the Series E Bonds shall be dated the date of initial delivery thereof. The Series D Bonds and the Series E Bonds will be initially registered in the name of Cede & Co., as nominee of DTC, which is acting as the Securities Depository. See "BOOK-ENTRY FORM ONLY" herein for a description of how the Securities Depository, as owner, is expected to disburse payments of principal and interest to the Beneficial Owners of the Series D Bonds and Series E Bonds. Certain capitalized terms used herein are defined in Appendix J.

The Series D Bonds and Series E Bonds are being issued with maturities of June 15, in the years 2008, 2009, 2012 and 2013. The provisions hereof shall apply to each maturity.

Interest

Interest Payments. Interest on the Series D Bonds and Series E Bonds shall accrue for each Interest Period and shall be payable in arrears on each succeeding Bond Payment Date. An “Interest Period” begins on and includes a Bond Payment Date and ends on but excludes the next succeeding Bond Payment Date; however, the first Interest Period commences on the date of original delivery of the Series D Bonds and Series E Bonds. A “Bond Payment Date” for the Series D Bonds and Series E Bonds means each June 15 and December 15 commencing December 15, 1993, or if any such date is not a Business Day, the next succeeding Business Day.

Interest payments on the Series D Bonds and Series E Bonds are to be made by the Trustee to the persons who are the registered owners of the Series D Bonds and Series E Bonds as of the Business Day next preceding each Bond Payment Date (the “Regular Record Date”).

Pursuant to the Twenty-third Supplemental Resolution, the Trustee shall obtain from the Securities Depository a position listing showing, at the close of business on each Regular Record Date, the aggregate principal amounts of: Regular Series D Bonds, Regular Series E Bonds, Newly Fixed Series D Bonds and Series E Bonds and Regular Fixed Series D Bonds and Series E Bonds. The Trustee then shall calculate the interest that has accrued with respect to any Outstanding Regular Series D Bonds, Regular Series E Bonds, Newly Fixed Series D Bonds and Series E Bonds and Regular Fixed Series D Bonds and Series E Bonds, and shall determine the aggregate amounts of interest distributable on each Bond Payment Date to registered owners as of the Regular Record Date.

In no circumstance shall the aggregate amount of interest distributed to registered owners of Regular Series D Bonds, Regular Series E Bonds, Newly Fixed Series D Bonds and Series E Bonds and Regular Fixed Series D Bonds and Series E Bonds for any maturity for any Interest Period, and the Service Charge distributed to the Auction Agent for any maturity for any Interest Period, exceed (A) the Outstanding principal amount of all such bonds of such maturity, multiplied by (B) the Fixed Rate, multiplied by (C) the number of days in such Interest Period on the basis of twelve 30-day months, divided by (D) 360.

Applicable Series D Bonds Rate. The rate per annum at which interest is payable on the Series D Bonds for each Auction Period is referred to as the “Applicable Series D Bonds Rate”. Interest on the Series D Bonds shall be computed on the basis of a 360-day year for the actual number of days elapsed.

The rate of interest on the Series D Bonds for the first Auction Period will be 2.78% per annum. The rate of interest on the Series D Bonds for each subsequent Auction Period shall be equal to the sum of: (i) the rate of interest that results from implementation of the Auction Procedures described in Appendix J hereto (the “Auction Rate”) and (ii) the Service Charge Rate, subject to the limitations described below.

(i) If a notice of an adjustment in the percentages used to determine the Maximum Rate, the Minimum Rate and the Non-Payment Rate (in each case, defined below) shall have been given by the Market Agent and such adjustment shall not have taken effect because of a failure to satisfy either of the conditions set forth in clauses (i) and (ii) under “APPENDIX J — DESCRIPTION OF AUCTION — Adjustment of Percentages Used to Determine Maximum, Minimum and Non-Payment Rates”, then an Auction shall not be held with respect to the succeeding Auction Period and the Applicable Series D Bonds Rate for such succeeding Auction Period shall equal the sum of the Maximum Rate on such Auction Date and the Service Charge Rate on such Auction Date.

(ii) If, at the close of business on the Auction Record Date immediately preceding any Auction Period Accrual Date, all outstanding Series D Bonds are Fixed, then an Auction shall not be held with respect to the succeeding Auction Period and the Applicable Series D Bonds Rate for such succeeding Auction Period shall equal the Fixed Rate on the Business Day immediately preceding the first day of such Auction Period.

(iii) If, on any Auction Date, an Auction is not held for any other reason, the Applicable Series D Bonds Rate for the next succeeding Auction Period shall equal the sum of the Maximum Rate on such Auction Date and the Service Charge Rate on such Auction Date.

Notwithstanding the foregoing, if the ownership of the Series D Bonds is no longer maintained in book-entry form by the Securities Depository, the Applicable Series D Bonds Rate shall equal the Maximum Rate on the Business Day immediately preceding the first day of the applicable Auction Period. In addition, if a Payment Default shall have occurred, the Applicable Series D Bonds Rate for the Auction Period commencing on or after such Payment Default and for each Auction Period thereafter to and including the Auction Period, if any, during which (or commencing less than two Business Days after) such Payment Default is cured shall equal the Non-Payment Rate plus the Service Charge Rate, which Service Charge Rate shall continue to be paid to the Auction Agent and the Broker-Dealer notwithstanding the fact that no Auctions may be held.

Applicable Series E Bonds Rate. The rate of interest on the Series E Bonds for each maturity during each Auction Period shall be equal to the result, taken (without rounding) to one thousandth (.001) of one percent, of:

- (i) two times the applicable “Fixed Rate” for such maturity, minus
- (ii) the product of the Applicable Series D Bonds Rate for such maturity for such Auction Period and the Applicable Day Count Fraction.

“Fixed Rate” means 5.20% per annum for the Series D Bonds and Series E Bonds maturing June 15, 2008, 5.25% per annum for the Series D Bonds and Series E Bonds maturing June 15, 2009, and 5.35% per annum for the Series D Bonds and Series E Bonds maturing June 15, 2012 and 2013. The rate per annum at which interest is payable on the Series E Bonds for any Auction Period is referred to as the “Applicable Series E Bonds Rate”. “Applicable Day Count Fraction” means, with respect to any Interest Period or Auction Period, the actual number of days in such Interest Period or Auction Period, as the case may be, divided by the number of days in such Interest Period or Auction Period, as the case may be, on the basis of twelve thirty day months.

No payments of interest will be payable on the Series E Bonds maturing on June 15, in the years 2008, 2009, 2012 or 2013 for any Interest Period in the event that the Applicable Series D Bonds Rate for Series D Bonds maturing on June 15, in the years 2008, 2009, 2012 or 2013 is 10.229%, 10.327%, 10.524% or 10.524% per annum, respectively.

Service Charge.

On each Bond Payment Date, the Trustee shall calculate the amount of service fees to be paid to the Auction Agent, on behalf of Beneficial Owners, of Regular Series D Bonds and Newly Fixed Series D Bonds and Series E Bonds. The amount of such fees shall equal (i) the Service Charge Rate, multiplied by (ii) (A) in the case of the first Interest Period, the aggregate principal amount of Outstanding Regular Series D Bonds on the Closing Date or (B) in the case of each subsequent Interest Period, the aggregate principal amount of Outstanding Regular Series D Bonds and the Series D Bonds component of Newly Fixed Series D Bonds and Series E Bonds at the close of business on the Regular Record Date immediately preceding such Bond Payment Date, multiplied by (iii) the number of days in the Interest Period, divided by (iv) 360.

See Appendix J for a description of the circumstances under which the Auction Agent Fee or the Broker-Dealer Fee may be changed. A comparable amount will be deducted from the payment to the Registered Owners of Series D Bonds on the first Interest Payment Date and paid to the Auction Agent and the Broker-Dealers in connection with the initial issuance of the Series D Bonds.

Fixing and Separating Series D Bonds and Series E Bonds

A Beneficial Owner of Regular Series D Bonds may cause such Series D Bonds to be combined with Regular Series E Bonds, or “Fixed”, and traded as a unit as Regular Fixed Series D Bonds and Series E Bonds or Newly Fixed Series D Bonds and Series E Bonds. Series D Bonds which become Fixed with Series E Bonds will be considered Newly Fixed Series D Bonds and Series E Bonds from the date of fixing through the next

succeeding Regular Record Date and the Holders thereof will be liable for the Service Charge thereon until such Regular Record Date.

On any Bond Payment Date a Beneficial Owner of Regular Fixed Series D Bonds and Series E Bonds may cause such Series D Bonds and Series E Bonds to be “Separated”, and traded separately as Regular Series E Bonds and Regular Series D Bonds.

For a more detailed discussion of the procedures by which Series D Bonds and Series E Bonds may be Fixed and Separated, see “APPENDIX J — FIXING AND SEPARATING SERIES D BONDS AND SERIES E BONDS”.

Mandatory Tender of Series D Bonds

Any Beneficial Owner of Series E Bonds may, at any time and from time to time, notify a Broker-Dealer that such Beneficial Owner intends to submit a Bid for a specified principal amount of Series D Bonds having the same maturity date as such Series E Bonds on the next succeeding Auction Date in order to cause such Series D Bonds to be Fixed with all or a portion of such Series E Bonds, and that if such Bid is unsuccessful, in whole or in part, such Beneficial Owner requires that Series D Bonds (which are not Fixed) in an aggregate principal amount equal to the unsuccessful portion of such Bid be tendered to such Beneficial Owner for purchase on the seventh Business Day prior to the next succeeding Auction Date following the Auction in which such Bid proved unsuccessful.

For a more detailed discussion of the procedures by which Series D Bonds may be subject to mandatory tender, see “APPENDIX J — MANDATORY TENDER OF SERIES D BONDS”.

Special Investment Considerations for Series D Bonds and Series E Bonds

The magnitude of the increases and decreases in market value of the Series E Bonds may be approximately twice as large as a comparable change in market value of an equal principal amount of tax-exempt fixed rate bonds having similar credit quality, redemption provisions and maturity (excluding in such comparison any potential premium paid or received from the Series E Bonds beyond that which would be paid for such fixed rate bonds).

Because the Applicable Series E Bonds Rate will be determined by subtracting the Applicable Series D Bonds Rate from a fixed amount, the interest rate with respect to the Series E Bonds will decrease as the Applicable Series D Bonds Rate increases, and increase as the Applicable Series D Bonds Rate decreases. In addition, the Applicable Series E Bonds Rate will equal zero if the Applicable Series D Bonds Rate is equal to 10.229% per annum in the case of the Series D Bonds maturing 2008, 10.327% per annum in the case of the Series D Bonds maturing 2009 and 10.524% per annum in the case of the Series D Bonds maturing 2012 and 2013.

In the event that ownership of the Series D Bonds and Series E Bonds is no longer maintained in book-entry form by a Securities Depository, the interest on the Series E Bonds may decrease substantially because, upon such an event, the Applicable Series D Bonds Rate for each succeeding Interest Period will be equal to the Maximum Rate. See “THE SERIES D BONDS AND THE SERIES E BONDS — Interest — *Applicable Series D Bonds Rate*” herein.

An increase in the amount of Series D Bonds which are not Fixed could result in a higher Applicable Series D Bonds Rate and, therefore, a lower interest rate with respect to the Series E Bonds.

Under certain circumstances, discussed above under “THE SERIES D BONDS AND SERIES E BONDS — Interest — *Applicable Series D Bonds Rate*”, the Series D Bonds could bear interest at the Maximum Rate or the Non-Payment Rate. In any such case, the interest rate with respect to the Series E Bonds could be significantly reduced, or be reduced to zero.

The Applicable Series E Bonds Rate may also be decreased in the event the Auction Agent Fee or Broker-Dealer Fee is increased. Such fees are components of the Service Charge Rate and are therefore

components of the Applicable Series D Bonds Rate which is subtracted from a fixed rate to determine the Applicable Series E Bonds Rate.

In order to combine Series E Bonds and Series D Bonds to create Newly Fixed Series D Bonds and Series E Bonds bearing interest at the Fixed Rate, a Beneficial Owner of Series E Bonds or Series D Bonds must also have purchased a like principal amount of Series D Bonds or Series E Bonds, as the case may be. See "APPENDIX J — FIXING AND SEPARATING SERIES D BONDS AND SERIES E BONDS".

There is no obligation to provide Series D Bonds to a Beneficial Owner of Series E Bonds who desires to combine such Series E Bonds with Series D Bonds nor to provide Series E Bonds to a Beneficial Owner of Series D Bonds who desires to combine Series D Bonds with Series E Bonds. A Beneficial Owner of the Series E Bonds may be able to acquire Series D Bonds that are not Fixed by bidding in an Auction, provided that the Existing Holders of such Series D Bonds do not submit Hold Orders covering all such Series D Bonds in the Auction. In such event, no Series D Bonds would be available for purchase at any rate bid by such Beneficial Owner of Series E Bonds in that Auction. See "APPENDIX J — DESCRIPTION OF SERIES D BONDS — AUCTION". A Beneficial Owner of Series E Bonds may, however, cause a mandatory tender of Series D Bonds for purposes of combining Series E Bonds with Series D Bonds to the extent it cannot acquire Series D Bonds in an Auction. See "APPENDIX J — FIXING AND SEPARATING SERIES D BONDS AND SERIES E BONDS". *A Beneficial Owner of Series E Bonds may purchase Series D Bonds in the secondary market; however, an active secondary market may or may not develop for such Series D Bonds.*

No assurance can be given that an active secondary market will exist for the Series E Bonds or, outside Auctions, for the Series D Bonds. Smith Barney Shearson Inc., as a Broker-Dealer, retains the right to make a secondary market in the Series D Bonds, although it has no obligation to do so.

Existing Holders of Series D Bonds may fix such Bonds with Series E Bonds at any time other than during a Closed Period. However, the resulting Newly Fixed Series D Bonds and Series E Bonds will remain Newly Fixed Series D Bonds and Series E Bonds until the next Regular Record Date and the Existing Holders thereof will continue to be liable for the Service Charge for all Auction Periods until the next Regular Record Date notwithstanding that such Newly Fixed Series D Bonds and Series E Bonds will not participate in the intervening Auctions.

Series D Bonds and Series E Bonds that are Fixed may separate into Regular Series D Bonds and Series E Bonds only on a Bond Payment Date.

Existing Holders of Series D Bonds may be required to tender Series D Bonds to a Beneficial Owner of Series E Bonds before the completion of an Interest Period in the event such owner of Series E Bonds exercises its rights to require such a tender. See "APPENDIX J — FIXING AND SEPARATING SERIES D BONDS AND SERIES E BONDS".

Redemption of Series D Bonds and Series E Bonds

The Series D Bonds and Series E Bonds may not be called for redemption except as provided herein. Notwithstanding any other provision in the Resolution: (i) no Series D Bonds shall be redeemed or delivered to the Trustee for cancellation on any date, unless an equal aggregate principal amount of Series E Bonds is redeemed or delivered to the Trustee for cancellation on the same date; and (ii) no Series E Bonds shall be redeemed or delivered to the Trustee for cancellation on any date, unless an equal aggregate principal amount of Series D Bonds is redeemed or delivered to the Trustee for cancellation on the same date.

Optional Redemption of Series D Bonds and Series E Bonds The Series D Bonds are subject to redemption at the option of the Authority in whole at any time or in part on any Bond Payment Date by lot in Authorized Denominations at a redemption price equal to the principal amount thereof to be redeemed, plus accrued but unpaid interest to the date fixed for redemption, without premium.

The Series E Bonds are subject to redemption at the option of the Authority on or after June 15, 2004, in whole at any time or in part on any Bond Payment Date by lot, in Authorized Denominations, at the redemption prices (expressed as a percentage of the principal amount to be redeemed) set forth below:

| <u>Redemption Period (inclusive)</u> | <u>Redemption Price</u> |
|--------------------------------------|-------------------------|
| June 15, 2004 to June 14, 2005 | 102% |
| June 15, 2005 and thereafter | 100 |

Partial Redemption of Series D Bonds and Series E Bonds The Series D Bonds and Series E Bonds shall each be redeemed in Authorized Denominations. So long as the ownership of the Series D Bonds and Series E Bonds is maintained in book-entry form by the Securities Depository, the Series D Bonds and Series E Bonds to be redeemed in part on any Redemption Date shall be selected from such maturities as may be directed by the Authority (provided that equal principal amounts of Series D Bonds and Series E Bonds of the same maturity shall be redeemed) and within a maturity, from the Outstanding Series D Bonds and Series E Bonds of such maturity as described in the following manner: (i) an amount equal to the Fixed Percentage (as defined below) of the aggregate principal amount of the Series D Bonds and Series E Bonds of each maturity to be redeemed on such Redemption Date shall be selected from Regular Fixed Series D Bonds and Series E Bonds and Newly Fixed Series D Bonds and Series E Bonds (on a pro rata basis in accordance with the relative principal amounts thereof), (ii) the remaining amount of Series E Bonds to be redeemed shall be selected from Regular Series E Bonds and (iii) the remaining amount of Series D Bonds to be redeemed shall be selected from Regular Series D Bonds. If any principal amount of the Series D Bonds and the Series E Bonds selected as provided above is not equal to an Authorized Denomination, the Trustee shall, in such manner as, in its sole discretion, it shall determine, round up or down the principal amounts so determined. The Trustee shall give the Securities Depository at least two Business Days' notice of the record date selected by it for the purpose of a redemption (each a "Redemption Record Date") and obtain from the Securities Depository a position listing showing at the close of business as of such Redemption Record Date the aggregate principal amounts of Regular Series D Bonds, Regular Series E Bonds, Regular Fixed Series D Bonds and Series E Bonds and Newly Fixed Series D Bonds and Series E Bonds, respectively. On the basis of such position listing, the Trustee shall calculate the Fixed Percentage as of the Redemption Record Date and determine therefrom the principal amounts to be redeemed and Redemption Prices (plus accrued and unpaid interest thereon to the Redemption Date) of: Regular Series D Bonds, Regular Series E Bonds, Regular Fixed Series D Bonds and Series E Bonds and Newly Fixed Series D Bonds and Series E Bonds, respectively.

As used herein, "Fixed Percentage", as of any Redemption Record Date, shall mean the percentage obtained by dividing the aggregate principal amount of Outstanding Series D Bonds and Series E Bonds which are Fixed on such Redemption Record Date by the aggregate principal amount of Outstanding Series D Bonds and Series E Bonds on such Redemption Record Date.

If the ownership of the Series D Bonds and the Series E Bonds is no longer maintained in book-entry form by the Securities Depository, the Series D Bonds and Series E Bonds to be redeemed will be selected in accordance with the Resolution by the Trustee by lot.

Notice of Redemption

Notice of any such redemption shall be given at least 30 days and not more than 60 days prior to the date fixed for redemption (provided that such notice shall be no earlier than the Bond Payment Date immediately preceding the date fixed for redemption) by first class mail to the registered owners of the Series D Bonds and Series E Bonds to be redeemed as provided in the Twenty-third Supplemental Resolution. So long as DTC is acting as Securities Depository for the Series D Bonds and Series E Bonds (see "Book-Entry Form Only"), notice of any redemption of the Series D Bonds and Series E Bonds shall be sent by the Trustee only to Cede & Co.

If, on any Redemption Date, moneys for the redemption of the Series D Bonds and the Series E Bonds to be redeemed, together with interest thereon to the Redemption Date, are held by the Trustee so as to be available therefor on such date, and if notice of redemption has been mailed, then interest on the Series D

Bonds and the Series E Bonds to be redeemed will cease to accrue from and after the Redemption Date and such Series D Bonds and Series E Bonds will no longer be considered Outstanding under the Resolution.

BOND INSURANCE

AMBAC Insured Bonds

AMBAC Indemnity has made a commitment to issue a municipal bond insurance policy (the "AMBAC Policy") relating to \$50,000,000 aggregate principal amount of Series B Term Bonds maturing on June 15, 2019 (the "AMBAC Insured Bonds"), effective as of the date of issuance of the AMBAC Insured Bonds. Under the terms of the AMBAC Policy, AMBAC Indemnity will pay to the United States Trust Company of New York, in New York, New York, or any successor thereto (the "Insurance Trustee") that portion of the principal of and interest on the AMBAC Insured Bonds which shall become Due for Payment but shall be unpaid by reason of Nonpayment by the Issuer (as such terms are defined in the AMBAC Policy). AMBAC Indemnity will make such payments to the Insurance Trustee on the later of the date on which such principal and interest becomes Due for Payment within one business day following the date on which AMBAC Indemnity shall have received notice of Nonpayment from the City's Fiscal Agent. The insurance will extend for the term of the AMBAC Insured Bonds and, once issued, cannot be cancelled by AMBAC Indemnity.

The AMBAC Policy will insure payment only on stated maturity dates, in the case of principal, and on stated dates of payment, in the case of interest. In the event of any acceleration of the principal of the AMBAC Insured Bonds, the insured payments will be made at such times and in such amounts as would have been made had there not been an acceleration.

In the event the Authority's Fiscal Agent has notice that any payment of principal of or interest on an AMBAC Insured Bond which has become Due for Payment and which is made to a Bondholder by or on behalf of the City has been deemed a preferential transfer and therefore recovered from its registered owner pursuant to the United States Bankruptcy Code in accordance with a final, nonappealable order of a court of competent jurisdiction, such registered owner will be entitled to payment from AMBAC Indemnity to the extent of such recovery if sufficient funds are not otherwise available.

The AMBAC Policy does not insure any risk other than Nonpayment, as defined in the AMBAC Policy. Specifically, the AMBAC Policy does not cover:

1. payment on acceleration, as a result of a call for redemption or as a result of any other advancement of maturity.
2. payment of any redemption, prepayment or acceleration premium.
3. nonpayment of principal or interest caused by the insolvency or negligence of any Trustee or Paying Agent, if any.

If it becomes necessary to call upon the AMBAC Policy, payment of principal requires surrender of AMBAC Insured Bonds to the Insurance Trustee together with an appropriate instrument of assignment so as to permit ownership of such AMBAC Insured Bonds to be registered in the name of AMBAC Indemnity to the extent of the payment under the AMBAC Policy. Payment of interest pursuant to the AMBAC Policy requires proof of Bondholder entitlement to interest payments and an appropriate assignment of the Bondholder's right to payment to AMBAC Indemnity.

Upon payment of the insurance benefits, AMBAC Indemnity will become the owner of the AMBAC Insured Bonds or right to payment of principal or interest on such AMBAC Insured Bond and will be fully subrogated to the surrendering Bondholder's rights to payment. Reference is made to Appendix H for a specimen of the AMBAC Policy.

In cases where the AMBAC Insured Bonds are issuable in book entry form, the Insurance Trustee shall disburse principal and interest to a Bondholder only upon evidence satisfactory to the Insurance Trustee and AMBAC Indemnity that the ownership interest of the Bondholder in the right to payment of such principal and interest has been effectively transferred to AMBAC Indemnity on the books maintained for such purpose.

AMBAC Indemnity shall be fully subrogated to all of the Bondholder's rights to payment to the extent of the insurance disbursements so made.

The insurance provided by the AMBAC Policy is not covered by the property/casualty insurance security fund specified by the insurance laws of the State.

AMBAC Indemnity is a Wisconsin-domiciled stock insurance corporation regulated by the Office of the Commissioner of Insurance of the State of Wisconsin and licensed to do business in 50 states, the District of Columbia and the Commonwealth of Puerto Rico, with admitted assets of approximately \$1,936,000,000 (unaudited) and statutory capital of approximately \$1,096,000,000 (unaudited) as of September 30, 1993. Statutory capital consists of AMBAC Indemnity's policyholders' surplus and statutory contingency reserve. AMBAC Indemnity is a wholly owned subsidiary of AMBAC Inc., a 100% publicly-held company. Moody's and Standard & Poor's have both assigned a triple-A claims-paying ability rating to AMBAC Indemnity.

Copies of AMBAC Indemnity's financial statements prepared in accordance with statutory accounting standards are available from AMBAC Indemnity. The address of AMBAC Indemnity's administrative offices and its telephone number are One State Street Plaza, 17th Floor, New York, New York 10004 and (212) 668-0340.

AMBAC Indemnity has entered into pro rata reinsurance agreements under which a percentage of the insurance underwritten pursuant to certain municipal bond insurance programs of AMBAC Indemnity has been and will be assumed by a number of foreign and domestic unaffiliated reinsurers.

AMBAC Indemnity has obtained a ruling from the Internal Revenue Service to the effect that the insuring of an obligation by AMBAC Indemnity will not affect the treatment for federal income tax purposes of interest on such obligation and that insurance proceeds representing maturing interest paid by AMBAC Indemnity under policy provisions substantially identical to those contained in its AMBAC Policy shall be treated for federal income tax purposes in the same manner as if such payments were made by the issuer of the Bonds.

AMBAC Indemnity makes no representation regarding the AMBAC Insured Bonds or the advisability of investing in the AMBAC Insured Bonds and makes no representation regarding, nor has it participated in the preparation of, this Official Statement other than the information supplied by AMBAC Indemnity and presented under the heading "AMBAC Insured Bonds".

MBIA Insured Bonds

The following information has been furnished by Municipal Bond Investors Assurance Corporation (the "MBIA") for use in this Official Statement and describes the policy to be issued by the MBIA. No representation is made herein by the Authority or the Underwriters as to the accuracy or adequacy of such information or as to the absence of material adverse changes in such information subsequent to the date hereof. Neither the Authority nor the Underwriters has made any independent investigation of the MBIA or the MBIA's policies. Reference is made to Appendix H for a specimen of the MBIA's policy. For a description of certain circumstances in which the MBIA shall have rights in addition to or in lieu of certain rights of Series B, Series D and Series E Bondholders under the Resolution, and a description of certain consents to amendments to the Resolution to be made by the MBIA at the time of issuance of the policies see "APPENDIX D — GLOSSARY AND SUMMARY OF CERTAIN DOCUMENTS — Summary of the Resolution."

MBIA has made a commitment to issue a municipal bond insurance policy (the "MBIA Policy") relating to \$33,000,000 aggregate principal amount of Series B Bonds, \$83,500,000 aggregate principal amount of Series D Bonds and \$83,500,000 aggregate principal amount of Series E Bonds (the "MBIA Insured Bonds"). The MBIA Policy unconditionally and irrevocably guarantees the full and complete payment required to be made by or on behalf of the Authority to the Trustee or its successor of an amount equal to (i) the principal of (either at the stated maturity or by an advancement of maturity pursuant to a mandatory sinking fund payment) and interest on, the MBIA Insured Bonds as such payments shall become due but shall not be so paid (except that in the event of an acceleration of the due date of such principal by reason of mandatory or optional redemption or acceleration resulting from default or otherwise, other than any

advancement of maturity pursuant to a mandatory sinking fund payment, the payments guaranteed by the MBIA Policy shall be made in such amounts and at such times as such payments of principal would have been due had there not been any such acceleration); and (ii) the reimbursement of any such payment which is subsequently recovered from any owner of the MBIA Insured Bonds pursuant to a final judgment by a court of competent jurisdiction that such payment constitutes an avoidable preference to such owner within the meaning of any applicable bankruptcy law (a "Preference").

The MBIA Policy does not insure against loss of any prepayment premium which may at any time be payable with respect to any MBIA Insured Bond. The MBIA Policy does not, under any circumstance, insure against loss relating to: (i) optional or mandatory redemptions (other than mandatory sinking fund redemptions); (ii) any payments to be made on an accelerated basis; (iii) payments of the purchase price of the MBIA Insured Bonds upon tender by an owner thereof; or (iv) any Preference relating to (i) through (iii) above. The MBIA Policy also does not insure against nonpayment of principal or interest on the MBIA Insured Bonds resulting from the insolvency, negligence or any other act or omission of the Trustee or any other payment agent for the MBIA Insured Bonds.

Upon receipt of telephonic or telegraphic notice, such notice subsequently confirmed in writing by registered or certified mail, or upon receipt of written notice by registered or certified mail, by the MBIA from the Trustee or any owner of an MBIA Insured Bond the payment of an insured amount for which is then due, that such required payment has not been made, the MBIA on the due date of such payment or within one business day after receipt of notice or such nonpayment, whichever is later, will make a deposit of funds, in an account with Citibank, N.A., in New York, New York, or its successor as insurance trustee, sufficient for the payment of any such insured amounts which are then due. Upon presentment and surrender of such MBIA Insured Bonds or presentment of such other proof of ownership of the MBIA Insured Bonds, together with any appropriate instruments of assignment to evidence the assignment of the insured amounts due on the MBIA Insured Bonds as are paid by the MBIA, and appropriate instruments to effect the appointment of the MBIA as agent for such owners of the MBIA Insured Bonds in any legal proceeding related to payment of insured amounts on the MBIA Insured Bonds, such instruments being in a form satisfactory to Citibank, N.A. Citibank, N.A. shall disburse to such owners or the Trustee payment of the insured amounts due on such MBIA Insured Bonds, less any amount held by the Trustee or any other paying agent for the payment of such insured amounts and legally available thereof.

The MBIA is the principal operating subsidiary of MBIA Inc., a New York Stock Exchange listed company. MBIA Inc. is not obligated to pay the debts of or claims against the MBIA. The MBIA is a limited liability corporation rather than a several liability association. The MBIA is domiciled in the State of New York and licensed to do business in all 50 states, the District of Columbia and the Commonwealth of Puerto Rico.

As of December 31, 1992, the MBIA had admitted assets of \$2.6 billion (audited), total liabilities of \$1.7 billion (audited), and total capital and surplus of \$896 million (audited) determined in accordance with statutory accounting practices prescribed or permitted by insurance regulatory authorities. As of June 30, 1993, the MBIA had admitted assets of \$2.9 billion (unaudited), total liabilities of \$1.9 billion (unaudited), and total capital and surplus of \$945 million (unaudited) determined in accordance with statutory accounting practices prescribed or permitted by insurance regulatory authorities. Copies of the MBIA's year end financial statements prepared in accordance with statutory accounting practices are available from the MBIA. The address of the MBIA is 113 King Street, Armonk, New York 10504.

Moody's Investors Service ("Moody's") rates all bond issues insured by the MBIA "Aaa" and short term loans "MIG 1," both designated to be of the highest quality.

Standard & Poor's Ratings Group, a division of McGraw Hill ("S&P") rates all new issues insured by the MBIA "AAA" Prime Grade.

The Moody's rating of the MBIA should be evaluated independently of the S&P rating of the MBIA. No application had been made to any other rating agency in order to obtain additional ratings on the MBIA Insured Bonds. The ratings reflect the respective rating agency's current assessment of the creditworthiness of the MBIA and its ability to pay claims on its policies of insurance. Any further explanation as to the significance of the above ratings may be obtained only from the applicable rating agency.

The above ratings are not recommendations to buy, sell or hold the MBIA Insured Bonds, and such ratings may be subject to revision or withdrawal at any time by the rating agencies. Any downward revision or withdrawal of either or both ratings may have an adverse effect on the market price of the MBIA Insured Bonds.

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

Financial Guaranty Insured Bonds

The following information pertaining to Financial Guaranty Insurance Company has been supplied by Financial Guaranty Insurance Company. The Authority makes no representation as to the accuracy or adequacy of such information or as to the absence of material adverse changes in such information subsequent to the dates indicated. Summaries of or references to the insurance policies to be issued by Financial Guaranty Insurance Company are made subject to all the detailed provisions thereof to which reference is hereby made for further information and do not purport to be complete statements of any or all of such provisions. See "APPENDIX H — SPECIMEN INSURANCE POLICIES".

Concurrently with the issuance of the Series C Bonds, Financial Guaranty Insurance Company ("Financial Guaranty") will issue its Municipal Bond New Issue Insurance Policy for the Series C Bonds (the "Policy"). The Policy unconditionally guarantees the payment of that portion of the principal of and interest on the Series C Bonds which has become due for payment, but shall be unpaid by reason of nonpayment by the Authority. 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 Series C Bonds or the Paying Agent of the nonpayment of such amount by the Authority. The Fiscal Agent will disburse such amount due on any Bond 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 Series C Bond includes any payment of principal or interest made to an owner of a 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 Policy is non-cancellable and the premium will be fully paid at the time of delivery of the Series C Bonds. The Policy covers failure to pay principal of the Series C 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 Series C 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's 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 Series C 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 for a discussion of the circumstances, if any, under which the Authority is required to provide additional or substitute credit enhancement, and related matters.

This Official Statement contains a section regarding the ratings assigned to the Series C Bonds and references should be made to such section for discussion of such ratings and the basis for their assignment to the Series C Bonds. Reference should be made to the description of the Authority 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, 1993, the total capital and surplus of Financial Guaranty was approximately \$744,722,000. 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 160 West Broadway, 18th Floor, New York, New York 10013, Attention: Property Companies Bureau (telephone number: (212) 602-0389).

REFUNDING PLAN

The proceeds of the Series B Bonds, the Series D Bonds, and the Series E Bonds will provide for the advance refunding of the Outstanding Bonds listed on Appendix G hereto (the "Refunded Bonds"). Pursuant to the Escrow Agreement between the Authority and United States Trust Company of New York (the "Escrow Trustee"), the Authority will irrevocably deposit Defeasance Obligations in trust with the Escrow Trustee. The Defeasance Obligations will bear interest at such rates and will be scheduled to mature at such times and in such amounts so that, when paid in accordance with their terms, together with any uninvested cash held by the Escrow Trustee, sufficient moneys will be available to make full and timely payment of the maturing principal and Sinking Fund Installments of and redemption premium and interest on the Refunded Bonds to their earliest optional redemption date. Upon such irrevocable deposit, the Refunded Bonds will no longer be deemed to be Outstanding and will no longer be entitled to the benefit of the pledge and lien established by the Resolution, or to payment from Revenues of the System. The Authority has directed the Trustee to redeem the Refunded Bonds on the respective earliest optional redemption dates at the respective redemption prices, expressed as a percentage of the principal amount thereof, set forth in Appendix G hereto.

USE OF PROCEEDS

It is anticipated that the proceeds of the Fiscal 1994 Bonds will be applied in the following manner:

| | |
|--|---------------------------|
| Deposit to the Escrow Fund for the Refunded Bonds..... | \$ 805,801,533.31 |
| Deposit to the Construction Fund* | 192,706,093.59 |
| Deposit to the Debt Service Reserve Fund | 11,460,000.00 |
| Underwriters' Discount | 6,611,599.50 |
| Original Issue Discount..... | 9,445,773.60 |
| Principal Amount of the Fiscal 1994 Bonds..... | <u>\$1,026,025,000.00</u> |

* Includes certain costs of issuance.

AMENDMENTS OF THE GENERAL RESOLUTION AND THE FINANCING AGREEMENT

The Authority has determined to adopt its Twenty-second Supplemental Resolution providing for the amendment of the General Resolution. The City, the Authority and the Board also have agreed to amend the Financing Agreement. Such amendments to the General Resolution and the Financing Agreement will become effective upon consent to such amendments of the holders of two-thirds of the principal amount of Outstanding Bonds.

Such amendment to the General Resolution would, among other things, (i) permit the investment of money in certain repurchase agreements, investment agreements, money market funds and municipal

obligations, (ii) amend the definition of Debt Service with respect to interest on Variable Rate Bonds, (iii) provide that a Special Account may be established in the Debt Service Reserve Fund with respect to any Series of Bonds designated by the Authority and that the Authority may specify the Debt Service Reserve Requirement, if any, with respect to such Series of Bonds, (iv) delete the requirement that Financial Guaranties must be drawn upon 30 days prior to the expiration thereof, (v) amend the definition of Revenues to include certain subsidy payments, amounts derived from a counterparty pursuant to an interest rate exchange agreement and certain investment earnings, (vi) permit investment earnings on the amounts on deposit in the Debt Service Reserve Fund (in excess of the requirement thereof) to be transferred to the Revenue Fund, (vii) permit amounts on deposit in the Debt Service Reserve Fund to be invested in any Investment Security, without limitation on the maturity thereof, (viii) require the Trustee to value investments on deposit in the Funds and Accounts at the amortized cost of such investments or the market value thereof, whichever is lower, (ix) allow Parity Bond Anticipation Notes to mature on any date, (x) allow the Authority to specify Bond Payment Dates in a Supplemental Resolution authorizing a Series of Bonds and (xi) permit the Authority to issue Bonds, the interest on which is includable in gross income for Federal income tax purposes. See "APPENDIX D — GLOSSARY AND SUMMARY OF CERTAIN DOCUMENTS — Summary of the Resolution."

The amendment to the Financing Agreement also would amend the definition of Revenues to include certain subsidy payments, amounts derived from a counterparty pursuant to an interest rate exchange agreement and certain investment earnings. Additionally, the Financing Agreement would be amended to (i) allow money on deposit in the General Account of the Operation and Maintenance Reserve Fund to be applied to the payment of Bonds in accordance with Article XII of the General Resolution and (ii) permit the Authority to issue Bonds, the interest on which is includable in gross income for Federal income tax purposes.

The Authority contemplates that the Underwriters for the Fiscal 1994 Bonds would consent to such amendments immediately upon the purchase of such Fiscal 1994 Bonds. Pursuant to the General Resolution and the Financing Agreement such consent shall be binding upon any subsequent holders of the Fiscal 1994 Bonds or any Bonds issued in exchange therefor, whether or not such holders have notice of such consent.

The Authority may seek the consent of the holders of currently Outstanding Bonds and will seek the consent of the holders of Bonds to be issued in the future in order to obtain the consent of two-thirds of the holders of Outstanding Bonds.

SECURITY FOR THE BONDS

Revenues

The Act empowers the Board to establish and collect rates, fees and charges for the use of service provided by the System in order to receive Revenues sufficient to place the System on a self-sustaining basis. All Revenues of the System will be deposited by the Board in the Local Water Fund held by the Board. The Authority holds a statutory first lien on the Revenues for the payment of all amounts due to the Authority under the Agreement. In the event that the Board fails to make any required payment to the Authority, the Authority or the Trustee may petition for the appointment, by any court having jurisdiction, of a receiver to administer the affairs of the Board, and, with court approval, establish rates and charges to provide Revenues sufficient to make required payments. The statutory lien, however, does not give any holder or owner of any bond or note issued by the Authority, or any receiver of the System, power to compel the sale of any part of the System.

The City has covenanted in the Agreement to operate and maintain the System in accordance with the advice and recommendations of the Consulting Engineer. Such obligation to operate and maintain the System may be enforced by the Authority in accordance with the provisions of the Act and the terms of the Agreement and the Lease. The amounts required to operate and maintain the System are certified to the Board by the City and reviewed by the Consulting Engineer.

Beginning on the first day of each month the Board is required to pay to the Trustee the Revenues in the Local Water Fund, for deposit in the Revenue Fund until the amount on deposit equals the Minimum Monthly Balance and the Required Deposits for such month. The Minimum Monthly Balance is the amount required to provide for timely payment of all debt service on Outstanding Bonds. Required Deposits are the amounts payable into the Authority Expense Fund, the Debt Service Reserve Fund and the Subordinated Indebtedness Fund, including amounts necessary to pay interest on the Authority's Water and Sewer System Bond Anticipation Notes, Fiscal 1993 Series A* (the "Series A Notes"). See "APPENDIX D — GLOSSARY AND SUMMARY OF CERTAIN DOCUMENTS — Summary of the Agreement — Minimum Monthly Balance". Amounts on deposit in the Revenue Fund are required to be paid first, to the Debt Service Fund; second, to the Authority Expense Fund; third, to the Debt Service Reserve Fund to replenish any deficiency therein; and fourth, to the Subordinated Indebtedness Fund. If amounts on deposit in the Debt Service Fund or the Debt Service Reserve Fund are less than the requirements thereof, amounts on deposit in the Subordinated Indebtedness Fund are required to be used to make up such deficiency. See "APPENDIX D — GLOSSARY AND SUMMARY OF CERTAIN DOCUMENTS — Summary of the Resolution — Payments into Certain Funds."

After making such deposits to the Revenue Fund in such month from the balance remaining in the Local Water Fund, the Board is required, after paying monthly Board Expenses, to pay to the City 1/12th of the operating expenses for such Fiscal Year. After making such payments, any amounts remaining in the Local Water Fund in each month are paid proportionately, (a) to the Trustee for deposit in the Revenue Fund until the total of all amounts deposited in the Revenue Fund equals the Cash Flow Requirement for such Fiscal Year and (b) to the City until all amounts required to be paid to the City for Operating Expenses for such Fiscal Year have been paid. For a more complete description of the required payments from the Local Water Fund, see "APPENDIX D GLOSSARY AND SUMMARY OF CERTAIN DOCUMENTS — Summary of the Resolution" and "Summary of the Agreement". As of September 20, 1993 the Authority had approximately \$4.264 billion (unaudited) aggregate principal amount of Bonds Outstanding under the Resolution. Principal amounts for capital appreciation bonds reflect the original principal amounts thereof. The debt service payments on the Outstanding Bonds for Fiscal Year 1994 are expected to be approximately \$333.3 million after giving effect to the issuance of the Series B Bonds, the Series C Bonds, the Series D Bonds and the Series E Bonds.

The Fiscal 1994 Bonds will be on a parity with the Bonds currently Outstanding and with Bonds hereafter issued pursuant to the Resolution and are payable from and secured by a pledge of (i) all Revenues, (ii) all

* On June 28, 1993, the Authority issued \$375,000,000 of its Series A Notes with a maturity of April 15, 1994. The Series A Notes are special obligations of the Authority secured by a first lien on the proceeds of the sale of the Authority's Water and Sewer System Revenue Bonds, Fiscal 1994 Series A, expected to be issued on or prior to the maturity date of the Series A Notes. The Series A Notes are also secured by a pledge of the Revenues of the System that is subordinate in all respects to the lien and pledge of the Resolution in favor of the Bonds.

moneys or securities in any of the Funds and Accounts established under the Resolution, and (iii) all other moneys and securities to be received, held or set aside pursuant to the Resolution, subject only to the provisions of the Resolution and the Agreement permitting the application thereof for the purposes and on the terms and conditions set forth therein, including the making of any required payments to the United States with respect to arbitrage earnings. See "APPENDIX D — GLOSSARY AND SUMMARY OF CERTAIN DOCUMENTS — Summary of the Resolution" and "Summary of the Agreement".

Debt Service Reserve Fund

The Resolution establishes a Debt Service Reserve Fund and requires as a condition to the issuance of each Series of Bonds that there shall be deposited into the Debt Service Reserve Fund the amount necessary to make the amount on deposit therein equal to the Debt Service Reserve Requirement, after giving effect to the issuance of such Bonds. The Debt Service Reserve Requirement is an amount equal to maximum Adjusted Aggregate Debt Service in the then current or any future Fiscal Year on all Bonds Outstanding. Amounts on deposit in the Debt Service Reserve Fund will be applied, to the extent Revenues are not available, to pay Principal Installments and interest on the Bonds. See "APPENDIX D — GLOSSARY AND SUMMARY OF CERTAIN DOCUMENTS — Summary of the Resolution — Debt Service Reserve Fund".

In lieu of making cash deposits to the Debt Service Reserve Fund, the Authority may satisfy the Debt Service Reserve Requirement by depositing Financial Guaranties into the Debt Service Reserve Fund. See "APPENDIX D — GLOSSARY AND SUMMARY OF CERTAIN DOCUMENTS — Summary of the Resolution — Debt Service Reserve Fund".

On September 17, 1993, the market value of the securities in the Debt Service Reserve Fund was \$384,672,835.37. The Authority will cause to be deposited in the Debt Service Reserve Fund from the proceeds of the Fiscal 1994 Bonds an amount sufficient to increase the amount on deposit in the Debt Service Reserve Fund to the Debt Service Reserve Requirement after giving effect to the issuance of the Fiscal 1994 Bonds.

Rate Covenant

The Board has covenanted in the Agreement to establish, fix, revise and collect rates, fees and charges for the use of, or the services furnished by the System, adequate, together with other available funds, to provide for (i) the timely payment of Principal Installments of and interest on all Bonds, and the principal of and interest on any other indebtedness of the Authority payable from Revenues, (ii) the proper operation and maintenance of the System, (iii) all other payments required for the System not otherwise provided for, and (iv) all other payments required pursuant to the Agreement and the Lease.

Without limiting the generality of the foregoing, the Board has covenanted to establish and collect rates, fees and charges sufficient in each Fiscal Year so that Revenues collected in such Fiscal Year will be at least equal to the sum of (i) 115% of Aggregate Debt Service and Projected Debt Service (excluding Refundable Principal Installments that are payable from funds held in trust therefor) payable in such Fiscal Year, and (ii) 100% of the Operating Expenses and Required Deposits for such Fiscal Year. A failure to generate Revenues as set forth in this paragraph will not constitute an "event of default" under the Agreement if the Board takes timely action to correct any such deficiency as described in the following paragraph.

The Board has covenanted in the Agreement to review the adequacy of rates, fees and charges at least annually. If such annual review, or the report of the Rate Consultant required pursuant to the Agreement, indicates that the rates, fees and charges are or will be insufficient to meet the requirements of the rate covenant described in the preceding paragraph, the Board will promptly take the necessary action to cure or avoid any such deficiency. In addition, under the Agreement, the City, which is responsible for billing, collecting and enforcing collections of rates and charges established by the Board, has agreed that it will diligently pursue all actions necessary to cure or avoid any such deficiency.

The Board has covenanted in the Agreement that it will not furnish or supply or cause to be furnished or supplied any product, use or service of the System free of charge or at a nominal charge, and will enforce (or cause the City to enforce) the payment of any and all amounts owing to the Board for use of the System, except to the extent required (i) by the Act, as in effect on July 24, 1984, or (ii) by existing agreements

(including any successor agreements) with the privately-owned Jamaica Water Supply Company (“Jamaica”) designed to minimize the disparity between the cost of water paid by users of the System and the cost of water paid by those City residents served by Jamaica. See “RATES AND BILLINGS”.

Additional Bonds

The Authority may issue additional Bonds to pay for capital improvements to the System, to refund Bonds and Bond Anticipation Notes, to refund general obligation bonds of the City issued for water or sewer purposes and to fund certain reserves. Under the Resolution such additional Bonds may be issued on a parity with all Bonds Outstanding only upon satisfaction of certain requirements including receipt by the Trustee of:

(a) a certificate by an Authorized Representative of the Authority to the effect that the Revenues for either of the last two Fiscal Years immediately preceding the Fiscal Year in which such Bonds are to be issued were at least equal to the sum of (i) 115% of the Aggregate Debt Service during such Fiscal Year (excluding from Aggregate Debt Service any Principal Installments, or portion thereof, paid from a source other than Revenues), and (ii) 100% of the sum of the Operating Expenses of the System certified by the City and the Required Deposits for such Fiscal Year, and

(b) a certificate of the Rate Consultant to the effect that the estimated Revenues for each of the five Fiscal Years following the issuance of such Series of Bonds (plus the Fiscal Year in which such Bonds are issued) after giving effect to any increases or decreases in rates, fees and charges projected for such Fiscal Years will be at least equal to the sum of (i) 115% of the maximum estimated Adjusted Aggregate Debt Service on all Bonds then Outstanding including the Bonds to be issued, and (ii) 100% of the sum of the projected Operating Expenses and Required Deposits for such Fiscal Years.

The Authority may issue additional Bonds for the purpose of refunding Outstanding Bonds upon satisfaction of the requirements outlined above and the following requirements, among others:

(a) the average annual debt service on the refunding Bonds does not exceed the average annual debt service on the Bonds to be refunded, and

(b) the maximum debt service in any Fiscal Year on the refunding Bonds does not exceed the maximum debt service in any Fiscal Year on the Bonds to be refunded.

On June 23, 1993, the Authority authorized the issuance of up to \$500,000,000 Water and Sewer Revenue Bonds, Fiscal 1994 Series A to pay, among other things, the principal of, and interest on the Series A Notes.

See “APPENDIX D — GLOSSARY AND SUMMARY OF CERTAIN DOCUMENTS — Summary of the Resolution”.

BOOK-ENTRY FORM ONLY

The Depository Trust Company, New York, New York (“DTC”) will act as securities depository for the Fiscal 1994 Bonds. The Fiscal 1994 Bonds will be issued as fully-registered securities registered in the name of Cede & Co. (DTC’s partnership nominee). One fully-registered bond certificate will be issued for each maturity of the Fiscal 1994 Bonds of each Series, each in the aggregate principal amount of such maturity, and will be deposited with DTC. If, however, the aggregate principal amount of any maturity exceeds \$150 million, one certificate will be issued with respect to each \$150 million of principal amount and an additional certificate will be issued with respect to any remaining principal amount of such maturity.

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 (“Direct 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 Direct 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. 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 ("Indirect Participants"). The Rules applicable to DTC and its Participants are on file with the Securities and Exchange Commission.

Purchases of Fiscal 1994 Bonds under the DTC system must be made by or through Direct Participants, which will receive a credit for the Fiscal 1994 Bonds on DTC's records. The ownership interest of each actual purchaser of each Fiscal 1994 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 Fiscal 1994 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 Fiscal 1994 Bonds, except in the event that use of the book-entry system for the Fiscal 1994 Bonds is discontinued.

To facilitate subsequent transfers, all Fiscal 1994 Bonds deposited by Direct Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co. The deposit of any Series 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 any Series of Fiscal 1994 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 Fiscal 1994 Bonds of a Series within a maturity are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in such maturity to be redeemed.

Neither DTC nor Cede & Co. will consent or vote with respect to any Series of Fiscal 1994 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, premium, if any, Tender Option Price, and interest payments on the Series B Bonds, Series C Bonds, Series D Bonds and Series E Bonds will be made to DTC. DTC's practice is to credit Direct Participants' accounts on a payment 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 a payment 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, premium, if any, Tender Option Price, 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.

A Beneficial Owner shall give notice to elect to have its Series C Bonds purchased or tendered, through its Direct Participant, to the Tender Agent and should effect delivery of such Series C Bond by causing the Direct Participant to transfer such Participant's interest in the Series C Bonds, on DTC's records, to the

Tender Agent. Any requirement for physical delivery of Series C Bonds in connection with a demand for purchase or a mandatory purchase will be deemed satisfied when the ownership rights in the Series C Bonds are transferred by Direct Participants on DTC's records.

DTC may discontinue providing its services as securities depository with respect to the Fiscal 1994 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.

THE AUTHORITY

Purpose and Powers

The New York City Municipal Water Finance Authority is a public benefit corporation created pursuant to the Act. Among its powers under the Act, the Authority may borrow money, issue debt and enter into the Agreement, and refund Bonds and general obligation bonds of the City issued for water or sewer purposes. Additionally, the Authority has the power to require that the Board charge and collect sufficient rates to pay the costs of operating and financing the System and to enforce the obligation of the City to adequately operate and maintain the System.

Pursuant to the Act, there is a statutory first lien upon the Revenues in favor of the payment of all amounts due to the Authority under the Agreement. The Revenues remain subject to this lien until provision for payment of all indebtedness issued by the Authority has been made.

Membership

The Act authorizes a seven-member board to administer the Authority. There are currently two vacancies. Four of the members of the Board of Directors are designated in the Act as *ex officio* members: the Commissioner of Environmental Protection of the City, the Director of Management and Budget of the City, the Commissioner of Finance of the City and the Commissioner of Environmental Conservation of the State. Of the three remaining public members, two are appointed by the Mayor and one is appointed by the Governor. The public members have terms of two years. Pursuant to the Act, all members continue to hold office until their successors are appointed and qualified.

The current members of the Board of Directors are:

| <u>Member</u> | <u>Occupation</u> | <u>Term Expires</u> |
|--|---|---------------------|
| Albert F. Appleton, Chairman | Commissioner of Environmental Protection of the City | <i>ex officio</i> |
| Carol O'Cleireacain | Director of Management and Budget of the City | <i>ex officio</i> |
| Kathleen Grimm | Acting Commissioner of Finance of the City | <i>ex officio</i> |
| Thomas C. Jorling | Commissioner of Environmental Conservation of the State | <i>ex officio</i> |
| Arthur B. Hill* | Vice President, United Parcel Service | December 1988 |

*Appointed by the Mayor.

The following is a brief description of the staff members of the Authority:

Mark Page, Executive Director

Mr. Page was appointed Acting Executive Director in December 1984 and Executive Director in October 1985. Mr. Page also serves as the Deputy Director and General Counsel of the Office of Management and Budget of the City. Mr. Page has worked for the City since 1978 and has served as Assistant General Counsel and General Counsel of the Office of Management and Budget. Mr. Page is a graduate of Harvard University and New York University School of Law.

Alan Anders, Treasurer

Mr. Anders was appointed Treasurer on October 26, 1990. Mr. Anders also serves as Director of Financing Policy and Coordination for the Office of Management and Budget of the City. Prior to joining the Authority and the City in September 1990, Mr. Anders was a senior investment banker for J. P. Morgan Securities since 1977 and prior to that date was Executive Director of the Commission on Governmental Efficiency and Economy in Baltimore, Maryland. Mr. Anders is a graduate of the University of Pennsylvania and the University of Maryland Law School.

Alexandra Altman, Secretary

Ms. Altman was appointed Acting Secretary in December 1984 and Secretary in October 1985. Ms. Altman also serves as Senior Assistant Corporation Counsel of the City. Ms. Altman has worked for the City since 1973 and has served as General Counsel and Director of Finance of the Office of Management and Budget and Counsel to the Deputy Mayor for Finance. Ms. Altman is a graduate of Harvard University and the Yale Law School. Ms. Altman has tendered her resignation effective on November 29, 1993.

THE BOARD

Purpose and Powers

The Board is a public benefit corporation of the State created by Chapter 515 of the Laws of 1984. The primary responsibility of the Board is to fix, revise, charge, collect and enforce rates and other charges for the System.

The Board is required under the Act to establish rates that will provide adequate funds to pay the debt service on outstanding Authority indebtedness and the City's cost of operating and maintaining the System. In each Fiscal Year, any amounts remaining in the Local Water Fund, after making the required payments under the Financing Agreement, shall be deposited in the General Account in the Operation and Maintenance Reserve Fund and shall be available either as a source of funding for System expenditures or upon certification of the City for deposit to the Authority's Construction Fund to pay for the costs of System capital projects. See "APPENDIX D — GLOSSARY AND SUMMARY OF CERTAIN DOCUMENTS — Summary of the Agreement — Application of Moneys in the Operation and Maintenance Reserve Fund."

Pursuant to the Lease, the Board has a leasehold interest in the System with a term of 40 years from July 1, 1985, or until all Bonds or other obligations issued by the Authority are paid in full or provision for payment has been made, whichever is later. Under the Lease, the City will provide billing, collection, enforcement and legal services to the Board. The Board is required to compensate the City for the cost of these services.

Membership

The Board consists of seven members who are appointed by the Mayor for terms of two years. The Act also provides that at least one member will have experience in the science of water resource development and that no member of the Board will be a member of the Authority. The Chairman is appointed by the Mayor. Pursuant to the Act, all members continue to hold office until their successors are appointed and qualified.

The current members of the Board are:

| <u>Member</u> | <u>Occupation</u> | <u>Term Expires</u> |
|--------------------------------|--|---------------------|
| Paul J. Elston, Chairman | Chairman, Antaeus Corp. | June 1995 |
| Leroy Carmichael | Regional Director of the State Office of Minority Affairs | June 1986 |
| Ralph da Costa Nunez | President, Homes for the Homeless | June 1995 |
| Barbara Fife | Deputy Mayor for Planning and Development of the City | June 1994 |
| Gaspar V. Garcia | President, Atlantic Associates | June 1986 |
| Barry F. Sullivan | Deputy Mayor for Finance and Economic Development of the City | June 1994 |
| James T.B. Tripp | General Counsel, Environmental Defense Fund | June 1995 |

The following is a brief description of the staff members of the Board:

Steven F. Ostrega, Executive Director

Mr. Ostrega was appointed Executive Director in June 1992 and was appointed Deputy Commissioner of DEP for Water and Energy Conservation in April 1992. He has served as the Director of the

Bureau of Water and Energy Conservation since May 1986. Mr. Ostrega has served in numerous capacities with DEP since 1969, including Deputy Director of the Bureau of Management Services. Mr. Ostrega is a graduate of Hunter College of the City University of New York and the New School For Social Research.

William Kusterbeck, Treasurer

Mr. Kusterbeck was appointed Acting Treasurer in June 1985 and Treasurer in November 1985. Mr. Kusterbeck also directs public financing and rate setting activities within DEP. He has worked for DEP since 1979 and has served in various positions including Assistant to the Deputy Commissioner for Planning. Additionally, he served as a staff assistant to the Chairman of the City Council Finance Committee. Mr. Kusterbeck is a graduate of Bishop Loughlin MHS, Hunter College of the City University of New York and Columbia University Graduate School of Business.

Michael Burke, Secretary

Mr. Burke was appointed Secretary in April 1988. Mr. Burke also serves as Chief of the Municipal Finance Division of the New York City Law Department. Mr. Burke has worked for the Law Department since 1981. Mr. Burke is a graduate of Pace University and the Georgetown University Law Center.

THE SYSTEM

History

The Water System. Early Manhattan settlers obtained water for domestic purposes from shallow privately owned wells. In 1677 the first public well was dug in front of the old fort at Bowling Green. In 1776, when the population reached approximately 22,000, a reservoir was constructed on the east side of Broadway between Pearl and White Streets. Water pumped from wells sunk near the Collect Pond, east of the reservoir, and from the pond itself, was distributed through hollow logs laid in the principal streets. In 1800 the Manhattan Company (now The Chase Manhattan Bank, N.A.) sank a well at Reade and Centre Streets, pumped water into a reservoir on Chambers Street and distributed it through wooden mains to a portion of the community. In 1830 a tank for fire protection was constructed by the City at 13th Street and Broadway and was filled from a well. The water was distributed through two 12-inch cast iron pipes. As the population of the City increased, the well water became polluted and supply was insufficient. The supply was supplemented by cisterns and water drawn from a few springs in upper Manhattan.

After exploring alternatives for increasing supply, the City decided to impound water from the Croton River, in what is now Westchester County, and to build an aqueduct to carry water from the Old Croton Reservoir to the City. This aqueduct, known today as the Old Croton Aqueduct, had a capacity of about 90 million gallons per day (mgd) and was placed in service in 1842. The distribution reservoirs were located in Manhattan at 42nd Street (discontinued in 1890) and in Central Park south of 86th Street (discontinued in 1925). New reservoirs were constructed to increase supply: Boyds Corner in 1873 and Middle Branch in 1878. In 1883 a commission was formed to build a second aqueduct from the Croton watershed as well as additional storage reservoirs. This aqueduct, known as the New Croton Aqueduct, was under construction from 1885 to 1893 and was placed in service in 1890, while still under construction. The present Water System was consolidated from the various water systems in communities now consisting of the Boroughs of Manhattan, the Bronx, Brooklyn, Queens and Staten Island.

In 1905 the Board of Water Supply was created by the State Legislature. After careful study, the City decided to develop the Catskill region as an additional water source. The Board of Water Supply proceeded to plan and construct facilities to impound the waters of the Esopus Creek, one of the four watersheds in the Catskills, and to deliver the water throughout the City. This project, to develop what is known as the Catskill System, included the Ashokan Reservoir and the Catskill Aqueduct and was completed in 1915. It was subsequently turned over to the City's Department of Water Supply, Gas and Electricity for operation and maintenance. The remaining development of the Catskill System, involving the construction of the Schoharie Reservoir and Shandaken Tunnel, was completed in 1928.

In 1927 the Board of Water Supply submitted a plan to the Board of Estimate and Apportionment for the development of the upper portion of the Rondout watershed and tributaries of the Delaware River within the State of New York. This project was approved in 1928. Work was subsequently delayed by an action brought by the State of New Jersey in the Supreme Court of the United States to enjoin the City and State of New York from using the waters of any Delaware River tributary. In May 1931 the Supreme Court of the United States upheld the right of the City to augment its water supply from the headwaters of the Delaware River. Construction of the Delaware System was begun in March 1937. The Delaware System was placed in service in stages: The Delaware Aqueduct was completed in 1944, Neversink Reservoir in 1950, Rondout Reservoir in 1951, Pepacton Reservoir in 1954 and Cannonsville Reservoir in 1967.

The Sewer System. Systematic collection of sewage and building of sewers began in the City as early as 1696. Major portions of the Sewer System in lower and central Manhattan were begun in the early 1830's and completed by 1870. The oldest sewer now in service was built in 1851. The oldest components of the Sewer System, located in Manhattan and Brooklyn, are constructed mostly of brick, clay and cement. The other Boroughs have newer sewers made primarily of vitreous clay and concrete. Historically, waste collection and disposal was a matter of local jurisdiction. Upon consolidation of the City in 1898, Presidents of the five Boroughs were given responsibility for sewage collection and disposal in their respective Boroughs. A Commissioner of Borough Works was established in each Borough for planning, constructing and administering its sewer system. This local responsibility for sewage collection existed until the mid-1960's.

Although water pollution control did not become a major issue until recent years, it has been a concern of local conservationists and public officials for almost a century. The first sewage treatment facility in the City was opened in 1886, when a small plant was constructed on Coney Island to protect the bathing beaches. In 1904 a Sanitary Commission was established and charged with developing a master plan for sewage treatment in the City. Although the Sanitary Commission completed its task in 1910, sewage treatment plant construction did not receive serious attention until 1929, when the City established a department to construct sewage treatment facilities under the jurisdiction of the Department of Sanitation. In the 1930's this function was transferred to the Department of Public Works. In 1931 a plant construction program was begun to construct a system of sewage treatment plants and associated facilities to control and treat all sewage produced within the City. The first of these plants, Coney Island, opened in 1935. Three more large plants, Wards Island, Tallmans Island and Bowery Bay, were placed in operation before the end of the 1930's. During the 1940's two additional plants, Jamaica and 26th Ward, were opened. The post-war years witnessed an intensified construction effort and, by 1967, 12 major treatment plants were in operation treating about 1,000 mgd at an average removal efficiency of about 65%. At that time most other urban areas were providing only about 35% removal efficiency.

The City Charter of 1963 consolidated the Borough sewer organizations into a City-wide department under the Department of Public Works. In 1968 various municipal services were consolidated into a single agency known as the Environmental Protection Administration ("EPA"), which included responsibility for sanitation and water and air quality resources. Within EPA, the Department of Water Resources had jurisdiction over the Bureaus of Water Supply and Water Pollution Control. These Bureaus were responsible for water supply and sewage collection and treatment. In 1977, water supply, sewage collection and treatment, and air quality monitoring responsibilities were combined into DEP.

Department of Environmental Protection

Organization. The following table sets forth the six DEP bureaus relating to the System, their staffing levels for Fiscal Year 1994 and major responsibilities.

Organization of DEP

| <u>Bureau</u> | <u>System Staff</u> | <u>Major Responsibilities</u> |
|---|---------------------|--|
| Water and Energy Conservation..... | 412 | Administration of water and energy conservation programs, development of water and sewer service input data, enforcement of water use activities, and management of universal metering program |
| Water Supply and Wastewater Collection..... | 2,445 | Water supply and sewage collection system planning, design, construction supervision, operation, maintenance and repair |
| Environmental Engineering..... | 450 | Design, construction supervision of large capital projects, including water tunnel and sewage treatment upgrades |
| Clean Water | 2,068 | Wastewater treatment plant planning, design, construction supervision, operation, maintenance and repair |
| Management and Budget | 348 | Administration of personnel and fiscal services, vehicle fleet and building analysis, labor relations and management analysis |
| Executive | 284 | Executive management, public affairs and intergovernmental relations, engineering audit, engineering services and legal counsel |
| Total | <u>6,007</u> | |

Approximately 1,168 people within the System staff are assigned to the design and construction of ongoing capital projects and projects within the CIP and 497 provide administrative and support services to both System and non-System staff. There are an additional 451 employees within the DEP staff whose duties are not related to water and sewer service and whose cost is not included as a System cost.

To help the City meet its environmental mandates, refine its priorities and establish appropriate program levels while maintaining affordable water and sewer rates, DEP has undertaken a comprehensive strategic planning process. DEP has now completed the first stages of a more focused and cost-effective program to improve services to the public.

DEP is managed by a Commissioner who is appointed by the Mayor. Each of the four operating Bureaus (the Bureaus of Water Supply and Wastewater Collection, Environmental Engineering, Clean Water and Water and Energy Conservation) reports to the Commissioner through the First Deputy Commissioner and is directly supervised by a Deputy Commissioner.

The following are brief descriptions of certain management personnel responsible for the operation of the System.

Albert F. Appleton — Commissioner

Mr. Appleton was appointed Commissioner of Environmental Protection in January 1990. Prior to his appointment, Mr. Appleton served as Executive Assistant and Special Assistant Attorney General in the New York State Medicaid Fraud Control Unit, as an attorney in private practice, and as a Senior

Project Planner in the New York City Mayor's Office. Mr. Appleton has also served in a volunteer capacity as an officer or director of numerous local, regional, and national conservation organizations. He received his B.A. in political science and mathematics from Gonzaga University in Spokane, Washington and his law degree from the Yale Law School.

Nicholas S. Ilijic, P.E. — First Deputy Commissioner

Mr. Ilijic was appointed First Deputy Commissioner on April 8, 1991. Mr. Ilijic has served in a number of capacities with DEP since 1960, including Deputy Chief and Chief of the Division of Plant Design for the Bureau of Water Pollution Control and Director for the Bureau of Heavy Construction. Mr. Ilijic is a graduate of Brooklyn Polytechnic Institute and is a Professional Engineer.

Steven F. Ostrega — Deputy Commissioner

Mr. Ostrega was appointed Deputy Commissioner in April 1992 and appointed Executive Director of the Board in June 1992. He has served as the Director of the Bureau of Water and Energy Conservation since May 1986. Mr. Ostrega has served in numerous capacities with DEP since 1969, including Deputy Director of the Bureau of Management Services. Mr. Ostrega is a graduate of Hunter College of the City University of New York and the New School For Social Research.

Edward O. Wagner, P.E. — Deputy Commissioner

Mr. Wagner was appointed Director of the Bureau of Clean Water in 1986. He has served in numerous capacities with DEP since 1961, including Director of Plant Operations and Deputy Director of the Bureau of Water Pollution Control. Mr. Wagner is a graduate of the College of The City of New York and New York University and is a Professional Engineer.

Richard D. Gainer, P.E. — Deputy Commissioner

Mr. Gainer was appointed Deputy Commissioner and Director of the Bureau of Water Supply and Wastewater Collection on January 1, 1993. Mr. Gainer has served in various capacities at DEP since 1973 including Deputy Director and Chief of Field Operations for the Bureau of Water Supply. Mr. Gainer holds the degrees of Bachelor of Civil Engineering from New York University and Master of Civil Engineering from the Polytechnic Institute of New York and is a Professional Engineer.

Glen E. Vogel, P.E. — Deputy Commissioner

Mr. Vogel was appointed in October 1992 the Deputy Commissioner and Director of the Bureau of Environmental Engineering. Mr. Vogel has served in various capacities with DEP since 1964, including Chief of Plant Management for Wastewater Facilities and Chief of Sewer Construction. Mr. Vogel is a graduate of New York University and is a Professional Engineer.

Service Area

DEP supplies water and sewer service to the Boroughs of Manhattan, the Bronx, Brooklyn, Queens, and Staten Island, an area of over 300 square miles, and serves over 7,300,000 people. Water and, or sewer service is provided to approximately 807,000 accounts on either a flat-rate or metered basis. There are approximately 472,880 metered accounts and 334,120 flat rate accounts. See "APPENDIX C — CERTAIN INFORMATION CONCERNING THE CITY OF NEW YORK". The City is also required by State law to sell water in counties where its water supply facilities are located. See "RATES AND BILLINGS — Upstate Water Rates."

On November 2, 1993, the voters of the borough of Staten Island approved a proposed charter under which Staten Island would secede from The City of New York to become a separate City of Staten Island. The charter commission will submit to the State Legislature proposed legislation enabling Staten Island to separate from the City. The charter would take effect upon approval of such enabling legislation by the State Legislature. Any such legislation would be subject to legal challenge by the City and would require approval by the United States Department of Justice under the Federal Voting Rights Act. The impact of any such legislation allowing Staten Island to secede from the City cannot be determined.

Daily consumption from the Water System averages approximately 1,462 mgd, of which approximately 1,348 mgd is consumed in the City, and 114 mgd is consumed in Westchester, Putnam, Orange and Ulster

Counties. Included within the City consumption is 31.5 mgd supplied to Jamaica Water Supply Company comprising approximately 60% of the water consumed by the approximately 90,000 accounts in the Queens portion of the Company's service area. Water consumption varies by season with the summer months having the largest demand. Peak flows in the Water System can exceed an hourly rate of 2,000 mgd. The following table shows the average daily water consumption from the Water System from 1983 through 1992.

| Average Daily Water Consumption | | | | |
|--|--------------------|-------------------------------|----------------------|-------------------------------|
| <u>Calendar Year</u> | <u>Total (mgd)</u> | <u>Upstate Counties (mgd)</u> | <u>New York City</u> | |
| | | | <u>Total (mgd)</u> | <u>Per Capita* (gals/day)</u> |
| 1983 | 1,480 | 113 | 1,367 | 199 |
| 1984 | 1,527 | 114 | 1,413 | 204 |
| 1985 | 1,390 | 107 | 1,283 | 184 |
| 1986 | 1,433 | 116 | 1,317 | 187 |
| 1987 | 1,543 | 120 | 1,423 | 200 |
| 1988 | 1,582 | 125 | 1,457 | 204 |
| 1989 | 1,492 | 113 | 1,379 | 192 |
| 1990 | 1,525 | 122 | 1,403 | 195 |
| 1991 | 1,569 | 124 | 1,445 | 200 |
| 1992 | 1,462 | 114 | 1,348 | 187 |

* Population source: U.S. Department of Commerce, Bureau of the Census.

The vast majority of System accounts receive both water and sewer service. The remaining customers either receive water from the private Jamaica Water Supply Company or are located in the few areas of the City, primarily in Staten Island, where water or sewer service is not yet established and, thus, accounts may be water only or sewer only.

Approximately 88% of the System's water and sewer customers are residential. The remainder are primarily commercial and industrial users with industrial customers accounting for only a small portion of water and sewer usage.

The classification of customer accounts is set forth in the table below.

| Customer Classifications (1) | | |
|---------------------------------------|-------------------------------------|--|
| <u>Type of Account</u> | <u>Percentage of Total Accounts</u> | <u>Percentage of Total Billings(2)</u> |
| One-Family Dwellings | 37.5% | 9.6% |
| Two-Family Dwellings | 27.3 | 10.3 |
| Walk-up Apartments (3) | 15.9 | 19.0 |
| Elevator Apartments (3) | 2.7 | 25.7 |
| Factories and Industrial | 1.9 | 5.2 |
| Stores | 6.3 | 8.3 |
| Office Buildings | 0.9 | 5.6 |
| Utility Properties | 0.2 | 2.8 |
| Lofts | 0.9 | 2.6 |
| Hospitals and Health Facilities | 0.2 | 1.5 |
| Hotels | 0.2 | 2.3 |
| Other | 6.0 | 7.1 |
| Total | <u>100.0%</u> | <u>100.0%</u> |

- (1) This information is based upon an analysis conducted in Fiscal Year 1987 by Ernst & Young. Billing percentages by customer class reflect total billings for each customer class less average cancellations and adjustments for metered customers.
- (2) The distribution of billings for Fiscal Year 1992 was 40% for water service and 60% for sewer service.
- (3) Certain accounts and billings under this type of account relate to commercial establishments located in apartment buildings.

Sewer service except for significant parts of the borough of Staten Island, and the borough of Queens' communities of Breezy Point, Douglaston, and the borough of Brooklyn community of Seagate, is provided to virtually the entire City. Sewer service is also provided to certain upstate communities in System watershed areas. Daily sewage flow from these upstate communities is approximately 2.1 mgd. In calendar year 1992, daily flows of sewage to the City treatment plants averaged approximately 1,501 mgd during dry weather.

Forecasted 1994 Operating Expenditures

The System's forecasted Fiscal Year 1994 expenditures for operation and maintenance are approximately \$559.5 million. This amount represents the cost of DEP services dedicated to operating the System. The costs associated with DEP staff whose responsibilities include the design and management of the CIP are included in the CIP and therefore are not reflected in the following table.

Fiscal Year 1994 System Forecasted Operation and Maintenance Expenses (thousands)

| | <u>Total Expenses(1)</u> |
|---------------------------------------|--------------------------|
| Water | |
| Personal Service (2) | \$ 83,785 |
| Other Than Personal Service (3) | <u>113,105</u> |
| Total | \$196,890 |
| Sewer | |
| Personal Service (2) | \$157,178 |
| Other Than Personal Service (3) | <u>205,434</u> |
| Total | <u>\$362,612</u> |
| Total System | <u><u>\$559,502</u></u> |

- (1) Amounts shown are consistent with the forecasted cash flows in Appendix B.
- (2) Personal Service costs include salaries, fringe benefits and pension costs.
- (3) Other Than Personal Service costs include real estate taxes on upstate watershed properties, electricity, payments to vendors for the land-based disposal of sludge, and the cost of chemicals and supplies.

The Water System

Water for the System is impounded in three upstate reservoir systems which include 18 reservoirs and three controlled lakes with a total storage capacity of approximately 550 billion gallons. The three water collection systems were designed and built with various interconnections to increase flexibility by permitting exchange of water from one system to another. This feature mitigates localized droughts and takes advantage of excess water in any of the three watersheds.

Water is conveyed to the City from the reservoirs of the Croton, Catskill and Delaware Systems by gravity through large aqueducts and balancing reservoirs. Within the City, water is distributed through two major tunnels and four distribution facilities. A third tunnel is now under construction and will supplement the two City tunnels currently in use.

In comparison to other public water systems, the Water System is both economical and flexible. Approximately 95% of the total water supply is delivered to the consumer by gravity. Only about 5% of the water is regularly pumped to maintain the desired pressure. As a result, operating costs are relatively insensitive to fluctuations in the cost of power. When drought conditions exist, additional pumping is required.

Water Collection. The three main reservoir systems are the Croton, Catskill and Delaware. (See “New York City Water Supply System” map between Appendices A and B for the location of the reservoir systems.) The following is a brief description of the City’s water collection system.

The amount of water that can be safely drawn from a watershed during the worst period in the drought of record is the “Dependable Yield”. DEP has determined that the System could have furnished an average of 1,290 mgd during the drought of record in the mid-1960’s. During periods of normal rainfall, watersheds supply more than the Dependable Yield. As of November 8, 1993, reservoir levels were at 45.4% of capacity compared to normal levels of 69.3%. On November 10, 1993 the New York State Department of Environmental Conservation Drought Management Task Force issued a drought warning advisory for New York City and 11 counties in southeastern New York State. The drought warning is the second of four levels of advisories used by the drought task force. DEP considers the input from this Drought Management Task Force, but has not declared any type of drought condition during 1993. See “Drought Response Measures”.

The following table sets forth the Dependable Yield and storage capacity for each of the water supply systems.

Water System Yield and Capacity

| <u>System</u> | <u>Dependable Yield (mgd)</u> | <u>Storage Capacity(1) (billion gallons)</u> |
|----------------|---------------------------------------|--|
| Croton | 240 | 86.6 |
| Catskill | 470 | 140.5 |
| Delaware | 580 | 320.4 |
| Total | <u>1,290</u> | <u>547.5</u> |

(1) Capacity above minimum operating level.

The Croton System: The Croton System normally provides approximately 10% of the City’s daily water supply and can provide over 25% of the daily water supply during drought conditions. The Croton System consists of 12 reservoirs and three controlled lakes on the Croton River, its three branches and three other tributaries. The water flows from upstream reservoirs through natural streams to downstream reservoirs, terminating at the New Croton Reservoir. The watershed drained by the Croton System is now extensively developed and the density of the population is beginning to adversely affect the original quality of this water source. See “THE SYSTEM — The Water System — Water Quality”.

The Croton System is divided into three subsystems: the West Branch, Croton Falls, and Muscoot. The watershed which supplies the Croton System has an area of 375 square miles. It lies almost entirely within the State, approximately 45 miles north of lower Manhattan, with a small portion in the State of Connecticut.

The Catskill System: The Catskill System watersheds occupy sparsely populated areas in the central and eastern portions of the Catskill Mountains and normally provide approximately 40% of the City’s daily water supply. Water in the Catskill System comes from the Esopus and Schoharie Creek watersheds, located approximately 100 miles north of lower Manhattan and 35 miles west of the Hudson River. The Esopus Creek flows naturally into the Hudson River and drains an area of about 257 square miles. The Schoharie Creek drains into the Mohawk River from an area of 314 square miles. The greater part of the water from these two watershed areas is stored in the Ashokan Reservoir and the balance in the Schoharie Reservoir.

The Ashokan Reservoir is formed by Ashokan Dam across the Esopus Creek. The Schoharie Reservoir is formed by the Gilboa Dam across Schoharie Creek at Gilboa in Greene County, north of the Esopus Creek. The tributaries of the Schoharie Creek have their source at elevations of nearly 2,200 feet in the vicinities of Hunter, Windham, Prattsville and Grand Gorge in Greene, Delaware and Schoharie Counties.

Water from Schoharie Reservoir is conveyed via the Esopus Creek and Shandaken Tunnel to Ashokan Reservoir where the Catskill Aqueduct begins. It is possible to divert water from the Catskill Aqueduct into the New Croton Reservoir to maximize the use of storage capacity.

The Delaware System: The Delaware System, located approximately 125 miles north of lower Manhattan, normally provides approximately 50% of the City's daily water supply. Three Delaware System reservoirs collect water from a sparsely populated region on the branches of the Delaware River: Cannonsville Reservoir (formed by the Cannonsville dam on the West Branch of the Delaware River); Pepacton Reservoir (formed by the Downsview Dam across the East Branch of the Delaware River); and Neversink Reservoir (formed by the Neversink Dam across the Neversink River, a tributary to the Delaware River). These reservoirs feed eastward through separate rock tunnels, West Delaware, East Delaware and Neversink, to Rondout Reservoir where the Delaware Aqueduct begins. Rondout Reservoir is formed by the Merriman Dam across Rondout Creek. Although most of the water in Rondout Reservoir is Delaware River water drawn from the other three reservoirs, Rondout Reservoir is not in the Delaware River watershed since Rondout Creek flows into the Hudson River.

Water may be pumped into the Delaware Aqueduct from the standby pump station at Chelsea, New York (the "Chelsea Pump Station") which draws from the Hudson River. The Chelsea Pump Station has a capacity of 100 mgd and pumped approximately 82 mgd of water from the river for almost five months during the 1985 drought. The Chelsea Pump Station also pumped approximately 90 mgd between May 1, 1989 and May 15, 1989. The second facility of its type to be situated at this location, the Chelsea Pump Station was reconstructed in 1965-66 under drought emergency circumstances and operated for approximately ten months during that period. It was placed on standby status until 1981. In that year, again under drought conditions, the station was rehabilitated to full operating capacity. Tests made of the Hudson River water indicate that the untreated water meets virtually all Federal and State standards for treated water and that it compares favorably as to water quality to the supplies available to major population centers outside the Hudson River Basin.

The City has submitted an application for a five-year permit to the New York State Department of Environmental Conservation ("NYSDEC") to operate the pump station on an emergency basis at the maximum rate of 100 mgd. Adjudicatory hearings commenced in April 1988. In May 1990, the City requested a modification of its application to propose a maximum 100 mgd withdrawal at Chelsea at an earlier stage of the drought emergency than the original permit had contemplated. Action on the request for modification must await completion of a supplemental environmental impact statement. Operation of the Chelsea Pumping Station also requires a State Pollution Discharge Elimination Systems ("SPDES") permit. However, the City may operate the Chelsea Pump Station in the event of drought emergency without the issuance of the SPDES permit, providing the City continues to pursue its application for such permit and satisfies interim conditions set by NYSDEC. When issued, the SPDES permit or the operating permit may require additional expenditures prior to the operation of the pumping station.

Water Transmission. The System's water supply is transported through an extensive system of tunnels and aqueducts. (See "New York City Water Tunnels" map between Appendices A and B for the location of the major water transmission facilities.) Croton System water is delivered from the New Croton Reservoir by the New Croton Aqueduct to the Jerome Park Reservoir in The Bronx and Central Park Reservoir in Manhattan. From Jerome Park and Central Park Reservoirs and from direct connections to the New Croton Aqueduct, trunk mains carry water to the service area. The Catskill and Delaware Aqueducts convey water from Ashokan Reservoir and Rondout Reservoir to Kensico Reservoir and then to Hillview Reservoir in Yonkers. Both Kensico and Hillview Reservoirs serve as balancing reservoirs. Water from the Catskill and Delaware Systems is mixed in the Kensico Reservoir, and is conveyed to Hillview Reservoir where water enters Tunnels 1 and 2. Trunk mains carry water from tunnel shafts and from the distribution facilities (Jerome Park, Central Park and Ridgewood Reservoirs and Silver Lake Tanks) (the "Distribution Facilities") to the service area. These trunk mains are usually more than 20 inches in diameter.

Water System Tunnels and Aqueducts

| <u>Tunnels and Aqueducts</u> | <u>Connections</u> | <u>Length (miles)</u> | <u>Diameter (feet)</u> | <u>Transmission Capacity (mgd)</u> | <u>In-service Date</u> |
|---------------------------------|--|---------------------------|----------------------------|--|----------------------------|
| <u>Tunnels Upstate</u> | | | | | |
| Shandaken | Schoharie to Ashokan | 18.1 | 11.5 x 10.25 | 650 | 1924 |
| West Delaware | Cannonsville to Rondout | 44.0 | 11.33 | 500 | 1964 |
| East Delaware | Pepacton to Rondout | 25.0 | 11.33 | 700 | 1955 |
| Neversink | Neversink to Rondout | 6.0 | 10 | 500 | 1954 |
| <u>Aqueducts</u> | | | | | |
| New Croton | New Croton to Jerome Park | 24.0 | 13.5 x 13.6 | 300 | 1893 |
| | Jerome Park to the 135th St. Gatehouse | 9.0 | 12.25 - 10.5 | 250 | 1893 |
| Catskill | Ashokan to Kensico | 75.0 | 17 x 17.5 | 610 | 1915 |
| | Kensico to Hillview | 17.0 | 17.5 x 18 | 800 | 1915 |
| Delaware | Rondout to West Branch | 44.2 | 13.5 | 890 | 1944 |
| | West Branch to Kensico | 27.2 | 15 | 1,045 | 1943 |
| | Kensico to Hillview | 13.6 | 19.5 | 1,450 | 1942 |
| <u>Tunnels-Downstate</u> | | | | | |
| Tunnel 1 | Hillview to distribution system | 18.0 | 15 - 11 | 1,000 | 1917 |
| Tunnel 2 | Hillview to distribution system | 20.0 | 17 - 15 | 1,000 | 1936 |
| Richmond Tunnel ... | Tunnel 2 to Staten Island Uptake Shaft | 5.0 | 10 | 350 | 1970 |

The New Croton Aqueduct: The New Croton Aqueduct transmits water by gravity from New Croton Reservoir to Jerome Park Reservoir in The Bronx and via aqueducts and conduits to Central Park Reservoir in Manhattan. Water is also drawn from the New Croton Aqueduct directly into distribution mains in the City. It is a grade tunnel about 33 miles long with a delivery capacity of about 300 mgd. The New Croton Aqueduct is located three to 300 feet underground and is composed of two sections. One section is a bricklined rock tunnel located near the Old Croton Dam, three miles north of the New Croton Dam, and extends to Gatehouse No. 1 in Van Cortlandt Park, a distance of about 24 miles. The other section is a pressurized masonry conduit extending from Gatehouse No. 1 to a gatehouse at 135th Street and Convent Avenue in Manhattan, a distance of about nine miles. In addition, a branch of the New Croton Aqueduct transmits water from Gatehouse No. 1 to the Jerome Park Reservoir.

The Catskill Aqueduct: The Catskill Aqueduct, which also transmits water by gravity, is 92 miles long and extends from the Ashokan Reservoir to Kensico and Hillview Reservoirs. Four distinct types of aqueduct construction were required due to the terrain between the Catskill Mountains and the City. The Catskill Aqueduct is for the most part a 17 feet high by 17.5 feet wide horseshoe-shaped cut-and-cover conduit. The Catskill Aqueduct is also composed of a number of steel pipe siphons and grade and pressure tunnels where topography requires. A deep rock tunnel siphon 14 feet in diameter and 1,114 feet below mean sea level crosses beneath the Hudson River near Cornwall. The delivery capacity of the Catskill Aqueduct from the Ashokan Reservoir to the Kensico Reservoir is about 610 mgd and about 800 mgd from the Kensico Reservoir to the Hillview Reservoir. The Catskill Aqueduct passes under the New Croton Reservoir. At this point it is possible to transfer water from Ashokan Reservoir to New Croton Reservoir.

The Delaware Aqueduct: The Delaware Aqueduct similarly transmits water by gravity from Rondout Reservoir to West Branch Reservoir, in the Croton System, and from West Branch Reservoir to Kensico Reservoir and to Hillview Reservoir. The Delaware Aqueduct is a circular, cement-lined, pressurized, bedrock tunnel 85 miles long located 300 to 1,000 feet underground, passing beneath the Hudson River at a depth of about 600 feet below sea level. Water in this aqueduct is directed by uptake and downtake shafts to the Kensico and West Branch Reservoirs. The Delaware Aqueduct has a diameter of 13.5 feet to 19.5 feet. The

capacity of the section from Rondout Reservoir to West Branch Reservoir is about 890 mgd and delivers water from the Rondout, Neversink, Pepacton and Cannonsville Reservoirs. Interconnection with the Catskill System is possible at both the Kensico and Hillview Reservoirs. The delivery capacity of the Delaware Aqueduct from West Branch to Kensico Reservoirs is about 1,045 mgd and about 1,450 mgd from Kensico to the Hillview Reservoirs.

Tunnel 1: From Hillview Reservoir, water from the Catskill and Delaware Systems is delivered into the City by a circular, cement-lined, pressurized, bedrock tunnel narrowing in diameter from 15 to 11 feet. Tunnel 1 is 18 miles in length and extends south from Hillview Reservoir through the West Bronx to Manhattan and Brooklyn. From two terminal shafts in Brooklyn, steel and standby cast iron pipelines extend into Queens and Staten Island, respectively. Tunnel 1 is 200 to 750 feet underground and thus avoids interference with streets, buildings, subways, sewers, pipes and other underground infrastructure. These depths are necessary to ensure substantial rock covering necessary to withstand the bursting pressure of the water inside and to ensure watertightness. Tunnel 1 has a capacity of approximately 1,000 mgd. Shafts placed along the tunnel connect with surface mains which deliver water to the distribution system.

Tunnel 2: The second tunnel also delivers Catskill and Delaware System water from Hillview Reservoir. It is a circular, cement-lined, pressurized, bedrock tunnel 200 to 800 feet below the street surface and 15 to 17 feet in diameter. Tunnel 2 extends south from Hillview Reservoir, east of Tunnel 1, through the Bronx, under the East River at Rikers Island, through Queens and Brooklyn, and connects with Tunnel 1 at Fort Greene Park as well as at State and Nevins Streets in Brooklyn. Tunnel 2 has a capacity of approximately 1,000 mgd and is 20 miles in length. Shafts placed along the tunnel connect with surface mains which deliver water to the distribution system.

Richmond Tunnel: Connecting to Tunnel 2 in Brooklyn is the 10-foot diameter, five-mile long Richmond Tunnel, which was completed in 1970 and carries water 900 feet beneath Upper New York Bay to Staten Island. The Richmond Tunnel, the Richmond Distribution Chamber, the Richmond Aqueduct and the underground Silver Lake Tanks were designed to improve the water supply facilities of Staten Island. The underground storage tanks (among the world's largest) have a combined capacity of 100 million gallons and replace the Silver Lake Reservoir (now Silver Lake).

Tunnel 3: A new water tunnel connecting the reservoir system to the City is presently under construction to enhance the adequacy and reliability of water transmission to the City in the future. The primary reasons for constructing Tunnel 3 are to:

- increase capacity to meet a growing demand in the eastern and southern areas of the City;
- permit inspection and rehabilitation of Tunnels 1 and 2;
- provide water delivery alternatives to the City in the event of disruption in Tunnel 1 or 2; and
- provide capacity for peak demand which Tunnels 1 and 2 occasionally cannot fully supply.

Tunnel 3 is a circular, cement-lined, pressurized, bedrock tunnel which will be built in four stages which include:

STAGE I, currently near completion and expected to be operable in 1994, has a 13-mile route which extends south from Hillview Reservoir in Yonkers under Central Park Reservoir in Manhattan, and east under the East River and Roosevelt Island to Long Island City in Queens. Stage I parallels Tunnel 1 along most of this route.

STAGE II will consist of two sections expected to be operable in 2002. The Brooklyn/Queens section will extend from the end of Stage I to supply Queens, Brooklyn and the Richmond Tunnel. The second section will extend south from the valve chamber at Central Park into lower Manhattan. Completion of Stage II will further enhance the System's water distribution capability. Upon completion of this stage, Tunnel 1 or 2 can be closed for inspection.

STAGE III will extend from the Kensico Reservoir to the interconnecting chamber of Stage I, south of Hillview Reservoir. Completion of this stage will supplement the delivery capability of both the Catskill

and Delaware Aqueducts between Kensico and Hillview Reservoirs. Tunnel 3 will deliver water from Kensico Reservoir under greater pressure than is available in Tunnels 1 and 2. This increased pressure is a result of the higher elevation of Kensico Reservoir than that of Hillview Reservoir where Tunnels 1 and 2 originate.

STAGE IV is intended to deliver additional water to the eastern parts of the Bronx and Queens. It would extend southeast from the northern terminus of Stage I in the Bronx to Queens and then southwest to interconnect with the Queens portion of Stage II.

Water Distribution. The water distribution system consists of a grid network of water mains ranging in size from six to 84 inches in diameter. It contains approximately 5,783 miles of pipe, 87,091 mainline valves and 98,099 fire hydrants.

Since 1970, the material of newly installed pipe has been cement-lined, ductile iron and comprises about 9.6% of the water main mileage. Between 1930 and 1970, cement-lined, cast iron pipe was used and comprises about 38.4% of the water main mileage. Slightly over half of the mains in the System are unlined cast iron, the primary construction material used before 1930. The CIP provides for the programmatic replacement of water mains in accordance with certain established criteria. This criteria was reviewed and confirmed by the U.S. Army Corps of Engineers in their independent study of the City's distribution System completed in November 1988. According to this same study, the water distribution system has an excellent record with regard to the frequency of water main breaks per mile of distribution network. See "Appendix A — REPORT ON THE ENGINEERING FEASIBILITY OF THE WATER AND SEWER SYSTEM SERVING THE CITY OF NEW YORK — System Description and Evaluation".

Water pressure is regulated within a range of 35 to 60 pounds per square inch ("psi") at street level. Generally, 40 psi is sufficient to supply water to the top of a five or six-story building. About 95% of the total consumption is normally delivered by gravity. It is necessary to pump only the remaining 5% to areas of higher elevation to keep the pressure within this desired range.

The distribution system in each Borough is divided into three or more zones in accordance with pressure requirements. These zones are determined chiefly by the local topography. The ground elevation in the City varies from a few feet above sea level, along the waterfront, to 403 feet at Todt Hill in Staten Island. The highest ground elevations in the other Boroughs are: Manhattan, 267 feet; the Bronx, 284 feet; Brooklyn, 210 feet; and Queens, 266 feet. Various facilities provide storage to meet the hourly fluctuations in demand for water throughout the City, as well as any sudden increase in draft that might arise from fire or other emergencies. With the exception of some communities in the outlying areas of the City which may experience low pressure service in peak hours during summer months, the water distribution system provides generally excellent service.

Water Quality. The System is known for the high quality of its water. Because of its inherent quality and the long periods of retention in the reservoirs, it has not been necessary to filter water from the System to reduce the bacterial content and the turbidity. The only treatment procedures routinely employed by DEP are screening, detention, addition of caustic soda for pH control, chlorination for disinfection, and fluoridation. Additions of copper sulfate for algae control and alum for turbidity control are made only when needed.

Until recently, this level of treatment had proven to be more than sufficient to maintain water quality standards throughout the entire Water System. Population growth and commercial and industrial development within the Croton watershed, the Water System's oldest, have adversely affected long-term water quality and led to a decision that Croton System water be filtered. The City operated a treatment technology assessment and demonstration facility for Croton System water at Jerome Park Reservoir from March 1989 to July 1992. Approximately \$550 million is included in the CIP to construct a full-scale treatment facility, the Croton Filter Project. This facility is expected to be operational by 2000.

DEP has historically monitored key locations representative of its distribution system for over 40 individual water quality parameters. These special monthly analyses include analyses for lead. Current DEP data indicate that lead is absent from both the water supply and distribution systems. Federal guidelines are being developed as to how water purveyors should address the issue of lead in tap water in building plumbing. Recently DEP began the addition of blended orthophosphate to the Water System for the purpose of corrosion

control. This addition will promote the formation of a protective coating inside pipes and plumbing thereby reducing the leaching of metals such as lead and copper.

The System has five laboratories that monitor water quality employing over 230 bacteriologists, engineers, and chemists. Over 80,000 samples per year are collected and 1,000,000 analyses are performed annually. Routine checks are made for 60 different substances, including heavy metals and trace organics. As part of a long range water quality and watershed protection program, DEP is increasing its staff in order to expand water quality monitoring within watershed and distribution areas and to improve its sample collection force. DEP has recently initiated a \$7 million capital program to install drinking water quality sampling stations throughout the City. The monitoring program meets or exceeds Federal and State requirements and has the capability to meet potentially more stringent requirements.

Long Term Watershed Protection. In addition to the monitoring program, DEP watershed inspectors continually run sanitary surveys and maintain constant surveillance of the watersheds. To ensure high quality water, DEP has proposed new watershed protection regulations for the upstate watershed area. These regulations are designed to prevent future contamination and reverse any existing degradation of the New York City water supply. These regulations are subject to the approval of the New York State Department of Health ("NYSDOH"). See "GOVERNMENTAL REGULATION — Water Supply Regulation — State". Additionally, the System includes real estate adjacent to its reservoirs acquired to prevent potential water contamination from sewage that would be produced if these areas were developed and to control access to the reservoirs. To enhance these efforts, DEP continues to work in conjunction with State programs to better protect watershed wetlands which act as a filter to general land use pollution which would otherwise be deposited in the reservoirs. DEP's watershed projects include: data collection and communication with the State to effect watershed classification upgrading; review of and comment on state water protection regulations; and water quality and land use studies. The 1994-1997 Four Year Capital Plan includes \$113 million for the purchase of certain sensitive land parcels further to protect the quality of the water supply. DEP has also submitted to the Federal Environmental Protection Agency ("USEPA") an acquisition plan that commits the City to purchase, between 1994 and 2003, over eighty thousand acres of environmentally significant land in the watershed area. This comprehensive acquisition plan is currently projected at \$201 million. DEP has also committed to invest \$128 million to upgrade its own sewage treatment plants in the watershed, up to \$120 million in various cost-sharing watershed protection programs and to add additional watershed staff totaling 87 positions and increased laboratory capacity at a cost of \$250 million over ten years.

The major non-staffing costs of the Long Term Watershed Protection Filtration Avoidance Program are forecast to be \$562 million.

Additional watershed protection programs include cooperative projects with farmers in which DEP shares in the cost of implementing specified best management practices to reduce pollution, and cooperative projects with towns in which DEP provides technical and financial assistance to upstate towns to enact local ordinances consonant with a policy of water quality protection.

The System includes eight upstate sewage treatment plants to prevent untreated sewage from being released into the watersheds. To enhance watershed protection, the CIP includes funds for upgrading these facilities, DEP, through the City's Law Department, is taking legal action pursuant to the Federal Clean Water Act to compel the owners and operators of non-City owned sewage treatment plants in the watersheds to comply with SPDES permits. In addition, DEP with the City Law Department, is taking legal action to ensure that all new developments are appropriately designed to be environmentally protective. In September 1993, NYSDOH issued a declaratory ruling that, under certain specified circumstances, the City would be required to pay for various expenses associated with the construction of, or modifications to, or the operation and maintenance of sewage treatment plants in the watershed which are solely attributable to changes compelled by the City's watershed regulations. If this ruling were to stand, the City could incur additional costs beyond those which had been contemplated by the City in its cost sharing program which is intended to cover only a portion of these expenditures.

DEP is undertaking a new initiative to develop a computerized watershed modelling system which will enable DEP to evaluate better the effects of land development on water quality.

Drought Response Measures. From time to time the System experiences drought conditions caused by significantly below-normal precipitation in the watershed areas. Since the Water System relies upon a surface water supply it is sensitive to major fluctuations in precipitation. Throughout even the worst droughts, the Water System has continued to supply sufficient amounts of water to the City.

To ensure adequate water supply during drought conditions, DEP, in conjunction with other City, State and interstate agencies, maintains a Drought Contingency Plan. The Drought Contingency Plan defines various drought phases that trigger specific management and operational action. Three defined phases are: "Drought Watch", "Drought Warning", and "Drought Emergency". A Drought Emergency is further subdivided into four stages based on the projected severity of the drought and provides increasingly stringent and restrictive measures.

A Drought Watch is declared when there is less than a 50% probability, based on the existing record since 1927, that either the Catskill or Delaware reservoir system will be filled by the following June 1. This phase initiates the pumping of water from the Croton System. In addition, a public awareness program is begun and all users, including upstate communities taking water from the System, are requested to initiate conservation measures. Discussions with NYSDOH, NYSDEC, the Delaware River Basin Commission (the "DRBC") and City agencies are held concerning their prospective participation in the event of a declaration of a "Drought Warning".

A Drought Warning is declared when there is less than a 33% probability that either the Catskill or Delaware reservoir system will fill by June 1. Limited restrictions on water usage are mandated. All previous efforts are continued or expanded and additional programs are initiated, including City conservation programs and expanded leak detection.

A Drought Emergency is declared when it becomes necessary to reduce consumption by imposing even more stringent measures. A Drought Emergency is usually subdivided into four stages and imposes mandatory water use restrictions on all users of the Water System. Major components of the Drought Emergency phase of the Drought Contingency Plan are set forth below.

Stage I Mandates include 15% reduction in water consumption based on prior year usage for non-residential users; restriction on watering of lawns, gardens and golf courses to a maximum of four hours on alternate days during specific hours; and \$500 fine for unauthorized use of a fire hydrant.

Stage II Mandates include a ban on lawn watering; a ban on the filling of private swimming pools; restricted use of water-cooled air conditioners, requiring a two-hour shut-down between 8 AM and 10 AM or 4 PM and 6 PM; and an additional 5% reduction in water consumption for non-residential users.

Stage III Mandates include additional restrictions on the use of water-cooled air conditioning systems, prohibiting temperatures below 78F; and an additional 5% reduction in water consumption for non-residential users.

Stage IV Mandates include installation of flow restricting devices on plumbing fixtures; and an additional 5% reduction in water consumption for non-residential users.

In addition to the imposition of restrictions, DEP may enhance existing System management and public awareness programs, expand its inspection force and perform additional leak and waste surveys in public and private buildings. DEP may also require communities outside of the City that are served by the System to adopt similar conservation measures. The Chelsea Pump Station may also be brought into service in order to draw Hudson River water into the System.

Long-Term Water Supply Planning. After the mid-1960's drought, the U.S. Army Corps of Engineers commissioned the Northeast Water Supply Study to address regional water supply needs. The study considered, among other sources, further use of Hudson River water. In July 1985, the City formed an intergovernmental task force to study the water supply needs of the Southeast region of New York State. It issued its first interim report in February 1986, entitled "Increasing Supply, Controlling Demand." The report recommended that consumption studies be performed to refine water use projections and that every reasonable effort be made to control water demand through increased metering, rate setting, leak detection and

conservation. As a result of the work of the task force, a study of system water demand was approved by the City's Board of Estimate in December 1986. Phase I of the demand study, which includes the development of the forecasting model and initial forecasts, was completed in November 1989. An interagency demand forecasting work group is now undertaking a program of data collection, analysis and model development. In addition, a universal metering program was adopted by the Board and the City in 1986 and began in Fiscal Year 1988. Full implementation of metering for all customers of the System is expected to be completed by the end of 1998.

The final report of the task force concluded that expanded pumping of Hudson River water represents the only large source of supplemental supply which can be realistically developed within the next 10 to 15 years. The current CIP includes \$27 million for the design of the expansion of the existing pumping station at Chelsea to a maximum capacity of 300 mgd construction of which is estimated to cost approximately \$415 million.

The Sewer System

The Sewer System is composed of the sewage collection system and the sewage treatment facilities. (See "New York City Drainage Areas and Sewage Treatment Plants" map between Appendices A and B for the location of the sewage treatment facilities.)

Sewage Collection. The sewage collection system is divided into 14 drainage areas and includes 6,331 miles of sewer pipes of varying size which are classified as one of three types: sanitary, storm or combined. Sanitary sewers accommodate household and industrial waste. Storm sewers carry rainwater and surface water runoff. Combined sewers carry both types of waste. Approximately 70% of the City's sewers are of the combined type. In addition to the sewage pipes, 90,000 catch basins and 5,000 seepage basins are maintained to prevent flooding and sewer backups.

The Sewer System is comprised of a number of sewer facilities built to varying standards. Different materials and methods of construction were used resulting in different life cycles. Approximately 4,000 miles or two-thirds of the City's sewer pipe is made of vitreous clay. Significant mileage of sewer pipe is composed of other building materials including cement, reinforced concrete, iron and brick.

Infiltration/Inflow studies indicate that infiltration rates in the Collection System are relatively low. In addition to the results of Infiltration/Inflow studies prepared by consultants, extensive data is available from complaint records and in-house studies assessing the adequacy of system service. This information is considered when developing capital projects. Currently programs are underway to replace cement pipe sewers in Brooklyn and reline brick sewers in Manhattan.

Sewage Treatment Facilities. The facilities related to the treatment of sewage include 14 sewage treatment plants, one storm-overflow retention plant, 88 pump stations, five laboratories, eight sludge dewatering facilities and three inner-harbor vessels which transport sludge between facilities. Sludge is a by-product of the sewage treatment process. The 14 plants currently in operation treat about 1,501 mgd of dry-weather sewage, virtually all of the dry-weather sewage generated in the City. Eleven of the System's 14 plants have been upgraded to provide for full secondary treatment capability.

Issues of both water supply volume and consequent sewage treatment volume are raised from time to time in connection with the System. As is noted herein, measures to increase the supply of water available to the System and to increase the sewage treatment capacity of the various sewage treatment plants in the System are under continuing review for feasibility and cost effectiveness. However, the immediate avenue of approach to both the issues of supply and treatment capacity is conservation: through voluntary changes in user behavior, through education and the effect of actual use charges based on meters, leak detection and repair and increased use of newly designed low-flow water use fixtures such as toilets. The toilet retrofit program is budgeted at \$267 million through Fiscal Year 1998. These measures are being undertaken City-wide, but are particularly intensive in the various drainage areas noted below as a result of consent decrees relating to issues of sewage treatment capacity.

DEP has signed a consent decree with NYSDEC with regard to plant capacity, odors and air emissions at the North River facility. To date, over \$80 million has been committed to address odor concerns. Recent measurements indicate that flows to the plant are near and sometimes exceed the permitted capacity. DEP is undertaking water conservation and surveillance measures designed to reduce the flow of sewage to the North River facility under the consent decree which are expected to result in a total average annual flow reduction of 11 mgd by 1997. A proposal to develop the former Pennsylvania Railroad yards on the west side of Manhattan, which would increase flows to the North River facility, has been approved by the City Council. The North River facility will be able to accommodate the projected flows from this development once the aforementioned flow reduction measures have been implemented.

In December 1991, NYSDEC withdrew its approval of the Newtown Creek facility plan because it included technology that had caused operational problems at the North River facility. The schedule for the planned upgrade of the Newtown Creek facility is under negotiation with the State. The CIP includes approximately \$800 million to effect this upgrade. The issue of how to most effectively deal with excess flows in the East River portion of the System will be evaluated as a part of the Newtown Creek facility plan.

Water conservation measures including extensive retrofitting of low-flow toilets have resulted in a reduction of water usage in the drainage area of the Newtown Creek sewage treatment plant. Consequently, flow to the sewage treatment plant has been reduced from 343 mgd in Fiscal Year 1989, to the current level of 281 mgd average daily flow, which is below the plant's permitted capacity of 310 mgd.

On February 2, 1989, the City signed a consent order, modified on July 27, 1993, which mandates various water conservation measures to reduce flow to the Wards Island plant. Average daily flows to Wards Island remain above the plant's capacity. The City has initiated a design contract to expand the capacity of the Wards Island plant. The CIP includes approximately \$100 million to implement the interim expansion and plant stabilization that will result from this design.

In 1983 the City commenced the upgrading to full secondary treatment of an additional two Brooklyn plants, Coney Island and Owls Head. Upgrading of these plants will be completed in 1994 and 1995, respectively, at an estimated total cost of \$1.1 billion. Issues of treatment capacity have also been raised at the Coney Island plant. DEP believes that the actual capacity of the Coney Island plant exceeds its current rating and can accommodate expected flow. An application seeking an increase in the plant's rated capacity to 110 mgd from 100 mgd has been submitted to the State and preliminary approval has been received.

According to the 1991-92 Harbor Surveys conducted by DEP the coliform bacterial counts, which are indicators of sewage pollution, have continued to decline. The Harbor Survey also indicates significant water quality improvements. In general, the dissolved oxygen level, which is important for sustaining marine life, has increased measurably over the past several years. These improvements are primarily in response to: continued water pollution control plant construction and upgrades throughout the harbor; the abatement of 1.06 mgd of illegal discharges; a reduction of raw sewage bypassing by 3.4 mgd due to increased surveillance and sewer maintenance; increased capture of wet weather flows; and the capture of the last significant untreated discharge, 0.7 mgd, from the City (Staten Island) to the harbor. The New York City Department of Health's "wet weather advisory" (no swimming within forty-eight hours of a heavy rain) was lifted at seven of ten City public beaches in June 1993.

The Long Island Sound Study ("LISS") is a joint federal-state-local (the states being New York and Connecticut) program to identify the Sound's major environmental problems and develop a plan to manage those problems. USEPA is the lead federal agency involved in the LISS. Hypoxia, or low levels of dissolved oxygen, has emerged as the issue of greatest concern in Long Island Sound. Hypoxia is the result of a chemical chain reaction that begins with high levels of nutrients, largely nitrogen. In addition to natural sources, other nutrient sources include effluent from sewage treatment plants, stormwater run-off carrying lawn and agricultural fertilizer, organic materials, and air-deposited nitrate substances. On November 30, 1990, the LISS Policy Committee approved a Status Report and Interim Actions for Hypoxia Management, which summarize the Study's findings and include management recommendations to prevent significant increases ('no net increase' policy) in the amount of nitrogen entering the Sound. DEP is taking measures to make its operations consistent with the recommendations. It is expected that the study will be completed

during Spring 1994 and a Comprehensive Conservation and Management Plan ("CCMP") will be adopted by the participants to reverse the adverse impacts associated with hypoxia in Long Island Sound. The cost to the System of the CCMP is likely to be less than \$10 million in the near future. Some of this amount has already been committed under the sludge disposal program.

Sludge Disposal. Pursuant to a consent decree (the "Consent Decree") under the Marine Protection, Research and Sanctuaries Act of 1972 ("MPRSA") as amended by the Ocean Dumping Ban Act of 1988 (the "Ban Act"), DEP ceased the ocean disposal of sludge in June 1992.

The Consent Decree required the implementation of interim measures and a long-term program for land-based disposal of sludge. As part of the interim measures, DEP is operating facilities to dewater its sludge and reduce its volume. Sludge dewatering facilities are located at eight of the sewage treatment plants and have the capacity to dewater all of the sludge generated by the System. DEP has contracted with various private firms for the beneficial use or disposal of its dewatered sludge. Firms are disposing of the dewatered sludge through the use of a fully permitted landfill facility and through land application. One private firm began operation of a thermal drying facility with a capacity of 220 dry tons per day located in the Bronx in August 1993. Currently, over 85 percent of the total volume of sludge produced is being beneficially used. The eight dewatering facilities are currently operable and cost approximately \$850 million to construct. The City's financial plan includes approximately \$100 million in Fiscal Years 1994 through 1998 for contracts with private vendors to dispose of the dewatered sludge. The CIP includes \$1.1 billion for the construction of long-term disposal facilities. The Manhattan District Attorney's office is investigating the procurement of contracts relating to the interim sludge program.

The Consent Decree also requires DEP to develop and implement long-term solutions for sludge disposal capable of processing 50% of the City's sludge by December 31, 1995 and 100% by June 30, 1998. In accordance with the Consent Decree, DEP published a Long Range Sludge Management Plan in May 1991 which was modified in April 1992 and again in June 1993. The plan provides for sludge management through a combination of in-City facilities and export. The plan will utilize four technologies: thermal drying, chemical stabilization, composting and land application of liquid or dewatered sludge. The modified plan provides for a total average processing capacity of 621 dry tons per day. The required facilities will be located throughout the City and include the thermal drying facility. The City did not meet its September 1, 1992 milestone regarding commencement of the final design for one of the City-owned long-term facilities and DEP negotiated a modification to the Consent Decree changing this milestone to June 1, 1993. The final design for these facilities began prior to June 1, 1993. Pursuant to the modified Consent Decree, the City was also required to pay \$250,000 in penalties, make a \$750,000 contribution to an Environmental Benefit Program to purchase wetlands, and to deposit \$1.5 million in an escrow account which will be returned to the City if the City meets certain future milestones.

Ocean disposal fees and penalties imposed by the Ban Act and the Consent Decree were paid through September 14, 1993. The Ban Act and the Consent Decree provide that 85% of the fees and penalties paid shall be deposited into a Trust Account and shall be available to reimburse the City for costs incurred for developing alternative sludge disposal facilities. As of September 14, 1993, the value of the Trust Account was approximately \$78 million. A portion of the balance of the fees and penalties was paid to USEPA with the remainder divided equally between the New York State Water Pollution Control Revolving Fund and the New York State Clean Oceans Fund. Amounts paid to the Clean Oceans Fund are also available to reimburse the City for the costs of developing alternative sludge management programs.

In August 1991 the City Comptroller published a report questioning the viability of various disposal means and the ability to perform of private contractors on which DEP proposes to rely. The Comptroller also estimated that the ultimate cost of land-based sludge disposal could be substantially higher than currently projected by DEP.

GOVERNMENTAL REGULATION

The System is subject to Federal, State, interstate and municipal regulation. At the Federal level regulatory jurisdiction is vested in USEPA; at the State level in the NYSDEC and the NYSDOH; at the interstate level in the Delaware River Basin Commission ("DRBC") and in the Interstate Sanitation Commission (the "ISC"); and at the municipal level in DEP, New York City Department of Health ("NYCDOH"), the Department of Buildings ("DOB"), the Department of Business Services ("DBS") and, to a limited degree, in municipalities and districts located in eight counties north of the City.

Water Supply Regulation

Federal. All water supply systems in the United States which provide water to at least 15 service connections or 25 individuals are subject to the provisions of, and to regulation by USEPA under, the Safe Drinking Water Act ("SDWA"). USEPA has promulgated nationwide drinking water regulations which specify the maximum level of harmful contaminants allowed in drinking water and which govern the construction, operation, and maintenance of water supply systems as required by SDWA.

Under 1986 amendments to SDWA, the USEPA is directed to promulgate filtration treatment regulations "relevant to the protection of health" which shall be used by the State to identify public water systems supplied by surface water sources which must initiate filtration measures. The regulations, known as the Surface Water Treatment Rule ("SWTR"), prescribe guidelines concerning studies to be performed, programs to be implemented, timetables to be met and any other actions necessary to insure compliance with the regulations' terms. USEPA published regulations in the Fall of 1987, but due to numerous comments received from municipalities nationwide, it revised the regulations and republished them in the Spring of 1988. A final SWTR was published in June 1989. The City believes that under the SWTR promulgated by the USEPA it will be able to meet the criteria for non-filtered supplies. See "THE SYSTEM — The Water System — Water Quality".

State. Enforcement of SDWA and its related regulations, except for the SWTR, was delegated by USEPA to the State. Consistent with the terms of SDWA, the State has been delegated primary enforcement responsibility for public water systems since USEPA has determined that the State's drinking water regulations are at least as stringent as the Federal drinking water regulations. Enforcement of the water quality mandates for the most part has been entrusted to NYSDOH. The State Sanitary Code ("Sanitary Code") also sets forth surveillance, quality testing and water treatment requirements. Also set forth in the Sanitary Code are the procedures for planning, facility siting, facility operation and the granting by NYSDOH of variances and exemptions. At times Croton System water does not meet the currently applicable State drinking water standards for turbidity. The City has received variances from the State permitting continued use of the Croton System. These variances are contingent on the City's proceeding with the Croton Filter Project. See "CAPITAL IMPROVEMENT PROGRAM — Water System".

USEPA granted interim approval to the City's filtration avoidance plan and intends to issue a further decision before the end of 1993. To date the City has met substantially all milestones and intends to comply with all conditions for filtration avoidance in anticipation of renewed approval. The City believes that its increased regulatory efforts to protect its water supply, described below, will preserve the high quality of the water in the Catskill and Delaware watersheds and will avoid the need for filtration.

NYSDOH also sought the authority to administer and enforce the SWTR in the same way it administers the rest of the SDWA. Although this authority was initially granted, it was revoked after a lawsuit by a group of upstate towns raised procedural flaws. It is expected that USEPA will delegate primary enforcement for the SWTR to NYSDOH in 1994. A major component of the City's efforts to protect its water supply is new regulations for the upstate watershed areas. These regulations will be promulgated under the authority of the New York State Public Health Law and subject to the approval of NYSDOH. They are designed to prevent future contamination and reverse any existing degradation of the New York City water supply. DEP is in the process of fulfilling State regulatory requirements, including the drafting of an environmental impact study for the approval of these regulations expected to be completed in November 1993. See "THE SYSTEM — The Water System — Water Quality".

Pursuant to the Water Supply Act of 1905 (the "1905 Act"), the City was granted permission to develop areas of the Catskill Mountains, located in the Hudson River Basin, for additional sources of pure and wholesome water. Subsequent amendments to the 1905 Act extended the City's development rights to portions of the Delaware River Basin located to the west of the Catskill Mountains, provided that no additional water storage structure or reservoir could be built within the drainage area of the Esopus Creek in Ulster County.

In return for these development rights, the 1905 Act and subsequent amendments require the City to furnish, upon request, supplies of fresh water to municipalities and water districts in eight northern counties in which City water supply facilities and watersheds are located. The City's obligations under the 1905 Act in this respect have now passed to the Board.

The 1905 Act also governs the provision of fresh water to the northern counties and the rates that may be levied for such water. An eligible municipality or district may draw water based on a formula computed as the local population multiplied by the daily per capita consumption in the City. Current water allowances are based upon 1990 U.S. census data. In the event of disagreement between the upstate users and the System as to appropriate water charges, NYSDEC has the authority to fix the water charges based on the actual total cost of the water to the City, deducting those costs incurred by the City itself for distributing water to City residents.

The Water System is currently furnishing water to users in portions of four of the eight eligible northern counties. The Water System provides approximately 85% of the water used in Westchester county and approximately 7.5% of the water used in Putnam, Orange and Ulster counties. In the future, other eligible municipalities and districts may exercise their option to utilize Water System water. The City is required under the Act to provide water at regulated rates to eligible municipalities and districts up to an amount based on the above-described formula.

NYSDEC has promulgated regulations which require release of fresh water from most of the Water System's reservoirs into downstream water bodies, to protect fisheries and to enhance recreational use of rivers and streams in the System's watersheds and drainage areas. The regulations recognize seasonal variations and, with insignificant exceptions, releases for recreational purposes are effectively suspended during periods of drought.

NYSDEC also oversees a dam safety program in connection with the System's dams located east of the Hudson River (Croton System and Kensico Reservoir). The first phase initiated under the National Dam Inspection Act included inspection by the U.S. Army Corps of Engineers of all of the System's dams. That study indicated that the dams in the Delaware and Catskill Systems were in excellent operating condition and that the dams east of the Hudson were safe but in need of some rehabilitation and reconstruction work. The second phase, administered by the City and subject to NYSDEC approval, assessed the measures needed to restore the dams east of the Hudson River to first-class operating condition.

Interstate. Three major interstate actions have influenced the maintenance and operation of the Delaware System.

The conditions under which the System's Pepacton, Neversink and Cannonsville Reservoirs may be operated are set forth under the terms of a 1954 decree of the Supreme Court of the United States (the "1954 Decree"). It allows the System to divert 800 mgd of water from the Delaware River Basin for use by the Water System. At the same time, the System is required to release, from the three reservoirs into the tributaries of the Delaware River, quantities of water sufficient to maintain flows of 1,750 cubic feet per second in the main branch of the Delaware River at Montague, New Jersey. In addition, the System must meet the State-mandated conservation releases and flow requirements in various tributaries contained in numerous deeds and condemnation decrees. Enforcement of the 1954 Decree is under the jurisdiction of a River Master appointed by the Supreme Court of the United States. The City and State, and the governments of New Jersey, Pennsylvania and Delaware are named parties to the 1954 Decree.

DRBC was created in 1961 as a result of the Delaware River Basin Compact among the Federal Government, the State, and the states of New Jersey, Pennsylvania and Delaware. It has jurisdiction over water resources and is responsible for development, planning and coordination and protection of the interstate areas served by the Delaware River and its tributaries. Although not a participant in the Delaware River Basin Compact, the City functions as an advisor to the State in DRBC proceedings and assumes a major role both as a party to the 1954 Decree and as the owner and operator of the three largest reservoirs subject to DRBC jurisdiction.

In 1982, as a result of conditions during the drought of record in the mid-1960's, the drought of 1981, and the inability of the System's Pepacton, Neversink and Cannonsville Reservoirs to satisfy all of the requirements of the 1954 Decree during those periods, a set of Interstate Water Management Recommendations (the "Good Faith Agreement") was submitted to DRBC. Executed by all of the parties to the 1954 Decree, the Good Faith Agreement sets forth a series of recommendations, including various levels of diversions and releases necessary during normal hydrological conditions and during periods of drought. The Good Faith Agreement was followed during the 1985 and 1989 droughts.

Municipal. Water quality standards are enforced within the watershed areas north of the City through a network of overlapping governmental jurisdictions. Participating in that network, among others, are NYSDEC and NYSDOH, county, municipal and district police, engineers and inspectors; and City personnel from DEP. The various jurisdictions maintain physical security, take water samples, monitor the use of herbicides, insecticides and fertilizers, and generally oversee the physical condition of, activity on and the operation of water supply lands and facilities. Portions of the overall legislative and regulatory framework governing the watersheds may be found in the City's Administrative Code, Health Code and Water Supply Regulations.

Regulatory enforcement within City limits is almost exclusively accomplished through City personnel. Provisions incorporating and augmenting the substance of SDWA, related regulations and the Sanitary Code, are contained in the Health Code, Water Supply Regulations and the City's Building and Building Construction Codes. These provisions are enforced by personnel from DEP, NYCDOH and DOB.

Wastewater Regulation

Under the Federal Water Pollution Control Act, as amended by the Clean Water Act of 1977 and by the Water Quality Act of 1987 (the "Clean Water Act"), USEPA administers an extensive program of Federal capital construction grants (the "Construction Grants Program") and oversees compliance with Federal environmental laws, regulations and guidelines promulgated by it concerning (i) sewer and sewage treatment plant construction, operation, maintenance, upgrading and rehabilitation, (ii) introduction of toxins and other pollutants into sewer and sewage treatment facilities, and (iii) pollutant discharges into public waters. Included in that regulatory framework is the National Pollutant Discharge Elimination System ("NPDES") Permit Program and the issuance of sewage treatment plant operating permits. As authorized by the Clean Water Act, enforcement of the permits program has been delegated to the State.

The Water Quality Act of 1987 phased out the Construction Grants Program and provided for the implementation of a water pollution control revolving loan program. Such act requires, as a condition for receipt of federal financial assistance, that each state establish a revolving fund administered by the state or an instrumentality of the state. The purpose of a state revolving fund is to provide a source for loans and other types of financial assistance (other than direct grants) to local entities for the construction of publicly owned wastewater treatment facilities. Initial funding for a revolving fund program is provided from federal capitalization grants and state matching funds.

The State has created a State revolving fund and has designated the Environmental Facilities Corporation (the "Corporation" or "EFC") to be the administrator of such fund. The Corporation will apply federal capitalization grants and State matching funds or other available amounts in the State revolving fund to provide subsidized capital financing to municipalities for eligible sewage treatment projects.

The upgrading of eleven of the System's existing plants and the construction of the two new plants are, in part, for the purpose of complying with the mandates of the Clean Water Act. In 1972, the City began a program of upgrading its existing plants to operate in conformance with the requirements of the Clean Water Act; that is, 30 milligrams per liter ("mg/l") or less of suspended solids and BOD₅ in the effluent or at least 85% removal, whichever is more stringent ("Full Secondary Treatment"). Eleven of the System's 14 sewage treatment plants have already been upgraded at a construction cost of approximately \$1.4 billion. Two additional existing System plants, Coney Island and Owls Head, are currently in the process of being upgraded with anticipated completion dates of 1994 and 1995, respectively. The Newtown Creek plant will also be upgraded in order to meet Federal requirements on a consistent basis. See "The SYSTEM — The Sewer System — Sewage Treatment Facilities".

The construction schedules of the North River plant on the Hudson River and the Red Hook plant on the East River, were the subject of a United States District Court Consent Decree, last modified in 1982 (the "Decree"). The Decree required that the North River plant commence advanced preliminary treatment operation by May 1, 1986, which deadline was met, and that Full Secondary Treatment operation be commenced by May 1, 1991, which deadline was met. The Red Hook plant began advanced primary treatment operation in May 1987; the Decree deadline for full secondary treatment operation was met on May 1, 1989.

The Clean Water Act also directs USEPA to address the problem of discharges of toxins and other pollutants into publicly-owned treatment works. USEPA has promulgated effluent limits for toxic and other substances that must be met by specific industries ("Categorical Standards") and has directed that publicly owned treatment works establish and enforce industrial pretreatment programs. The System has undertaken such a program and met the required milestones. DEP has modified its Sewer Use Regulations to incorporate the Categorical Standards and to assign personnel to monitor and enforce compliance with the Sewer Use Regulations.

Under Federal court order, the Ban Act, MPRSA and USEPA regulations promulgated thereunder, the System was also required to have a permit for dumping into the Atlantic Ocean sludge generated by its sewage treatment plants and to cease ocean disposal by June 30, 1992, which milestone has been met. These regulations also include requirements for the long-term disposal of sludge. See, "The SYSTEM — The Sewer System — Sludge Disposal".

State. Under authority delegated by USEPA the State established SPDES and has assumed jurisdiction over point source discharges and wastewater treatment plant operating permits. The State powers are enforced by NYSDEC, which also administers the Construction Grants Program. NYSDEC, therefore, has regulatory power with respect to the upgrading, construction and operation of the sewage treatment plants pursuant to some 14 SPDES permits, one for each plant the City operates. In addition, NYSDEC monitors compliance by the System not only with the conditions of the Construction Grants Program, but also the System's adherence to the terms of the State construction and operations reimbursement grants under the State's Pure Waters Bond Act of 1965 and Environmental Quality Bond Act of 1972.

As part of its municipal compliance program, the State took action against the City for those sewage treatment plants that were unable to attain the secondary treatment requirements of the Clean Water Act by July 1, 1988. This court action resulted in the City signing consent decrees (the "State Consent Decrees") for the Owls Head, Coney Island, Newtown Creek and Oakwood Beach plants, all of which include compliance schedules. State referees have been assigned to monitor the City's compliance. The State Consent Decree requires that the upgrading of the Newtown Creek plant be completed by 1996. Currently, DEP is negotiating a later completion date and expects that the State will agree to an amendment to the Decree.

The System is also required to develop programs to reduce pollution from combined sewer overflows into New York Harbor and to eliminate excess inflow into the Sewer System from infiltration of ground and storm water. On June 26, 1992, DEP entered into a consent decree with the State establishing various timetables for the construction of nine combined sewer overflow projects, including storage tanks, through the year 2006. The CIP includes approximately \$1.6 billion for such projects. DEP has completed Infiltration/Inflow Studies for 11 of its 14 drainage areas and Sewer System Evaluation Studies ("SSES") for four of the drainage areas.

Studies covering the Sewer System's remaining drainage areas and sewage treatment plants are either underway or planned to satisfy SPDES permit requirements.

On May 19, 1989, in a proceeding commenced by the ISC and several environmental groups against NYSDEC, the New York State Supreme Court, Queens County ruled that NYSDEC was required to conduct a hearing prior to the renewal of operating permits for the City's fourteen sewage treatment plants. NYSDEC is currently conducting an administrative proceeding which has resulted in and could continue to result in modifications of the permits previously issued by NYSDEC. Some of the terms of the permits have been settled, but certain issues remain.

Interstate. In the late 1920's the State and the states of Connecticut and New Jersey recognized the need for interstate cooperation and regulatory overview to abate and control pollution in their tidal and coastal waters. The ISC was formed for those purposes by a tri-state compact approved by Congress in 1935. The ISC was given investigative and regulatory powers which it exercises with respect to floating and settleable solids, oil and grease contamination, color and turbidity, dissolved oxygen and BOD₅, and various other standards. In large measure, the jurisdiction of ISC has been preempted by the more comprehensive Federal and State legislation and regulations currently in force. Nonetheless, the ISC continues to exercise an investigative and regulatory role which reinforces and supplements those of the Federal, State and municipal governments.

Municipal. Rates, fees and charges for sewer service are the responsibility of the Board. Connections to the System's sewers are also regulated by DEP under the Sewer Use Regulations and by DOB under the Building and Building Construction Codes. Also contained in the Sewer Use Regulations are the industrial pretreatment standards mandated by USEPA under the Clean Water Act.

RATES AND BILLINGS

The System has approximately 807,000 water and sewer accounts. The vast majority of these accounts receive both water and sewer service. There are more sewer accounts than water accounts since 90,000 accounts in Queens receive water from Jamaica. In addition, in developing areas such as portions of Staten Island where the System does not yet provide full service, accounts may be for water service only.

The Board's customer accounts are in two categories: approximately 472,880 metered accounts and approximately 334,120 flat-rate accounts. Only water service is metered. Charges are established for both flat-rate and metered customers with sewer charges computed as a percentage of water charges. The Board retains the firm of Ernst & Young for the purpose of conducting a detailed review of the structure of water and sewer rates. The Board considers the results of their rate studies in establishing its rates and charges for service.

The System's rates and charges are largely exempt from Federal or State regulation. The Board's water rates, fees and charges are not subject to further approval or regulation except for rates for upstate users. Participation in the Construction Grants Program, however, requires the maintenance of sewer charges sufficient to defray costs of operation, maintenance and replacement, and of surcharges for industrial discharges into the System's sewers levied in conformity with formulas set forth in the Clean Water Act and regulations thereunder. Rates, fees and charges for water supply are the responsibility of the Board. Data compiled from meter readings made by DEP inspectors furnish input for billings and information useful in determining the effectiveness of City-mandated conservation measures. For a discussion of limitations on water service rates, fees and charges, see "GOVERNMENTAL REGULATION — Water Supply Regulation — State" and "THE SYSTEM — Department of Environmental Protection — Service Area".

Flat-Rate Accounts

At the present time, approximately 334,120 accounts are billed annually through the flat-rate system. These accounts are charged for water through a computation which incorporates, among other factors, the width of the front of the building ("frontage"), the number of stories, the number of dwelling units, and the number of each of the water-using fixtures (such as bathtubs, showers and toilets) in the building. The flat-rate is computed when the building is first constructed, and amended upon notice from DOB of building

alterations or when a DEP inspector determines that the basis for charges is incorrect. Flat-rate annual bills are normally sent to customers prior to the start of each Fiscal Year and are due at the beginning of the Fiscal Year but may be sent out to reflect changes in charges adopted by the Water Board.

Metered Accounts

There are now approximately 472,880 meters in use. Meters installed prior to July 1, 1987 are owned by the property owners, but must meet DEP specifications and be tested for accuracy. All meters installed or replaced by the City as part of the universal metering program are the property of the City.

It is the policy of DEP to read the meters of the 25,000 largest accounts every two months and to recalibrate or replace such meters when necessary. DEP reads all other meters every six months. Meter readings currently are recorded on optical scanning cards for automated processing. Metered account bills are sent out throughout the year.

The Board has amended its regulations to preclude any properties which are currently metered from changing to a flat-rate billing basis. Commercial accounts are required by the Board and the City to have meters installed on all water services. Currently 14.8% of these accounts are not in compliance with this requirement due to their location in multi-use buildings (i.e., containing both residential and commercial units).

Universal Metering Program

The three major goals of universal metering of all water service in the City are water conservation, improved water supply system management and rate equity. Under the program, all flat-rate accounts will be metered by June 30, 1998. The City has issued contracts for the bulk purchase and installation of the meters. At the same time, existing meters are being tested and replaced by DEP where necessary. All new meters will incorporate remote devices which enable meter reading from outside the building. This has enhanced meter reading efficiency by eliminating the meter reader's need to gain building access. The installation of meters is being conducted on an area-by-area basis. Six community board districts were chosen for the program's initial phase. These districts were areas in the City where there is low water pressure and/or where water must be pumped. An additional twenty-eight community board districts have been selected Citywide, among them areas requiring conservation to reduce sewage volume. To date, approximately 258,000 meters have been installed under the Universal Metering Program. Upon the initiation of this program, the City assumed responsibility for the maintenance, repair and replacement of all meters.

The Universal Metering Program has and will continue to shift the basis of customer billing from the flat-rate system which relates to the physical characteristics of a property to the metered system which measures the actual usage of utility services. Billing based on actual usage has affected the level of charges to certain large multiple family residential buildings, in particular, those buildings with above average population density, and those with improperly maintained plumbing fixtures. The result is often a significant increase in charges to such buildings. In response to criticism of the metering program from this segment of the customer base, the Water Board has undertaken a research study to evaluate the impact of metering on the different types of multiple family residential buildings, and if indicated, to develop alternative strategies and measures to mitigate any potential hardship on this class of customers. In the interim, in order to permit adequate data to be developed, the Water Board has adopted a transition program whereby owners of multiple family buildings which have had meters installed under the Universal Metering Program will continue to be billed on a flat-rate basis during this transition period. Apart from allowing the Water Board time to develop adequate data to permit appropriate evaluation of the impact of metering on multiple family residential buildings, the transition program will also allow owners a window of time to review their water usage, educate tenants regarding conservation, repair leaky plumbing, and/or install low flow fixtures in order to reduce consumption and charges.

On May 11, 1993, the Water Board adopted a program which provides for a cap on the per unit charge on multiple family dwellings. The cap is set at approximately 150% of the average per family unit charge. In order to be eligible for this program, building owners must submit to a water audit by DEP and take measures to eliminate the leakage and waste.

Both DEP and DOF have identified major customer service and support issues relating to the universal metering program. Among these are a need to respond to expected increases in customer inquiries regarding meter installations, initial bills and consumption. Existing record-keeping systems require improvement to support this increased service requirement in addition to typical utility customer information, classification and billing practices. A joint DEP/DOF program has been initiated to generate key customer account information that is currently contained in various paper and electronic files in both agencies and to jointly design, procure and operate a single automated utility customer information and billing system. In January 1992, the Water Board approved a contract with Price Waterhouse to provide and customize a new customer information system at a cost of approximately \$17 million which is expected to be phased in during the second half of 1994 and completed in December 1994. Integrating operations, which are now divided among three computer centers and operating systems, will improve the capacity to sort and report water/sewer customer account information. For information concerning a lawsuit challenging the Universal Metering Program see "LITIGATION".

Exempt Accounts

Certain institutions are exempt under State law from the payment of all or a portion of their water and sewer charges depending upon usage. These institutions include religious, certain educational and other charitable institutions as well as homes for the aged, hospitals and other non-profit or charitable corporations. For Fiscal Years 1993 and 1994, flat-rate accounts of these institutions which would be charged less than \$8,784 per year for water service are fully exempt from water and sewer charges with a 50% exemption for those accounts ranging from \$8,784 to \$17,509 in annual water charges. Flat-rate accounts charged in excess of \$17,509 are not exempt. The thresholds for metered accounts of these institutions are \$9,781 and \$19,562. As of January 1993, there were 3,435 exempt accounts. Less than 1% of these accounts were partially exempt, the remainder were fully exempt.

Jamaica Water Supply Company

The Jamaica Water Supply Company ("Jamaica") has benefitted from an agreement with the System to provide water to Jamaica at a nominal charge to help equalize costs for water between the Jamaica water service area and the service area for the System. The current agreement sets the maximum amount of water to be delivered to Jamaica by the System at 50 mgd.

On June 16, 1988, pursuant to State legislation, the City commenced condemnation proceedings against that portion of the Jamaica system which in 1992 delivered approximately 52.6 mgd of water (of which 31.5 mgd was provided from the System) to about 518,000 people in southeast Queens, representing approximately 90,000 accounts. The legislation requires the City to condemn the property, provided that the Court fixes compensation therefor by use of a specified valuation method. The legislation also specifies that in the event the value established by the court is in excess of the value utilized by the Public Service Commission ("PSC") in setting rates, the proceeding may be discontinued by the City. The City estimates that the value utilized by the PSC for such property in setting rates is approximately \$60 million. In June 1993, the Court dismissed the proceeding on the grounds that the City's ability to discontinue improperly placed the Court in the position of rendering an advisory opinion. The City intends to appeal the Court's decision. The acquisition of the City portion of Jamaica would result in increased operating and maintenance costs for the System as well as the addition of revenues from 90,000 additional accounts for water service. This acquisition, although not included in the CIP, could be financed through the issuance of Bonds.

Rates

The following table sets forth the changes in rates for water and sewer service since 1986:

History of Water and Sewer Rate Increases

| <u>Effective Date</u> | <u>Change in Flat-Rate Water</u> | <u>Change in Metered Water</u> | <u>New Metered Water Rate</u> | <u>Change in Sewer</u> |
|-----------------------|--|--------------------------------|-------------------------------|------------------------------------|
| July 1, 1986 | Increased 9.9% | Increased 9.9% | 72.5¢ per ccf | Remained at 60% of water charge. |
| July 1, 1987 | Increased 12% | Increased 12% | 81¢ per ccf | Increased to 70% of water charge. |
| July 1, 1988 | Increased from \$14.06 to \$26.40 per year for each additional family above the single family assumed in an individual flat-rate account. | No change | No change | Increased to 75% of water charge. |
| July 1, 1989 | Increased from \$26.40 to \$41.86 per year for each additional family above the single family assumed in an individual flat-rate account. Remaining flat rate charges increased by 7.8%. | Increased 7.8% | 87¢ per ccf | Increased to 88% of water charge. |
| Jan. 1, 1990 | Increased 9% | Increased 9% | 95¢ per ccf | Increased to 112% of water charge. |
| July 1, 1991 | Increased 6.4% | Increased 6.4% | \$1.01 per ccf | Increased to 136% of water charge. |
| July 1, 1992 | No change | No change | \$1.01 per ccf | Increased to 159% of water charge. |
| July 1, 1993 | No change | No change | \$1.01 per ccf | No change. |

Although the Board sets rates for an annual period it may increase rates during the annual period, as required. Forecasted debt service, operating and other costs for the System indicate that rates set by the Board will require no increase for Fiscal Year 1995 and increases of approximately 5.5% for each of Fiscal Years 1996 and 1997.

Basic Sewer Charge. For all properties connected to the Sewer System, there is a charge imposed equal to a fixed percentage of the property's water charge. Since July 1, 1993, the sewer charge has remained at 159% of the water charge.

Sewer Allowances. Certain commercial customers use water in their products and thus return less waste to the Sewer System than their water consumption might indicate. Upon application and approval, these commercial users are entitled to an effective rate reduction which reflects the proportion of water which is retained in their products or evaporated and not returned as sewage.

Sewer Surcharges. As of July 1, 1993, the Board eliminated Sewer Surcharges.

Sewer-Only Customer Charges. In the case of premises which receive water service from alternative sources, a sewer charge is determined by DEP. For the current Fiscal Year, the sewer charge to such premises is equal to 159% of the dollar amount that would be charged for water usage if it were supplied by the Water System.

Partial Sewer Charge Accounts. A small number of customers, located primarily in Staten Island, receive wastewater treatment services from privately owned and operated wastewater treatment facilities. Such accounts are charged for sewer collection services only at a lower rate than the basic sewer charge. The lower rate, which is equal to 38% of the water charges assessed on an account, reflects the fact that such accounts do not receive wastewater treatment services, but do use the System's sewage collection system to carry wastewater to and/or away from the privately owned treatment plant.

Jamaica Sewer Accounts. There are approximately 90,000 accounts in Queens which are connected to the Sewer System but receive their water from Jamaica. The rate schedule provides that the sewer charge of these accounts shall, as nearly as possible, be adjusted so as to be equivalent to the sewer charge that would have been imposed if the property were served by the Water System. Accordingly, DEP maintains a record of properties served by Jamaica and purchases a computer tape of meter readings billed by Jamaica. A special billing for these accounts is generated annually.

Upstate Water Rates. Rates for water supply service provided to municipalities and water districts located north of the City are established in accordance with the provisions of the Water Supply Act of 1905. The 1905 Act provides that such rates shall be based on the System's actual cost of service. Water taken from either the Croton or Catskill/Delaware systems is currently charged at a rate of \$165.23 per million gallons. A recent rate increase has resulted in increased revenues of \$1.45 million in Fiscal Year 1993 and \$0.9 million projected in Fiscal Year 1994. Certain upstate customers have filed a challenge to the rate increase with NYSDEC.

Comparative Charges. The following table presents comparative annual water and sewer charges for 1993 in 24 large cities based upon a survey conducted by Ernst & Young. Using a ranking system where 1 represents the lowest rates, the City's ranking relative to these cities is: for Single-Family Residential — 9, for Commercial — 12, and for Industrial — 14.

Comparative Annual Water and Sewer User Charges(1)

| Single Family Residential | | Commercial | | Industrial | |
|---------------------------|---------------|---------------|---------------|---------------|---------------|
| City | Annual Charge | City | Annual Charge | City | Annual Charge |
| Chicago | \$171 | St. Louis | \$2,108 | Milwaukee | \$160,678 |
| Detroit | \$256 | Detroit | \$2,118 | St. Louis | \$170,225 |
| Baltimore | \$263 | Milwaukee | \$2,138 | Detroit | \$170,534 |
| Milwaukee | \$264 | San Antonio | \$2,200 | Indianapolis | \$185,044 |
| St. Louis | \$275 | Baltimore | \$2,283 | Baltimore | \$201,974 |
| San Antonio | \$309 | Chicago | \$2,404 | San Antonio | \$205,939 |
| Indianapolis | \$335 | Indianapolis | \$2,644 | Dallas | \$231,372 |
| Cleveland | \$340 | Dallas | \$2,645 | Chicago | \$240,353 |
| New York | \$350 | Honolulu | \$3,315 | Philadelphia | \$254,879 |
| Atlanta | \$367 | Philadelphia | \$3,480 | Atlanta | \$259,747 |
| Washington | \$384 | Columbus | \$3,487 | New Orleans | \$280,965 |
| Columbus | \$405 | New York | \$3,497 | Columbus | \$304,030 |
| Los Angeles | \$414 | New Orleans | \$3,513 | Honolulu | \$311,227 |
| Newark | \$428 | Atlanta | \$3,528 | New York | \$349,719 |
| Dallas | \$438 | Cleveland | \$3,545 | Cleveland | \$356,134 |
| New Orleans | \$439 | Washington | \$3,834 | Jacksonville | \$376,915 |
| San Diego | \$446 | Jacksonville | \$4,108 | Washington | \$383,422 |
| Honolulu | \$447 | San Diego | \$4,223 | Newark | \$391,121 |
| Jacksonville | \$455 | Newark | \$4,281 | San Diego | \$410,408 |
| San Jose | \$491 | San Jose | \$4,667 | San Jose | \$435,823 |
| Philadelphia | \$532 | Los Angeles | \$5,147 | Los Angeles | \$514,706 |
| Houston | \$569 | San Francisco | \$6,017 | San Francisco | \$588,412 |
| San Francisco | \$587 | Houston | \$6,201 | Houston | \$614,716 |
| Boston | \$725 | Boston | \$7,408 | Boston | \$773,151 |
| Average | \$404 | Average | \$3,700 | Average | \$340,479 |

- (1) User charges are based upon information provided by the identified cities and standardized assumptions regarding water consumption, wastewater discharge and other factors. Actual charges in each city will vary in accordance with local usage patterns. Charges for all cities reflect rate schedules in effect in March 1993.

Billing and Collection

By contract, the Board retained the City to perform all billing and collection services. The Bureau of Water and Energy Conservation of DEP collects the data used to generate bills to customers. Through its field offices in each Borough of the City and its central offices in Queens, it is responsible for the reading of meters and checking of meter accuracy as well as the maintenance of current information for those customers on the flat-rate system of billing. Data files for flat-rate customers are updated through inspections by Bureau of Water and Energy Conservation personnel. The Bureau of Water and Energy Conservation also collects over-the-counter payments for water and sewer services.

The Bureau of Water and Energy Conservation organizes metered consumption and flat-rate data and forwards all such data to the City's Department of Finance ("DOF") which prepares and mails bills to customers for water and sewer services. Each customer's account is identified by a unique Borough/block/lot number developed through the City's property tax records. DOF bills customer accounts, records these billings and is primarily responsible for the collection process, including procedures for handling delinquent accounts. DOF also administers billing adjustments and works with the Bureau of Water and Energy Conservation to handle customer inquiries. Although shutoffs are infrequent, DOF advises the Bureau of Water and Energy Conservation when a shutoff of services is required for nonpayment of bills.

The decentralized division of billing and collection functions between DEP and DOF has made effective customer service difficult. Accordingly, in recognition of the current procurement and development of a new automated customer information system and its implementation in 1994, agreement has been reached to centralize all water and sewer billing and collection functions within the Bureau of Water and Energy Conservation of DEP. Centralization and concentration within DEP will permit system design to focus exclusively on water and sewer utility and customer information needs. Centralization will also provide a single point for both inquiry and resolution of customer billing issues.

Payment of bills is made to the Board's account at Chemical Bank, which records payments and forwards the recorded data and receipts to the Board. Customer payments are received either directly by Chemical Bank or through hand-delivered payments to Borough offices of DOF, which are deposited to the Board's account at Chemical Bank. Acting on behalf of the Board, the Office of the City Comptroller records the cash receipts from the System.

The New York City Housing Authority ("Housing Authority") is the System's largest customer having been billed approximately \$42.0 million in calendar year 1992 for water and sewer services. The next largest customer is The City of New York with a Fiscal Year 1993 water and sewer bill of \$24.4 million. Other large customers include the New York City Health and Hospitals Corporation, Consolidated Edison Company of New York, Inc., the Board of Education of the City of New York and the Riverbay Corporation (Co-op City). Annual water and sewer charges for these customers range up to approximately \$10 million.

FINANCIAL OPERATIONS

The following tables present certain historical data relating to the System which have been derived from the books and records of the City, the Authority and the Board.

Revenues

The following table presents System revenues for Fiscal Years 1989 through 1993. The System revenues for Fiscal Years 1989 through 1992 have been derived from the schedules of cash receipts contained in annual audited financial statements for Fiscal Years 1989 through 1992 and estimates for Fiscal Year 1993.

| Revenue Category | System Revenues (thousands) | | | | |
|---------------------------------------|--------------------------------|------------------|------------------|--------------------|--------------------|
| | 1989 | 1990 | 1991 | 1992 | 1993 |
| Flat Rate — Water Charges (1) | \$265,435 | \$271,010 | \$251,959 | \$ 273,544 | \$ 287,003 |
| Flat Rate — Sewer Charges (1) | 176,790 | 263,060 | 317,573 | 337,481 | 338,066 |
| Metered — Water Charges (1)(2) | 121,186 | 108,659 | 115,308 | 167,852 | 149,335 |
| Metered — Sewer Charges (1)(3) | 74,291 | 87,099 | 115,337 | 195,288 | 208,867 |
| Meter — Upstate Customers | — | — | — | 5,270 | 5,552 |
| Miscellaneous Revenues (4) | 45,003 | 40,864 | 41,962 | 67,066 | 69,174 |
| Interest Penalty — Late Charges | 11,606 | 14,304 | 17,258 | 23,695 | 23,066 |
| Customer Refunds (5) | — | — | (31,600) | — | — |
| Total | <u>\$694,311</u> | <u>\$784,996</u> | <u>\$827,797</u> | <u>\$1,070,196</u> | <u>\$1,081,063</u> |

- (1) Includes both current payments and payments relating to accounts in arrears.
- (2) Prior to 1992, includes charges collected from certain upstate communities which are supplied water by the System.
- (3) Includes industrial surcharges to certain users of the Sewer System.
- (4) Miscellaneous Revenues are primarily comprised of water and sewer connection and disconnection fees, repair fees, meter installation fees, water usage permits, special meter reading fees and investment income.
- (5) Reflects a one-time provision for anticipated refunds to customers for overpayments in previous years.

Expenditures

The following table presents System expenditures for Fiscal Years 1989 through 1993. The System expenditures for Fiscal Years 1989 through 1992 have been derived from the schedules of cash receipts contained in annual audited financial statements and estimates for Fiscal Year 1993 and represent operation and maintenance expenses excluding the lease rental payment to the City and certain other items. In each fiscal year the Water Board pays to the City, in accordance with a certification from the City, an amount in cash from System Revenues equal to the dollar amounts set forth below as Total System expenditure presented on an accrual basis.

| System Expenditures (thousands) | | | | | |
|---------------------------------------|------------------|------------------|------------------|------------------|------------------|
| Expenditure Category | 1989 | 1990 | 1991 | 1992 | 1993 |
| Water (1) | | | | | |
| Personal Service (2) | \$ 64,531 | \$ 67,516 | \$ 68,665 | \$ 67,724 | \$ 77,538 |
| Other Than Personal Service (3) | <u>72,365</u> | <u>85,311</u> | <u>88,892</u> | <u>86,211</u> | <u>110,038</u> |
| Total | 136,896 | 152,827 | 157,557 | 153,935 | 187,576 |
| Sewer (1) | | | | | |
| Personal Service (2) | 117,358 | 127,320 | 131,001 | 141,228 | 154,921 |
| Other Than Personal Service (3) | <u>65,821</u> | <u>96,055</u> | <u>116,663</u> | <u>144,186</u> | <u>172,536</u> |
| Total | <u>183,179</u> | <u>223,375</u> | <u>247,664</u> | <u>285,414</u> | <u>327,457</u> |
| Sub-Total | 320,075 | 376,202 | 405,221 | 439,349 | 515,033 |
| Indirect Expenditures (4) | <u>20,557</u> | <u>21,231</u> | <u>21,984</u> | <u>23,987</u> | <u>16,262</u> |
| Total System | <u>\$340,632</u> | <u>\$397,433</u> | <u>\$427,205</u> | <u>\$463,336</u> | <u>\$531,295</u> |

- (1) Certain historical, administrative and overhead costs of DEP were allocated to the water and sewer functions based upon the proportion of applicable personnel within DEP.
- (2) Personal Service costs include salaries, fringe benefits and pension costs.
- (3) Other Than Personal Service costs include real estate taxes paid to upstate communities for watershed properties, land-based sludge disposal costs and for electricity, chemicals and supply costs.
- (4) Indirect Expenditures include City agency support, customer accounting, and judgments and claims costs.

Capital Program

The following table presents capital commitments and capital expenditures of the System for Fiscal Years 1989 through 1993. Capital commitments are contractual obligations entered into during the Fiscal Year while capital expenditures represent cash payments made during the Fiscal Year.

System Capital Commitments and Expenditures⁽¹⁾
(millions)

| | 1989 | | 1990 | | 1991 | | 1992 | | 1993 | |
|----------------------------------|----------------------------|-------------------------|----------------------------|-------------------------|----------------------------|-------------------------|----------------------------|-------------------------|----------------------------|-------------------------|
| Commitments | System Funds(2) | All Funds(3) | System Funds(2) | All Funds(3) | System Funds(2) | All Funds(3) | System Funds(2) | All Funds(3) | System Funds(2) | All Funds(3) |
| Water Supply | \$ 4 | \$ 4 | \$ 68 | \$ 68 | \$ 52 | \$ 52 | \$ 36 | \$ 36 | \$239 | \$239 |
| Water Mains | 109 | 110 | 90 | 90 | 63 | 63 | 218 | 218 | 192 | 195 |
| Sewer | 143 | 143 | 158 | 158 | 72 | 72 | 173 | 173 | 158 | 158 |
| Water Pollution Control | 119 | 276 | 499 | 499 | 449 | 496 | 375 | 434 | 239 | 259 |
| Total | <u>\$375</u> | <u>\$533</u> | <u>\$815</u> | <u>\$815</u> | <u>\$636</u> | <u>\$683</u> | <u>\$802</u> | <u>\$861</u> | <u>\$828</u> | <u>\$851</u> |
| Expenditures | | | | | | | | | | |
| Water Supply | \$ 44 | \$ 44 | \$ 35 | \$ 35 | \$ 39 | \$ 39 | \$ 32 | \$ 32 | \$204 | \$204 |
| Water Mains | 134 | 134 | 134 | 134 | 118 | 118 | 126 | 126 | 104 | 107 |
| Sewer | 165 | 165 | 140 | 140 | 162 | 162 | 114 | 114 | 81 | 81 |
| Water Pollution Control | 89 | 258 | 136 | 302 | 315 | 413 | 506 | 591 | 236 | 255 |
| Total | <u>\$432</u> | <u>\$601</u> | <u>\$445</u> | <u>\$611</u> | <u>\$634</u> | <u>\$732</u> | <u>\$778</u> | <u>\$863</u> | <u>\$625</u> | <u>\$647</u> |

- (1) Figures do not include a small amount spent annually on the purchase of vehicles and equipment.
- (2) System Funds include the proceeds of Authority bonds sold directly to the public and privately placed with the Environmental Facilities Corporation under the revolving fund program.
- (3) All Funds include Federal and State capital grants.

CAPITAL IMPROVEMENT AND FINANCING PROGRAMS

Capital Improvement Program

In May 1993 the City published its Ten Year Capital Strategy (1994-2003) (the "Ten Year Capital Strategy"), which provides for the rebuilding of the City's infrastructure, including water and sewer facilities. The City's Ten Year Capital Strategy included projected expenditures of \$9.988 billion for water and sewer facilities.

The Capital Improvement Program is based on the Ten Year Capital Strategy in conjunction with a review of the present condition and long-term needs of the plant and equipment constituting the System. The CIP incorporates the requirements of legal mandates, the present replacement cycle for these facilities, extensions to the present service area, and programs to enhance and optimize the operation of the System. Allowances are included in the CIP for emergency repair and replacement. An annual allowance for escalation in cost due to inflation of approximately 4% has been included, using 1993 as the base year.

The costs identified in the table below represent an aggregation of capital commitments for specific projects in each Fiscal Year. For information concerning such projects, see "APPENDIX A — REPORT ON THE ENGINEERING AND FEASIBILITY OF THE WATER AND SEWER SYSTEM SERVING THE CITY OF NEW YORK — Capital Improvement Program". The System's annual cash flow requirements are based upon these commitments and are used to determine annual construction financing needs. For a number of reasons,

including unforeseen inflation, compliance with governmental procedures and regulations and changes in plans, actual costs may vary from the Capital Improvement Program estimates set forth below.

Capital Improvement Program

(Thousands)

| | 1994 | 1995 | 1996 | 1997 | 1998 | 1994-1998 | 1999-2003 | Ten-Year Total |
|----------------------------------|------------------|--------------------|--------------------|--------------------|------------------|--------------------|--------------------|--------------------|
| Water Supply and Transmission .. | \$ 54,149 | \$ 240,395 | \$ 242,300 | \$ 329,071 | \$ 81,357 | \$ 947,272 | \$ 100,600 | \$1,047,872 |
| Water Distribution | 256,741 | 231,328 | 379,540 | 517,744 | 168,022 | 1,553,375 | 506,926 | 2,060,301 |
| Water Pollution Control | 323,251 | 807,372 | 610,969 | 291,415 | 434,150 | 2,467,157 | 2,599,070 | 5,066,227 |
| Sewers | 162,252 | 135,139 | 106,193 | 90,938 | 74,576 | 569,098 | 609,226 | 1,178,324 |
| Equipment | 128,964 | 99,103 | 150,110 | 137,110 | 47,026 | 562,313 | 73,177 | 635,490 |
| Total | <u>\$925,357</u> | <u>\$1,513,337</u> | <u>\$1,489,112</u> | <u>\$1,366,278</u> | <u>\$805,131</u> | <u>\$6,099,215</u> | <u>\$3,888,999</u> | <u>\$9,988,214</u> |

Financing Program

Prior Financing. Since the first issuance of Bonds by the Authority in 1985, capital improvements to the System have been financed primarily with (1) proceeds of Bonds sold directly to the public and privately placed with the State Environmental Facilities Corporation in connection with the revolving loan fund program described below and (2) Federal and State capital grants. (See "Debt Service Requirements").

Future Financing. The Authority estimates that approximately 94% of the cost of the CIP for Fiscal Years 1994 through 2003 will be paid from System funds, primarily proceeds of Bonds sold to the public and privately placed with the State Environmental Facilities Corporation. For purposes of forecasting cash flows for the System, the principal amount of Bonds estimated to be issued in Fiscal Years 1994 through 1998 range from approximately \$0.8 billion to \$1.4 billion per year. (See "APPENDIX B — REPORT ON FORECASTED CASH FLOWS OF THE WATER AND SEWER SYSTEM SERVING THE CITY OF NEW YORK — Forecasted Cash Flows.") However, the actual amount and timing of future Bond issues will depend upon a number of factors, including market conditions.

Historically, Federal grant funds were provided pursuant to the Clean Water Act, in a program administered by the states, for construction and reconstruction of wastewater treatment facilities. The City is currently using these grant funds for five sewage treatment plants: Oakwood Beach, Coney Island, Owls Head, Red Hook and North River. The Clean Water Act currently requires states to use Federal funds in revolving loan programs in lieu of a Federal grant program for wastewater treatment facilities. To this end, a revolving loan program has been established by the State in order to utilize Federal financial assistance together with state matching grants in a program to assist municipalities to construct eligible sewage facilities by providing subsidized loans. In addition to the financing contemplated herein, the Authority has participated in loans under the revolving loan program and anticipates further borrowing under the program. Revolving loan program funding is deemed System funds as it is obtained through the private placement of Authority bonds with the State Environmental Facilities Corporation. (See "GOVERNMENTAL REGULATION — Wastewater Regulation — Federal"). Implementation of the CIP is dependent upon the Authority's ability to market its securities successfully in the public credit markets. Sales of securities are subject to market conditions.

Water System

Tunnel 3. Stages I and II of Tunnel 3 include completion of the Brooklyn/Queens and Manhattan segments. Excavation of Stage I was completed in 1985. Since that time, all concrete lining has been finished, and valves and other mechanical equipment have been installed in approximately half of the shafts. Stage I will be operational in 1994 and will improve the reliability of the transmission system. Completion of the Brooklyn/Queens segment of Stage II will improve services to Staten Island, Brooklyn and Queens. Construction of the Manhattan segment of Stage II will follow completion of the Brooklyn/Queens segment of Stage II. Tunnel 3 will create a more flexible system, providing delivery alternatives in the event of disruption in any of the Tunnels. It will permit the shutdown of tunnels for inspection and any necessary rehabilitation.

Dam Safety Program. Engineering reports sponsored by the U.S. Army Corps of Engineers indicated that the dams and reservoirs in service in the Croton System are safe but in need of rehabilitation and reconstruction. The Boyds Corner Dam was rated unsafe and the Boyds Corner Reservoir was drained. Reconstruction of that dam was substantially completed in the fall of 1990, except for mechanical work in the gatehouse, which is expected to be completed in the fall of 1994. An ongoing dam reconstruction program has been established for rehabilitation of dams within the Croton watershed and the Kensico Dam. This program will ensure that those dams comply with the more stringent national safety standards established in 1976.

Croton Filter Project. Due to development in the watershed area, the quality of Croton System water has shown some deterioration. To ensure that water supplied by the Croton watershed meets all standards set by the NYSDOH and NYCDOH, the Croton Filter Project is being constructed. A full-scale filter plant, expected to be completed in 1999, will treat up to 450 mgd of water. A study is underway to determine the scope of work required for the reconstruction of the inner structures and equipment of certain shafts of the New Croton Aqueduct.

Trunk and Distribution Main Extension. Some developing areas within the City are in need of new or augmented service from the System. Installation of trunk and distribution mains is planned to meet these needs.

Trunk and Distribution Main Replacement. In order to maintain essential water service operations, repair and replacement of obsolete or failed trunk and distribution mains must be continually undertaken. Included in this program is water main replacement done in conjunction with highway reconstruction.

Augmentation of Water Supply Systems. A feasibility study for the expansion of the Chelsea pump station beyond its present capacity has been completed and reviewed by an intergovernmental task force. A preliminary investigation will determine the work required to develop a new source of water from the Hudson River. The project is estimated to provide from 300 to 1200 mgd.

Water Quality Preservation. Projects related to the implementation of a filtration avoidance program, include upgrading sewage treatment facilities and land acquisition in the watershed. In addition, expenditures are planned for the reconstruction of various upstate watershed facilities. These will include gatehouses, valve chambers and shafts.

Corrosion Protection System. This is a Citywide program to control and prevent external corrosion of water mains.

Brooklyn-Queens Aquifer Study. This is a study to evaluate the supply potential and determine the work that would be required to make use of the existing underground water supplies in the Brooklyn-Queens Aquifer to supplement the City's upstate reservoir supply.

Mapping and Telemetry. This is a program to design a Citywide telemetry system.

Sewer System

Chronic Malfunction and Emergency Replacement. This program provides for the replacement of sewers which have already collapsed or experience chronic malfunctions (for example, sagging, bends or improper alignment), that cannot be overcome through maintenance or experience chronic malfunction due to inadequate capacity.

Programmatic Replacement and Reconstruction. Systematic replacement of sewers constructed with what are now considered to be substandard methods and materials or with materials that have exceeded their useful life has been undertaken. This will avoid more costly future repairs and will improve the general reliability of the System.

Programmatic Response to Legal Mandates. A program to address the mandated construction of new sewers required by the Clean Water Act has been established. This construction will eliminate the occasional discharge of untreated sewage.

Replacement or Augmentation of Existing System. The combined sewers must be large enough to convey a certain amount of both stormwater and sewage flow based on population density, industrial discharges and stormwater runoff in the sewered area. Some existing sewers fail to handle this flow adequately due to events occurring subsequent to their original design. The failures usually can be attributed to one or more of the following conditions:

- Sewers meet design expectations but land use or other design conditions have changed, increasing flows to levels greater than the original maximum design flow.
- The original design criteria do not meet current standards.
- The physical integrity of the sewers is damaged through a partial collapse, blockage or uneven settling, reducing the capacity of the sewers to convey stormwater and sewage.
- Unauthorized private stormwater connections to the Sewer System add an additional flow to the sewers and displace capacity reserve for the original design flows.

The sewer projects contained within this category will increase the capacity of these sewers to adequate levels through reconstruction, repair, replacement or diversion of flow into supplemental sewer pipe. In addition, where stormwater connections are determined to be unauthorized, DEP can require private construction of stormwater collection and retention facilities.

Also included in this category are sewer projects which are undertaken primarily because other infrastructure projects make such sewer work desirable. These projects include the construction of sewers in conjunction with: other utilities (such as water, gas and electric); road reconstruction; and major land use changes (such as the Javits Convention Center).

Extensions to Accommodate New Development. The City must provide acceptable sewage disposal methods for residents within its jurisdiction and must therefore construct new sewers as required. The construction of sewers to replace septic tanks in populated areas avoids health problems associated with viruses, bacteria and other sewage-related pollutants and minimizes stormwater flooding.

Water Pollution Control

Consent Decree Construction and Upgrading. The Clean Water Act and the State Consent Decrees require construction of an intercepting sewer for one plant, and the upgrading of three plants. These projects are designed to improve the quality of the surrounding waters. The following projects are included in this segment of the CIP:

Oakwood Beach Water Pollution Control Plant Consent Decree Project: This project involves the construction of a sewer interceptor and pump stations on Staten Island. The interceptor will convey sewage from the Tottenville and South Shore drainage areas to the plant.

Coney Island Water Pollution Control Plant Upgrade: This plant provides partial secondary treatment of sewage. This upgrading involves rehabilitating the deteriorated portions of the plant, as well as constructing additional facilities to enable the plant to provide Full Secondary Treatment for up to 100 mgd of sewage. Under storm conditions, the plant will be able to treat up to 200 mgd of sewage.

Owls Head Water Pollution Control Plant Upgrade: This plant provides partial secondary treatment of sewage. This upgrading involves rehabilitating the deteriorated portions of the plant, as well as constructing additional facilities to provide Full Secondary Treatment for up to 120 mgd. Under storm conditions, the plant will be able to treat up to 240 mgd of sewage.

Newtown Creek Water Pollution Control Plant Upgrade: This plant provides partial secondary treatment of sewage and will be upgraded to provide Full Secondary Treatment. See "THE SYSTEM — The Sewer System — Sewage Treatment Facilities".

Sludge Disposal. Under Federal court order, the Ban Act, MPRSA and USEPA regulations promulgated thereunder, the System ceased ocean disposal of the sludge generated by its sewage treatment plants by

June 30, 1992 which it accomplished by interim disposal methods. The CIP contains funds for long-term disposal facilities. See "THE SYSTEM — The Sewer System — Sludge Disposal".

Plant Component Stabilization. This program includes the interim replacement and reconstruction of failing components within the plants and their related facilities necessary to maintain process reliability. In some cases, this segment of the CIP provides for the replacement or rehabilitation of plant components required prior to comprehensive reconstruction at older plants which are not yet fully upgraded. Stabilizing these plants enables the City to maintain and improve water quality.

Water Quality Mandates. During periods of heavy rainfall, a combination of stormwater and sewage bypasses treatment and is released into the City's waterways. This program provides for the study, design and construction of the facilities necessary to control the polluting effects of such releases. In addition, Infiltration/Inflow studies and SSES are a prerequisite for receipt of Federal water pollution control construction grants for construction of facilities. The purpose of these evaluations is to determine whether excess water (rain leachate or tidal flows) is entering the Sewer System, thereby reducing the effectiveness of the treatment process.

Miscellaneous Upgrading and Reconstruction. This program includes various projects undertaken to upgrade or reconstruct sewage pump stations, motor vessels, regulators and other components of the plant and treatment system.

Equipment

Conservation. Installation of water measuring devices and low-flow fixtures in order to more accurately measure water usage and encourage conservation.

Utility Relocation Related to System Construction. Funds related to the City's cost-sharing agreement with gas utilities. The City is required to pay 51 percent of utility work required as a result of water main and sewer construction projects.

Miscellaneous. Purchase of vehicles and other equipment used for System-related projects as well as the purchase and/or reconstruction of System facilities.

For further information regarding the CIP see "APPENDIX A — REPORT ON THE ENGINEERING FEASIBILITY OF THE WATER AND SEWER SYSTEM SERVING THE CITY OF NEW YORK".

DEBT SERVICE REQUIREMENTS

The following schedule sets forth the amount required to be paid during each Fiscal Year ending June 30 of the years shown for the payment of the principal (including the accreted value of all capital appreciation Bonds) of and the interest on the Bonds after giving effect to the issuance of the Series B Bonds, Series C Bonds, Series D Bonds and Series E Bonds and assuming that (i) the Series C Bonds and other Variable Rate Bonds bear interest at a fixed rate to their maturity of 4% per annum and (ii) that the Series D Bonds and Series E Bonds bear interest at the applicable Fixed Rate described in Appendix J hereto. The anticipated issuance of additional Bonds to finance the CIP is reflected in Appendix B.

| Fiscal Year Ending June 30 | Outstanding Bonds' Total Debt Service | Series B Bonds, Series C Bonds, Series D Bonds and Series E Bonds | | | Total Debt Service |
|----------------------------------|---|--|-----------------|------------------|-----------------------|
| | | Principal | Interest | Total | |
| 1994 | \$303,507,822.31 | \$ | \$29,840,120.56 | \$ 29,840,120.56 | \$333,347,942.87 |
| 1995 | 301,341,824.90 | — | 51,646,362.50 | 51,646,362.50 | 352,988,187.40 |
| 1996 | 301,568,769.87 | — | 51,646,362.50 | 51,646,362.50 | 353,215,132.37 |
| 1997 | 297,720,121.05 | — | 51,646,362.50 | 51,646,362.50 | 349,366,483.55 |
| 1998 | 297,703,280.53 | — | 51,646,362.50 | 51,646,362.50 | 349,349,643.03 |
| 1999 | 289,817,993.05 | — | 51,646,362.50 | 51,646,362.50 | 341,464,355.55 |
| 2000 | 288,509,270.14 | 8,815,000.00 | 51,646,362.50 | 60,461,362.50 | 348,970,632.64 |
| 2001 | 266,861,114.35 | 30,875,000.00 | 51,238,668.75 | 82,113,668.75 | 348,974,783.10 |
| 2002 | 261,804,276.63 | 43,240,000.00 | 49,772,106.25 | 93,012,106.25 | 354,816,382.88 |
| 2003 | 258,408,599.45 | 48,770,000.00 | 47,664,156.25 | 96,434,156.25 | 354,842,755.70 |
| 2004 | 257,788,468.65 | 51,835,000.00 | 45,225,656.25 | 97,060,656.25 | 354,849,124.90 |
| 2005 | 257,819,884.21 | 54,485,000.00 | 42,569,112.50 | 97,054,112.50 | 354,873,996.71 |
| 2006 | 253,148,497.62 | 62,005,000.00 | 39,735,892.50 | 101,740,892.50 | 354,889,390.12 |
| 2007 | 255,037,887.70 | 65,290,000.00 | 36,449,627.50 | 101,739,627.50 | 356,777,515.20 |
| 2008 | 270,626,494.18 | 53,260,000.00 | 32,940,290.00 | 86,200,290.00 | 356,826,784.18 |
| 2009 | 291,422,871.05 | 35,000,000.00 | 30,164,250.00 | 65,164,250.00 | 356,587,121.05 |
| 2010 | 303,272,249.07 | 24,750,000.00 | 28,326,750.00 | 53,076,750.00 | 356,348,999.07 |
| 2011 | 289,111,631.89 | 30,250,000.00 | 26,934,562.50 | 57,184,562.50 | 346,296,194.39 |
| 2012 | 280,385,036.35 | 32,550,000.00 | 25,233,000.00 | 57,783,000.00 | 338,168,036.35 |
| 2013 | 239,455,295.79 | 50,540,000.00 | 23,490,750.00 | 74,030,750.00 | 313,486,045.79 |
| 2014 | 237,669,129.07 | 53,240,000.00 | 20,786,050.00 | 74,026,050.00 | 311,695,179.07 |
| 2015 | 227,250,938.25 | 62,265,000.00 | 17,857,850.00 | 80,122,850.00 | 307,373,788.25 |
| 2016 | 276,845,874.75 | 15,990,000.00 | 14,445,775.00 | 30,435,775.00 | 307,281,649.75 |
| 2017 | 273,162,500.25 | 20,635,000.00 | 13,572,575.00 | 34,207,575.00 | 307,370,075.25 |
| 2018 | 252,678,112.50 | 59,310,000.00 | 12,450,150.00 | 71,760,150.00 | 324,438,262.50 |
| 2019 | 182,780,225.00 | 22,920,000.00 | 9,241,850.00 | 32,161,850.00 | 214,942,075.00 |
| 2020 | 206,949,240.00 | — | 8,000,000.00 | 8,000,000.00 | 214,949,240.00 |
| 2021 | 206,945,000.00 | — | 8,000,000.00 | 8,000,000.00 | 214,945,000.00 |
| 2022 | 206,944,406.25 | — | 8,000,000.00 | 8,000,000.00 | 214,944,406.25 |
| 2023 | — | 200,000,000.00 | 8,000,000.00 | 208,000,000.00 | 208,000,000.00 |

LABOR RELATIONS

During the last decade, there have been no strikes or major work stoppages of DEP employees affecting the System.

Approximately 5,500 of DEP's 6,000 active employees are members of labor unions which represent such employees in collective bargaining with the City. This includes approximately 2,000 laborers, mechanics, and workers in other crafts governed by the provisions of Section 220 of the State Labor Law. The salary increases of these employees are decided pursuant to the determination of the City's Comptroller as to "prevailing

rates." The approximately 2,000 DEP employees represented by District Council 37, American Federation of State, County and Municipal Employees, the approximately 350 employees represented by the Communications Workers of America and the approximately 250 employees represented by Local 237 of the International Brotherhood of Teamsters were part of a coalition of municipal unions that reached a collective bargaining settlement with the City in January 1993. The settlement, which has been ratified by the unions includes a total net expenditure increase of 8.25% over a 39 month period, ending March 31, 1995, for most of these employees.

There are approximately 500 DEP employees holding management or "original jurisdiction" positions who are not members of unions and are not covered by Labor Law Section 220, but do receive comparable benefits.

COVENANT OF THE STATE

Section 1045-t of the Act constitutes a pledge of the State to the holders of Bonds not to limit or alter the rights vested in the Authority or the Board by the Act to fulfill the terms of any agreement made with or for the benefit of the holders of the Bonds until such obligations together with the interest thereon are fully met and discharged.

PENDING LEGISLATION

From time to time bills are introduced in the State Legislature and City Council which propose to limit or restrict the rights and powers of the Authority and the Board or otherwise affect the activities of the Authority and the Board. It is not possible to predict whether any of such bills will be enacted.

LITIGATION

There is no action, suit, proceeding or investigation, at law or in equity, before or by any court, public board or body pending or, to the best knowledge of the Authority, threatened against or affecting the Authority to restrain or enjoin the issuance, sale or delivery of the Fiscal 1994 Bonds or in any way contesting or affecting the validity of the Fiscal 1994 Bonds or any proceedings of the Authority, the Board or the City taken with respect to the issuance or sale of the Fiscal 1994 Bonds or with respect to the Resolution or the pledge or application of any money or security provided for the payment of the Fiscal 1994 Bonds, or the existence or powers of the Authority or the Board.

Pursuant to the Lease and the Agreement, the City has agreed, subject to certain conditions, to indemnify the Authority and the Board against any and all liability in connection with any act done or omitted in the exercise of their powers which is taken or omitted in good faith in pursuance of their purposes under the Act. The City, however, is entitled to reimbursement by the Board for the amount of any judgment or settlement paid by the City (and not otherwise reimbursed from any other source) arising out of a tort or contract claim to the extent that the City's liability therefor is related to the operation, maintenance and improvement of the System provided, however, that the Board is not required to reimburse the City in any one year for tort claims in excess of 5% of the Revenues of the Board for such Fiscal Year.

There are numerous claims seeking damages and injunctive and other relief against the City related to the System. Except as noted below, these claims represent routine litigation incidental to the performance of the City's governmental functions in connection with the operation, maintenance and improvement of the System. The City has paid an average of approximately \$2.2 million per year from Fiscal Years 1989 through 1993 in satisfaction of tort claims relating to the operation of the System. The majority of these claims allege property damage caused by water main breaks and sewer overflows. Contract claims on water supply, sewer and water pollution control projects arise in varying amounts based on alleged change orders and related matters. Numerous lawsuits relating to construction contract claims are currently pending. While most seek under \$10 million in damages, one action seeks damages in excess of \$11 million, another seeks damages in excess of \$20 million and a third seeks damages in excess of \$40 million. While the probable outcome of these actions

cannot be determined at this time, contract claims are expected to be funded through the CIP, which may be revised from time to time to accommodate such claims as well as other changes therein.

The following paragraphs describe certain legal proceedings and claims involving the System, other than routine litigation incidental to construction, the collection of rates, fees and charges and certain other litigation arising out of alleged constitutional violations, torts, breaches of contract and other violations of law and condemnation proceedings. While the ultimate outcome of the proceedings and claims described below is not currently predictable, and unfavorable determinations in certain of them could result in substantial judgments, the City has estimated that as of June 30, 1992, potential future liability for claims involving the System was \$407 million.

Jamaica Sewer Accounts

On June 23, 1992, an action was commenced in State Supreme Court, Queens County, against the City, DEP and the Jamaica Water Supply Company ("Jamaica") seeking, among other things, a prohibition against the collection of sewer charges, and the refund of alleged overcharges, for service provided in 1989 and 1990 to System customers receiving water service from Jamaica. Such charges are collected by the Board and are included in System revenues. Plaintiffs, purporting to represent a class of similarly situated homeowners in southeastern Queens, allege that water and sewer charges for such homeowners were excessive, inaccurate and not billed in a timely manner. Subsequent to service of the City's answer to the complaint denying such allegations, plaintiffs served an amended complaint alleging various deficiencies in the measurement by Jamaica of water consumption which serves as the basis of sewer charges billed by the Board. The total amount billed for the period in question is approximately \$28 million.

Torts

1. Approximately 50 actions, including a purported class action, have been commenced against the City alleging damages of approximately \$1.5 billion arising out of an August 10, 1983 water main break and electrical blackout. On December 18, 1990, the New York State Supreme Court, New York County, dismissed all claims which sought damages for purely economic loss unaccompanied by any claim for direct physical damage. On September 14, 1993, the Appellate Division, First Department, modified this order by overturning the dismissal of the claims made against the City's co-defendant, The Consolidated Edison Company, for purely economic loss. The decision did not directly address the claims against the City and it is not clear what impact it has on those claims. The City has sought a clarification of the decision from the Appellate Division.

2. Forty actions have been commenced against the City seeking damages in excess of \$364 million for personal injuries and property damage in connection with an explosion of a Con Edison steam pipe which occurred in Gramercy Park on August 19, 1989.

Metering

On March 18, 1992, the Rent Stabilization Association of N.Y.C. Inc. and others commenced an action now in State Supreme Court, New York County, against the Board seeking a judgment declaring null and void the Board's regulations which established the Board's universal metering program. Plaintiffs allege that the Board acted in excess of its authority in requiring the installation of meters in residential properties and seek to enjoin any further meter installations or billing based on metered rates on such properties. Plaintiffs also seek refunds of any excess of metered billings above frontage rates. The Board has moved for summary judgment and its motion was granted in November 1993.

RATINGS

Moody's Investors Service ("Moody's") has rated the uninsured Series B Bonds "A." Standard & Poor's Ratings Group, a division of McGraw Hill ("S&P") has rated the uninsured Series B Bonds "A-." Fitch Investors Service, Inc. ("Fitch") has rated the uninsured Series B Bonds "A." Such ratings reflect only the

views of Moody's, S&P and Fitch from which an explanation of the significance of such ratings may be obtained. There is no assurance that any or all of such ratings will continue for any given period of time or that any or all will not be revised downward or withdrawn entirely. Any such downward revision or withdrawal could have an adverse effect on the market prices of the Series B Bonds. The ratings do not reflect any bond insurance relating to any portion of the Series B Bonds.

The Series C Bonds have not yet received the ratings described below for the Financial Guaranty Insured Bonds. However, the Series C Bonds are expected to receive such ratings upon the issuance of the bond insurance policy by Financial Guaranty on the date of delivery of the Series C Bonds.

The ratings on the AMBAC Insured Bonds, Financial Guaranty Insured Bonds and the MBIA Insured Bonds are based on the insurance policies issued by AMBAC Indemnity, Financial Guaranty and MBIA, respectively. Moody's rates the Series B Bonds insured by AMBAC Indemnity "Aaa". S&P rates the Series B Bonds insured by AMBAC Indemnity "AAA". Moody's rates the Series C Bonds insured by Financial Guaranty "Aaa/MIG 1". S&P rates the Series C Bonds insured by Financial Guaranty "AAA/A1+". Fitch rates the Series C Bonds insured by Financial Guaranty "AAA/F1+". Moody's rates the Series B Bonds, the Series D Bonds and the Series E Bonds insured by MBIA "Aaa". S&P rates the Series B Bonds, the Series D Bonds and the Series E Bonds insured by MBIA "AAA". Such ratings reflect only the views of Moody's, S&P and Fitch, from which an explanation of the significance of such ratings may be obtained. There is no assurance that such ratings will continue for any given period of time or that they will be revised downward or withdrawn entirely. Any such downward revision or withdrawal could have an adverse effect on the market prices of such Bonds.

UNDERWRITING

The Underwriters have jointly and severally agreed, subject to certain conditions, to purchase the Fiscal 1994 Bonds from the Authority at a price which is \$6,611,599.50 less than the total of the initial offering prices. The Underwriters' obligations are subject to certain conditions precedent, and they will be obligated to purchase all of the Series B Bonds, the Series D Bonds and the Series E Bonds, if any of the Series B Bonds, the Series D Bonds and the Series E Bonds are purchased. The Underwriters will be obligated to purchase all of the Series C Bonds if any of the Series C Bonds are purchased. The Fiscal 1994 Bonds may be offered and sold to certain dealers (including the Underwriters and other dealers depositing the Fiscal 1994 Bonds into investment trusts) and others at prices lower than such public offering prices and such public offering prices may be changed, from time to time, by the Underwriters. The Underwriters have designated Smith Barney Shearson Inc. as their Representative.

APPROVAL OF LEGAL PROCEEDINGS

The issuance of the Series B Bonds and Series C Bonds, the Series D Bonds and the Series E Bonds, is subject to the approval of legality by Mudge Rose Guthrie Alexander & Ferdon, New York, New York, Bond Counsel. Certain legal matters will be passed upon for the City and the Board by the City's Corporation Counsel. Certain legal matters will be passed upon for the Underwriters by Barnes, McGhee, Neal, Poston & Segue, New York, New York.

LEGALITY FOR INVESTMENT AND DEPOSIT

Under the Act, the Fiscal 1994 Bonds are made securities in which all public officials and bodies of the State and all municipalities, all insurance companies and associations and other persons carrying on an insurance business, all banks, bankers, trust companies, savings banks and savings associations, including savings and loan associations, investment companies and other persons carrying on a banking business, and administrators, guardians, executors, trustees and other fiduciaries and all other persons whatsoever, who are now or may hereafter be authorized to invest in the Fiscal 1994 Bonds or other obligations of the State, may properly and legally invest funds including capital in their control or belonging to them in such Fiscal 1994 Bonds. The Act further provides that the Fiscal 1994 Bonds are securities which may be deposited with and

may be received by all public officers and bodies of the State and all municipalities for any purposes for which the deposit of bonds or other obligations of the State is or may hereafter be authorized.

VERIFICATION OF MATHEMATICAL CALCULATIONS

Ernst & Young, Tucson, Arizona, independent certified accountants, will verify the accuracy of (i) the arithmetical and mathematical computations concerning the adequacy of the amounts and escrow securities, including investment earnings thereon, and uninvested cash, if any, in the Escrow Account together with other funds available or scheduled to be available for such purpose, to meet the anticipated redemption schedule and redemption price, and interest on the Refunded Bonds and (ii) the mathematical computations of the yield on the Series B Bonds, Series D Bonds and Series E Bonds and the yield on the Government Obligations. Such verification of the arithmetical accuracy of and mathematical computations is based upon information and assumptions supplied by the Authority.

FINANCIAL STATEMENTS

The financial statements of the New York City Water and Sewer System included in this Official Statement have been audited by KPMG Peat Marwick, independent certified public accountants, to the extent and for the periods indicated in their report thereon. Such financial statements have been included in reliance upon the report of KPMG Peat Marwick.

ENGINEERING FEASIBILITY REPORT AND FORECASTED CASH FLOWS

The engineering feasibility report in Appendix A is based upon studies by and has been included in reliance upon the authority of Metcalf & Eddy of New York, Inc. ("Metcalf & Eddy"). Metcalf & Eddy also serves as a consulting engineer to DEP on capital projects relating to the system. As a result of occasional, routine litigation initiated by third parties arising from such projects, Metcalf & Eddy and the City have from time to time been either co-parties or adverse parties in such litigation. The Forecasted Cash Flows in Appendix B have been examined by Black & Veatch, consulting engineers and management consultants, to the extent and for the periods indicated in their report thereon. Such financial forecast has been included in reliance upon the report of Black & Veatch. The Firm has provided consulting services including feasibility studies, rate studies and organizational analyses to numerous clients in the water and wastewater industry — this includes over 100 medium and large jurisdictions.

TAX EXEMPTION

The Internal Revenue Code of 1986 (the "Code"), establishes certain requirements which must be met subsequent to the issuance and delivery of the Fiscal 1994 Bonds for interest thereon to be and remain excluded from gross income for Federal income tax purposes. Noncompliance with such requirements could cause the interest on the Fiscal 1994 Bonds to be included in gross income for Federal income tax purposes retroactive to the date of issue of the Fiscal 1994 Bonds. The Authority has covenanted in the Resolution that it shall not permit the purchase of securities or obligations the acquisition of which would cause any Fiscal 1994 Bonds to be an "arbitrage bond" as defined in Section 148 of the Code, that it shall not permit the use of the proceeds of the Fiscal 1994 Bonds in a manner which would result in the loss of the exclusion of the interest on the Fiscal 1994 Bonds gross income for Federal income tax purposes and that it shall provide for any required rebate to the United States.

In the opinion of Mudge Rose Guthrie Alexander & Ferdon, Bond Counsel to the Authority, under existing law, and assuming compliance with the aforementioned covenant, interest on the Fiscal 1994 Bonds is excluded from gross income for Federal income tax purposes. Bond Counsel is also of the opinion that the Fiscal 1994 Bonds are not "specified private activity bonds" within the meaning of Section 57(a)(5) of the Code and, therefore, the interest on the Fiscal 1994 Bonds will not be treated as a preference item for purposes of computing the Federal alternative minimum tax imposed by Section 55 of the Code. Interest on Fiscal 1994 Bonds owned by corporations will, however, be taken into account in determining the alternative minimum tax imposed by Section 55 of the Code on seventy-five percent (75%) of the excess of adjusted current earnings over alternative minimum taxable income (determined without regard to this adjustment and the alternative tax net operating loss deduction). Bond Counsel is further of the opinion that the interest on

the Fiscal 1994 Bonds is exempt, under existing law, from personal income taxes of the State of New York and its political subdivisions, including The City of New York.

Bond Counsel is further of the opinion that the difference between the principal amount of the Fiscal 1994 Bonds and the initial offering price to the public (excluding bond houses, brokers, or similar persons or organizations acting in the capacity of underwriters or wholesalers) at which price a substantial amount of the Fiscal 1994 Bonds was sold constitutes original issue discount which is excluded from gross income for Federal income tax purposes to the same extent as interest on the Fiscal 1994 Bonds. Further, such original issue discount accrues actuarially on a constant interest rate basis over the term of each Fiscal 1994 Bond and the basis of a Fiscal 1994 Bond acquired at such initial offering price by an initial purchaser of such Fiscal 1994 Bonds will be increased by the amount of such accrued original issue discount. The accrual of original issue discount may be taken into account as an increase in the amount of tax-exempt income for purposes of determining various other tax consequences of owning the Fiscal 1994 Bonds, even though there will not be a corresponding cash payment. Owners of the Fiscal 1994 Bonds are advised that they should consult with their own advisors with respect to the state and local tax consequences of owning such Fiscal 1994 Bonds.

Bond Counsel has not undertaken to advise in the future whether any events after the date of issuance of the Fiscal 1994 Bonds may affect the tax status of interest on the Fiscal 1994 Bonds. No assurance can be given that future legislation, or amendments to the Code, if enacted into law, will not contain provisions which could directly or indirectly reduce the benefit of the exclusion of the interest on the Fiscal 1994 Bonds from gross income for Federal income tax purposes. Furthermore, certain requirements and procedures contained or referred to in the Resolution and other relevant documents may be changed and certain actions may be taken subsequent to the date hereof under the circumstances and subject to the terms and conditions set forth in such document, upon the advice or with the approving opinion of bond counsel. Bond Counsel expresses no opinion at this time as to the Fiscal 1994 Bonds or the interest thereon if any such change occurs or any such action is taken.

Although Bond Counsel has rendered an opinion that interest on the Fiscal 1994 Bonds is excluded from gross income for Federal income tax purposes, a Bondholder's Federal, State or local tax liability may otherwise be affected by the ownership or disposition of the Fiscal 1994 Bonds. The nature and extent of these other tax consequences will depend on such Bondholder's other items of income or deduction. Without limiting the generality of the foregoing, prospective purchasers of the Fiscal 1994 Bonds should be aware that: (i) Section 265 of the Code denies a deduction for interest on indebtedness incurred or continued to purchase or carry the Fiscal 1994 Bonds or, in the case of a financial institution, that portion of such holder's interest expense allocated to interest on the Fiscal 1994 Bonds, (ii) with respect to insurance companies subject to the tax imposed by Section 831 of the Code, Section 832(b)(5)(B)(i) reduces the deduction for loss reserves by fifteen percent (15%) of the sum of certain items, including interest on the Fiscal 1994 Bonds, (iii) interest on the Fiscal 1994 Bonds earned by some corporations could be subject to the environmental tax imposed by Section 59A of the Code, (iv) interest on the Fiscal 1994 Bonds earned by certain foreign corporations doing business in the United States could be subject to a branch profits tax imposed by Section 884 of the Code, (v) passive investment income, including interest on the Fiscal 1994 Bonds, may be subject to Federal income taxation under Section 1375 of the Code for Subchapter S corporations that have Subchapter C earnings and profits at the close of the taxable year if greater than twenty-five percent (25%) of the gross receipts of such Subchapter S corporation is passive investment income, and (vi) Section 86 of the Code requires recipients of certain Social Security and certain Railroad Retirement benefits to take into account, in determining the taxability of such benefits, receipts or accruals of interest on the Fiscal 1994 Bonds. Bond Counsel has expressed no opinion regarding any such other tax consequences.

FURTHER INFORMATION

The references herein to and summaries of Federal, State and local laws, including but not limited to the Code, the Constitution and laws of the State, the Act, the 1905 Act, the Clean Water Act, the SDWA, the Ban Act, the MPRSA, and documents, agreements and court decisions, including but not limited to the Lease, the Agreement and the Resolution, are summaries of certain provisions thereof. Such summaries do

not purport to be complete and are qualified in their entirety by reference to such acts, laws, documents, agreements or decisions. Copies of the Lease, the Agreement and the Resolution are available for inspection during normal business hours at the office of the Authority.

Any statements in this Official Statement involving matters of opinion, whether or not expressly so stated, are intended as such and not as representations of fact. Neither this Official Statement nor any statement which may have been made orally or in writing shall be construed as a contract or as a part of a contract with the original purchasers or any holders of the Fiscal 1994 Bonds.

NEW YORK CITY MUNICIPAL WATER
FINANCE AUTHORITY

By /s/ MARK PAGE
 MARK PAGE
 EXECUTIVE DIRECTOR

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**REPORT ON THE ENGINEERING
FEASIBILITY OF THE WATER AND SEWER SYSTEM
SERVING THE CITY OF NEW YORK**

TABLE OF CONTENTS

| | <u>Page</u> |
|--|-------------|
| OPINION OF METCALF & EDDY OF NEW YORK, INC | A-1 |
| INTRODUCTION | A-2 |
| Purpose and Scope of the Report | A-2 |
| Methodology and Division of Responsibilities | A-2 |
| The Consulting Engineer | A-2 |
| Conclusion of the Report | A-3 |
| THE AUTHORITY AND THE BOARD | A-3 |
| SYSTEM DESCRIPTION AND EVALUATION | A-3 |
| Water Supply System | A-4 |
| Distribution System | A-9 |
| Collection System | A-12 |
| Wastewater Treatment System | A-13 |
| Staffing Evaluation | A-16 |
| CAPITAL IMPROVEMENT PROGRAM | A-16 |
| Capital Improvement Program 1994-2003 | A-16 |
| Elements of the Capital Improvement Program | A-17 |
| 1994-1997 Current Forecast | A-20 |
| Comparison of the CIP and the 1994-1997 Current Forecast | A-21 |



Metcalf & Eddy of New York, Inc.

A Metcalf & Eddy Company

Mark Page, Executive Director
New York City Municipal Water Finance Authority
75 Park Place, 6th Floor
New York, New York 10007

Re: New York City Municipal Water Finance Authority
Water and Sewer System Revenue Bonds Fiscal 1994 Series B, Fiscal 1994 Series C,
Fiscal 1994 Series D and Fiscal 1994 Series E

Dear Mr. Page:

We are delighted to submit Metcalf & Eddy's Report on the Engineering Feasibility of the Water and Sewer System Serving The City of New York. This report is based on the work that Metcalf & Eddy has performed as consulting engineer for the New York City Water and Wastewater Operations Evaluation Project and then as consulting engineer for the Authority.

Our overall conclusion is that the water and sewer system (the "System") serving The City of New York (the "City") continues to be operated in a professional and prudent manner. Specific conclusions are listed below:

- The condition of the System continues to receive the highest rating of our three rating categories (adequate).
- The expense allocations for Fiscal Year 1994 are adequate to assure continued reliable operation of the System.
- The Capital Improvement Program (the "CIP") and the current forecast of the capital program for Fiscal Year 1994-1997 (the "1994-1997 Current Forecast") are comprehensive and responsive to the long-term operating requirements of the service area.
- Staffing for the System is adequate to assure proper operation and maintenance.

The forecasted cash flows relating to the New York City Municipal Water Finance Authority's plans to finance water and sewer facilities as specified under the CIP and the 1994-1997 Current Forecast and to fund expenditures incurred under ongoing capital contracts commenced prior to the CIP are set forth in Appendix B, "Report on the Forecasted Cash Flows of the Water and Sewer System Serving The City of New York". The forecasted cash flows were independently examined by Black & Veatch as described in Appendix B.

We have no responsibility to update this report for events and circumstances occurring after the date of this report.

Very truly yours,

METCALF & EDDY OF NEW YORK, INC.
November 10, 1993

INTRODUCTION

Purpose and Scope of the Report

The purpose of this report is to provide engineering information pertinent to the issuance of the Water and Sewer System Revenue Bonds, Fiscal 1994 Series B, Fiscal 1994 Series C, Fiscal 1994 Series D and Fiscal 1994 Series E (the "Fiscal 1994 Bonds") by the New York City Municipal Water Finance Authority (the "Authority"). This report presents the findings of engineering analysis performed by Metcalf & Eddy of New York, Inc. ("Metcalf & Eddy") regarding the water and sewer system (the "System") serving The City of New York (the "City"). Certain studies and analyses were performed in anticipation of the creation of the Authority and were used in developing this report. The following sets forth a brief outline of the major tasks addressed by this report:

- An overview of the System's service area and major facilities, including a general assessment of the capacity and condition of existing water, wastewater and drainage facilities and a review of recently completed improvements.
- An analysis of the System's Capital Improvement Program (the "CIP") for the period 1994-2003 and the 1994-1997 Current Forecast and the funding needed to carry out the CIP and ongoing capital contracts commenced prior to the CIP.
- An analysis of the management of the System and current and anticipated operating programs.

Methodology and Division of Responsibilities

This summary report has been prepared to document the results of analyses carried out during the period of August 1983 to the present by personnel of Metcalf & Eddy. Interviews with staff members of the Authority and the City were conducted, and current engineering and financial reports, System operating data and other documents were reviewed and major facilities were inspected. Audited financial statements of the City and data supplied by the Authority were also reviewed to identify historical costs and revenues. The evaluation of current needs and future conditions was made by analyzing historical data, assessing the effectiveness of current City maintenance programs, reviewing the plans of key outside agencies, and taking into account current trends and the anticipated impact of the CIP.

The physical condition of the facilities was rated by Metcalf & Eddy. A uniform rating system, standard among engineering firms providing similar services, was established consisting of three rating categories — adequate, marginal, and inadequate as described below:

- Adequate: Shows no signs of deterioration, meets design intent, and requires only routine maintenance to meet or exceed expected useful life.
- Marginal: Facility is functional but does not meet design intent, and requires non-routine maintenance or capital replacement to restore to adequate condition.
- Inadequate: Facility does not provide functional operation, and requires major reconstruction to restore to adequate condition.

The Consulting Engineer

Metcalf & Eddy has served the City as consulting engineers for over 30 years in capacities dealing with water supply, water distribution, sewage collection, and wastewater treatment. Metcalf & Eddy is one of the largest consulting engineering firms and is recognized in the United States and internationally as a leader in services to the water and sewer industry.

Since 1983 Metcalf & Eddy has provided engineering services related to the City's Water and Wastewater Operations Evaluation Study. During this period Metcalf & Eddy has performed an evaluation of the condition of the System, independently reviewed the capital plans for water and wastewater programs, and

jointly with the rate consultant reviewed the operating programs of the New York City Department of Environmental Protection ("DEP"). Twelve topics were addressed in this effort as listed below:

- Present Condition of Physical Facilities
- Remaining Useful Life of Facilities
- Reliability of Utility Systems
- Operation and Maintenance Programs
- Current Utility Use
- Maximum Existing Capacity
- Needs for Routine Maintenance, Upgrading and Expansion
- Needs for Non-Routine Maintenance, Upgrading and Expansion
- Evaluation of Legal Mandates
- Overview of Present Capital Improvement Program
- Capital Improvement Requirements
- Safety Practices and Potential for Catastrophe

Conclusion of the Report

The System is well managed and in adequate condition (the highest rating category). The CIP (\$9.988 billion) and anticipated operating programs are also sufficient for the maintenance of water and wastewater services during the forecast period. The capital budget allocation for Fiscal Year 1994 (\$849.4 million) is responsive to the long-term operating requirements of the System. The expense budget for Fiscal Year 1994 contain sufficient funds for the proper operation and maintenance of the System. Current staffing levels are adequate for operation and maintenance of existing water and wastewater facilities.

THE AUTHORITY AND THE BOARD

The Authority is a public benefit corporation created by the New York State Legislature. Among its powers, the Authority may borrow money, issue debt and enter into agreements with the City and the New York City Water Board (the "Board") for the financing of capital improvements to the System. The City is responsible for construction of capital improvements to the System financed by the Authority and the operation, maintenance and repair of the System.

The Board is a public benefit corporation of the State. The primary responsibility of the Board is to fix, revise, charge, collect and enforce rates and other charges for the System. The Board is required to establish rates that will provide adequate funds to pay the debt service on outstanding Authority indebtedness and the City's cost of operating and maintaining the System. Any surplus of funds remaining, to the extent not needed for other authorized purposes, will be deposited in an account of the Operation and Maintenance Reserve Fund and will be available either as a source of funding for System expenditures or upon the certification of the City for deposit to the Authority's Construction Fund to pay for the costs of System capital projects.

The Board has a leasehold interest in the System with a term of 40 years from July 1, 1985 or until all Bonds issued by the Authority are paid in full or provision for payment has been made, whichever is later.

SYSTEM DESCRIPTION AND EVALUATION

In order to evaluate the System, the System has been divided into four areas:

1. The water supply system includes dams, reservoirs, aqueducts, and related facilities located outside the City limits which provide water to the City (the "Water Supply System"). This system is currently managed by the Bureau of Water Supply and Wastewater Collection of DEP.

2. The water distribution system delivers water from the Water Supply System to consumers (the "Distribution System"). These facilities are also managed by the Bureau of Water Supply and Wastewater Collection of DEP.

3. The sewage collection system collects and conveys wastewater away from its sources into larger interceptor systems (the "Collection System"). This system is managed by the Bureau of Water Supply and Wastewater Collection of DEP.

4. The wastewater treatment system conveys, treats, and discharges wastewater from the Collection System. These facilities include interceptors, sewer regulators, pump stations, and treatment plants (the "Wastewater Treatment System"). This system is managed by the Bureau of Clean Water of DEP.

This report describes the service areas, present condition and remaining useful life of physical facilities of the System and the recommended CIP, and operating programs from 1994 through 1997. Based on the evaluations performed, the implementation of the CIP and operating programs over the analysis period will provide cost-effective and reliable service for the users of the System.

Water Supply System

The City has operated a public water supply system since the late 1700's. The Water Supply System currently supplies over 95% of all water used in the City from three large watershed systems located in upstate New York and a pump station at Chelsea, New York on the Hudson River (see map located between Appendices A and B). A small percentage of water used in the City is supplied by a privately-owned water company, the Jamaica Water Supply Company ("Jamaica"). In addition, the Water Supply System is obligated by law to supply water in specified quantities to municipalities in any County in which water supply facilities are located. The Water Supply System currently supplies approximately 114 million gallons per day ("mgd") of water to four counties outside the City.

The amount of water that can be safely drawn from a watershed during the drought of record is the "Dependable Yield". During the drought of record in the mid-1960's the System furnished an average of 1,290 mgd. During periods of normal rainfall watersheds supply more than the Dependable Yield. Water consumption varies by season of the year with the summer months having the largest demand and the winter months the lowest. Peak flows in the Water Supply System can exceed a rate of 2,000 mgd.

The Water Supply System obtains its water from three upstate reservoir systems, the Croton, Catskill and Delaware Systems, which include 18 reservoirs and three controlled lakes. The available storage capacity of the Water Supply System is approximately 550 billion gallons. Water is conveyed from the upstate reservoirs by gravity through large aqueducts up to 19.5 feet in diameter. Within the City water is distributed through two major tunnels and local distribution facilities. The condition of the Water Supply System is judged to be adequate (the highest rating category).

The following tables set forth the capacities and original in-service dates of the Water Supply System's collecting and balancing reservoirs and distribution facilities.

Collecting Reservoirs

| <u>Name</u> | <u>Available Capacity* (Billion Gallons)</u> | <u>Original In-Service Date</u> |
|---------------------------------------|--|---|
| Croton | | |
| New Croton | 19.0 | 1905 |
| Croton Falls Main | 14.2 | 1911 |
| Cross River | 10.3 | 1908 |
| West Branch | 8.0 | 1895 |
| Titicus | 7.2 | 1893 |
| Amawalk | 6.7 | 1897 |
| East Branch | 5.2 | 1891 |
| Muscot | 4.9 | 1905 |
| Bog Brook | 4.4 | 1892 |
| Middle Branch | 4.1 | 1878 |
| Boys Corner | 1.7 | 1873 |
| Croton Falls Diverting | 0.9 | 1911 |
| Total | 86.6 | |
| Catskill | | |
| Ashokan | 122.9 | 1915 |
| Schoharie | 17.6 | 1926 |
| Total | 140.5 | |
| Delaware | | |
| Pepacton | 140.2 | 1954 |
| Cannonsville | 95.7 | 1965 |
| Rondout | 49.6 | 1951 |
| Neversink | 34.9 | 1950 |
| Total | 320.4 | |
| Total Available Capacity | 547.5 | |

* Capacity above minimum operating level.

Balancing Reservoirs and Distribution Facilities

| <u>Name</u> | <u>Storage Capacity (Billion Gallons)</u> | <u>Original In-Service Date</u> |
|-------------------------------------|---|---|
| Balancing Reservoirs | | |
| Kensico | 30.6 | 1915 |
| Hillview | 0.9 | 1915 |
| Total | 31.5 | |
| Distribution Facilities | | |
| Central Park | 1.0 | 1862 |
| Jerome Park | 0.8 | 1905 |
| Ridgewood (basin no. 3)* | 0.1 | 1875 |
| Silver Lake (tanks) | 0.1 | 1970 |
| Total | 2.0 | |
| Total Storage Capacity | 33.5 | |

* Currently only one of three basins is operational.

In comparison to water systems of other major cities, the Water Supply System is both economical and flexible. Approximately 95% of the total water supply normally is delivered to the consumer by gravity, which virtually eliminates the need for pumping. This also makes the System's operating costs comparatively insensitive to fluctuations in the cost of power. Only about 5% of the water supply is regularly pumped to maintain the desired pressure to areas with higher elevations. From time to time in drought conditions, additional pumping is required.

For operational flexibility, the three reservoir systems were designed and built with various interconnections which permit water from one system to be introduced into and mixed with water from another. Interconnections permit the Water Supply System to mitigate localized droughts or to take advantage of excess water in any of the three watersheds. Croton System water, for example, can be introduced into the Delaware Aqueduct at West Branch, Cross River and Croton Falls Main Reservoirs; Delaware and Catskill System waters can be introduced into the Croton System at West Branch and New Croton Reservoirs, respectively.

Croton System. The Croton System watershed has a total available storage capacity of 86.6 billion gallons. The Dependable Yield of the Croton System is currently estimated to be 240 mgd or 19% of the City's total Dependable Yield.

The Croton System includes three controlled lakes and twelve reservoirs with dams across the Croton River, its three branches and three other tributaries. Operation of the Croton System commenced in 1842. The Croton System is divided into three subsystems: West Branch, Croton Falls and Muscoot.

The West Branch subsystem is comprised of Boyds Corner and West Branch Reservoirs. West Branch Reservoir is connected to both the Delaware Aqueduct and the Croton Falls Main Reservoir. Water from the West Branch Reservoir is normally fed into the Delaware Aqueduct to take advantage of the high hydraulic head available.

The Croton Falls subsystem is made up of the Bog Brook, East Branch, Croton Falls Diverting, Middle Branch, and Croton Falls Main Reservoirs. Bog Brook and East Branch Reservoirs are connected by a 10-foot tunnel. Water from Croton Falls Diverting Reservoir can flow to either Croton Falls Main Reservoir or the Muscoot Reservoir. Water from Middle Branch Reservoir flows to Croton Falls Main Reservoir. Water from Croton Falls Main Reservoir can be pumped into the Delaware Aqueduct by operating the Croton Falls Hydraulic Pump Station or can flow to the Muscoot Reservoir.

The Muscoot subsystem is made up of the Titicus, Amawalk, and Cross River Reservoirs which all empty into the Muscoot Reservoir. Water from Cross River Reservoir can also be pumped into the Delaware Aqueduct by the Cross River Hydraulic Pump Station. The Muscoot Reservoir empties into the New Croton Reservoir. Water is then conveyed through the New Croton Aqueduct to Jerome Park Reservoir in the Bronx for distribution to consumers.

Recent engineering reports sponsored by the U.S. Army Corps of Engineers indicated that the dams and reservoirs in the Croton System are safe but in need of some rehabilitation and reconstruction work. One dam in the Croton System, at Boyds Corner Reservoir, was identified as unsafe. The Boyds Corner Reservoir was drained. Reconstruction of its dam, spillway and outlet works was substantially completed in the fall of 1990 and the Reservoir is currently operational. An ongoing reconstruction program has been established and funded in the CIP. The majority of the rehabilitation includes replacement and refurbishment of the outlet works and mechanical equipment within the gatehouses, improvements to the dam structures, maintenance of grounds and enlargement of the spillway capacities. Upon completion of the proposed reconstruction all facilities in the Croton System will be in satisfactory condition and will comply with the new national dam safety guidelines established in 1976.

The quality of the water in the Croton System, the City's oldest, does not consistently meet turbidity and color standards established by the New York State Sanitary Code (the "Sanitary Code"). As a result, the New York State Department of Health ("NYSDOH") has mandated treatment to ensure the Croton System water continues to meet all quality standards. This treatment program, the Croton Filter Project, is currently under way. The key features of this program are the construction of a demonstration water treatment plant at

the Jerome Park Reservoir (which was completed in October 1988), site work improvements at the same location (to be completed by early 1994), the construction of a full-scale water treatment plant (operational by the year 2000, improvements to the distribution system in Manhattan (to be completed by early 1994), and the reconstruction of the Croton Lake Gatehouse (to be completed by early 1994). As part of this program to improve the water quality, Central Park Reservoir will be separated from the Water Supply System.

Catskill System. The total available storage capacity in the Catskill System is 140.5 billion gallons. The Dependable Yield of the Catskill System is currently estimated to be 470 mgd or 36% of the total Dependable Yield of the Water Supply System. All facilities in the Catskill System are in adequate condition.

The Catskill System is comprised of the Schoharie and Ashokan Reservoirs and the Catskill Aqueduct. The Schoharie Reservoir is formed by the Gilboa Dam across the Schoharie Creek. The Ashokan Dam across the Esopus Creek forms the Ashokan Reservoir. Catskill System water has its origin in the Esopus Creek and Schoharie Creek watersheds. These watersheds, occupying the central and eastern portions of the Catskill Mountains collect stream flow from the mountains of sparsely populated areas. The Esopus Creek watershed drains into the Hudson River and has an area of about 257 square miles. The Schoharie Creek watershed drains into the Mohawk River and has an area of about 314 square miles. The greater part of the water from these two watershed areas is stored in the Ashokan Reservoir and the balance is held in the Schoharie Reservoir.

Water from the Schoharie Reservoir is conveyed via the Shandaken Tunnel and Esopus Creek to Ashokan Reservoir and from there to Kensico Reservoir via the Catskill Aqueduct. The Catskill Aqueduct passes under the Hudson River and the New Croton Reservoir. At the New Croton Reservoir it is possible to introduce water from Ashokan Reservoir to the New Croton Reservoir. The Kensico Reservoir does not have a significant drainage area, but rather serves as a balancing reservoir for both the Catskill and Delaware Systems.

From the Kensico Reservoir Catskill System water flows to the Hillview Reservoir in Yonkers via the Catskill Aqueduct. Water is delivered from Hillview Reservoir to the City through Tunnels 1 and 2. It is also possible for the Catskill Aqueduct to bypass both Kensico and Hillview Reservoirs. Except for river crossings and a few sections of tunnel, the Catskill Aqueduct is a cut-and-cover conduit laid on grade. The Catskill System was completed between 1915 and 1927.

Delaware System. The total available storage capacity of the Delaware System is 320.4 billion gallons. The Dependable Yield of the Delaware System is estimated to be 580 mgd. which is 45% of the total Dependable Yield of the Water Supply System. All facilities in the Delaware System are in adequate condition.

The Delaware System is made up of four drainage areas, three in the Delaware River Basin and one in the Hudson River Basin. Delaware System water flows into the Neversink, Pepacton, and Cannonsville Reservoirs. The Neversink Reservoir is formed by a dam across the Neversink River which is a tributary of the Delaware River. The Downsville Dam, across the east branch of the Delaware River, forms the Pepacton Reservoir. On the west branch of the Delaware River, the Cannonsville Reservoir is formed by the Cannonsville Dam at Deposit, New York. These reservoirs are connected to the downstream Rondout Reservoir by the Neversink, East Delaware, and West Delaware Tunnels, respectively.

Rondout Reservoir is formed by the Merriman Dam across Rondout Creek, which is a tributary of the Hudson River. From Rondout Reservoir, water is conveyed via the Delaware Aqueduct to the West Branch Reservoir in the Croton System and then to Kensico Reservoir. Between the Rondout and West Branch Reservoirs, Hudson River water can be pumped into the Delaware Aqueduct from the Chelsea Pump Station. This pump station has been used only in drought situations and not during normal operating periods. Between the West Branch and Kensico Reservoirs, Croton System water can be pumped into the Delaware Aqueduct from the Croton Falls and Cross River Reservoirs. From Kensico Reservoir the Delaware Aqueduct continues on to Hillview Reservoir. Although water was available from portions of the Delaware System in 1951, the final reservoir was not completed until 1965.

Sewage Treatment Plants. The System also includes several upstate sewage treatment plants to prevent untreated sewage from being released into the watersheds. These plants were originally constructed between 1921 and 1959. Although they are still functional, many are reaching the end of their useful lives and will be undergoing reconstruction within the next 10 years. Capacities of these plants range from under 0.1 to over 0.8 mgd. The CIP contains adequate funds to maintain and improve these facilities and to insure that discharge from upstate municipalities continues to be properly treated.

Long-Term Water Supply Planning. On July 26, 1985, the Mayor's Intergovernmental Task Force on New York City Water Supply Needs (the "Task Force") was convened. The Task Force was formed to reassess the System's long-range water supply needs in light of the 1980-81 and 1985 droughts and to review the adequacy of planning efforts to meet those needs. The goal of the Task Force is to recommend what the City's long-term priorities should be and the actions that should be taken to ensure that those priorities can be achieved.

In the Interim Report of the Task Force dated February 11, 1986 (the "Interim Report"), the recommendations listed below were presented.

- Take every reasonable measure to control and contain water demand through metering, rate setting, leak detection and prevention, conservation, increased use of ground-water resources and recycling.
- Develop a supplemental supply of 200 to 300 mgd before the year 2000.
- Develop an additional water supply source, yielding between 300 and 1200 mgd to meet the long-term needs of the System.

As a result of the work of the task force, a study of system water demand was instituted in December, 1986. This study is being done as an amendment to an existing State Water Resource Management Strategy contract. In addition, a universal metering program was adopted for the System in 1986 and began in Fiscal Year 1988.

The final report of the task force concluded that expanded pumping of Hudson River water represents the only large source of supplemental supply which can be realistically developed within the next 10 to 15 years. The current CIP includes \$27 million for the design of the expansion of the Chelsea Pump Station to a maximum capacity of 300 mgd which is estimated to cost approximately \$415 million.

Chelsea Pump Station. The Chelsea Pump Station, located near Chelsea, New York on the eastern bank of the Hudson River was reactivated during the most recent drought (1989). The station operated from May 1, 1989 to May 15, 1989 under the direction of the NYSDOH. During this period a total of 1.4 billion gallons of water was pumped from the Hudson River. The Chelsea Pump Station had previously been operated during drought conditions in 1965-1966 and 1985.

The Chelsea Pump Station is capable of pumping up to 100 mgd of Hudson River water into the System. The City has submitted an application for a five-year permit to the New York State Department of Environmental Conservation ("NYSDEC") to operate the pump station on an emergency basis at the maximum rate of 100 mgd. Adjudicatory hearings commenced in April, 1988. In May, 1990, the City requested a modification of its application to propose a maximum 100 mgd withdrawal at Chelsea at an earlier stage of the drought emergency than the original permit had contemplated. Action on the request for modification must await completion of a supplemental environmental impact statement. Operation of the Chelsea Pumping Station also requires a State Pollution Discharge Elimination Systems ("SPDES") permit. However, the City may operate the Chelsea Pump Station in the event of drought emergency without the issuance of the SPDES permit, providing the City continues to pursue its application for such permit. When issued, the SPDES permit or the operating permit may require additional expenditures prior to the operation of the pumping station.

Tests made of the Hudson River water indicate that the untreated water meets virtually all Federal and State standards for treated water. Hudson River water compares favorably as to water quality to the supplies available to major population centers outside of the Hudson River Basin.

Distribution System

The Distribution System furnishes water to consumers through a series of aqueducts and tunnels and a network of distribution mains. The New Croton Aqueduct and Tunnels 1 and 2 connect water supply reservoirs to the distribution mains. From shafts located along the tunnels and from Jerome Park and Central Park Reservoirs trunk mains carry water to the service areas. Trunk mains are usually greater than 20 inches in diameter. Water then flows through successively smaller pipes for delivery to the consumer. A third water tunnel now under construction will supplement the Distribution System capacity and improve reliability. The principal elements of the Distribution System are described below.

The New Croton Aqueduct. The New Croton Aqueduct consists of two parts. The first is a masonry conduit from the inlet gatehouse located near the Old Croton Dam and three miles north of the New Croton Dam to Gatehouse No. 1 near the Jerome Park Reservoir, a distance of about 24 miles. The nominal capacity of this portion is 300 mgd. The second part is a pressurized masonry conduit running from Jerome Park Reservoir to the 135th Street gatehouse in Manhattan. This portion forms a long inverted siphon with a diameter of 12.25 feet, except in the tunnel under the Harlem River, where it was reduced to 10.5 feet to increase the velocity of current in order to prevent deposits of silt. The capacity of this section is approximately 250 mgd. In addition, a branch of the New Croton Aqueduct transmits water from Gatehouse No. 1 to the Jerome Park Reservoir.

The Catskill Aqueduct. The Catskill Aqueduct is 92 miles long and extends from the Ashokan Reservoir to Kensico and Hillview Reservoirs. Four distinct types of aqueduct construction were required due to the terrain between the Catskill Mountains and the City. The Catskill Aqueduct is for the most part a 17 feet high by 17.5 feet wide horseshoe-shaped cut-and-cover conduit. The Catskill Aqueduct is also composed of a number of steel pipe siphons and grade and pressure tunnels where topography requires. A deep rock tunnel siphon 14 feet in diameter and 1,114 feet below sea level crosses beneath the Hudson River near Cornwall. The delivery capacity of the Catskill Aqueduct from the Ashokan Reservoir to the Kensico Reservoir is about 610 mgd and about 800 mgd from the Kensico Reservoir to the Hillview Reservoir. The Catskill Aqueduct passes under the New Croton Reservoir. At this point it is possible to transfer water from Ashokan Reservoir to New Croton Reservoir.

The Delaware Aqueduct. The Delaware Aqueduct transmits water from Rondout Reservoir to West Branch Reservoir, in the Croton System, and from West Branch Reservoir to Kensico Reservoir and to Hillview Reservoir. The Delaware Aqueduct is a circular, cement-lined, pressurized, bedrock tunnel 85 miles long located 300 to 1,000 feet underground, passing beneath the Hudson River at a depth of about 600 feet below sea level. Water in this aqueduct is directed by uptake and downtake shafts to the Kensico and West Branch Reservoirs. The Delaware Aqueduct has a diameter of 13.5 feet to 19.5 feet. The capacity of the section from Rondout Reservoir to West Branch Reservoir is about 890 mgd and delivers water from the Rondout, Neversink, Pepacton and Cannonsville Reservoirs. Interconnection with the Catskill System is possible at both the Kensico and Hillview Reservoirs. The delivery capacity of the Delaware Aqueduct from West Branch to Kensico Reservoirs is about 1,045 mgd and about 1,450 mgd from the Kensico to the Hillview Reservoir.

Tunnel 1. Water from the Catskill and Delaware Systems is delivered from Hillview Reservoir into the City by a circular, cement-lined, pressurized, bedrock tunnel, reducing in diameter from 15 to 11 feet. Tunnel 1 extends 18 miles south from Hillview Reservoir through the West Bronx to Manhattan and Brooklyn. Steel and standby cast iron pipe lines extend from two terminal shafts in Brooklyn into Queens and Richmond. Tunnel 1 is located at depths of 200 to 750 feet below the street surface, thus avoiding interference with streets, buildings, subways, sewers and pipes. These depths are also necessary to secure a substantial rock covering to withstand the bursting pressure of the water inside and to afford the requisite watertightness. Tunnel 1 was placed in service in 1917 and has a capacity of approximately 1,000 mgd.

Tunnel 2. Tunnel 2 also delivers Catskill and Delaware water from Hillview Reservoir. It is a circular, cement-lined, pressurized, bedrock tunnel located at depths of 200 to 800 feet, reducing in diameter from 17 to 15 feet. Tunnel 2 extends south from Hillview Reservoir, east of Tunnel 1, through the West Bronx, under the East River at Rikers Island, through Queens and Brooklyn, connecting with Tunnel 1 at Fort Greene Park

and also at State and Nevins Streets in Brooklyn. The total length of the tunnel is 20 miles and it was placed in service in 1936. Connecting to Tunnel 2 in Brooklyn is the 10 foot diameter, 5 mile long Richmond Tunnel which was completed in 1970 and carries water to Staten Island. Tunnel 2 has a capacity of approximately 1,000 mgd.

Richmond Tunnel and Project. The Richmond Project was constructed to improve the water supply facilities for Staten Island. The principal components of the project are the Richmond Tunnel, which was completed in 1970, the Richmond Distribution Chamber, the Richmond Aqueduct and the Silver Lake underground storage tanks. The Richmond Tunnel lies 900 feet beneath Upper New York Bay and is 10 feet in diameter and approximately 5 miles long. The Silver Lake storage tanks (among the world's largest) have a combined capacity of 100 million gallons and have replaced the Silver Lake Reservoir (now Silver Lake). The Richmond Project also replaced the original water delivery facilities which served Staten Island by means of two cast iron pipelines (one 36 inches and one 42 inches in diameter) in the bed of upper New York Bay. These lines are available in case of an emergency.

Tunnel 3. Most parts of the City are supplied water through either Tunnel 1 or Tunnel 2. Although it is unlikely that a section of one of these tunnels would fail, the occurrence could leave parts of the City without water for an extended period of time. Tunnel 3 is currently under construction to guard against this possibility, to enable the two existing tunnels to be taken out of service for inspection and repair, and to provide Staten Island and other outlying areas with more water. This project is a multi-phase effort extending over many years. Planning for this project was started in the mid-1950s and construction began in 1970. Portions of Tunnel 3 are scheduled to be operating in 1994.

Tunnel 3 will be built in four stages:

- STAGE I, currently under construction and fully funded to completion in the CIP, is a 24-foot reducing to 20-foot circular, cement-lined, pressurized, bedrock tunnel 200 to 800 feet below the street surface. It is a 13-mile tunnel which extends south from Hillview Reservoir in Yonkers under Central Park Reservoir in Manhattan, and then east under the East River and Roosevelt Island to Long Island City in Queens. Stage I parallels Tunnel 1 along most of this route. Stage I has three chambers which allow interconnection with subsequent stages. Such chambers will also provide access to maintain flow control or shut sections while the remainder of Tunnel 3 continues to operate. Stage I is scheduled to be operable in 1994. Completion of Stage I will permit greater quantities of water to be delivered to the City as well as provide redundancy to protect the System in the event of failure of Tunnel 1 or Tunnel 2.
- STAGE II, fully funded in the CIP, will consist of a Brooklyn/Queens segment and a lower Manhattan segment. The Brooklyn/Queens segment will extend from the eastern end of Stage I on a route east of Tunnel 2 to supply Queens, Brooklyn and Staten Island. The lower Manhattan segment will extend south from the interconnecting chamber of Stage I at Central Park into lower Manhattan. Construction of Stage II began in 1987 and Stage II is scheduled to be operable in 2002. Completion of the Manhattan segment will provide system redundancy in Manhattan which does not presently exist and will allow Tunnel 1 to be taken out of service. The Brooklyn/Queens segment will permit greater quantities of water to be supplied to Brooklyn, Queens and Staten Island and will allow Tunnel 2 to be taken out of service.
- STAGE III will extend from Kensico Reservoir to the interconnecting chamber of Stage I south of Hillview Reservoir. It parallels the Delaware and Catskill Aqueducts between the two reservoirs. Completion of Stage III provides the System with redundancy for the Delaware and Catskill Aqueducts and allows the System to function at the higher Kensico Reservoir pressure. The completion of this stage will also permit Hillview Reservoir to be taken out of service for maintenance or in the event of contamination. This flexibility does not currently exist.
- STAGE IV would increase delivery capacity to the eastern parts of the Bronx and Queens. As now contemplated, it would extend southeast from the northern end of Stage I to Flushing, Queens, and

then southwest to interconnect with the eastern junction of Stages I and II. In addition, Stage IV could serve as an important link to Long Island in a future regional water supply system.

Water Mains. The Distribution System includes 5,783 miles of water pipe varying in size from six to 84 inches in diameter. Some pipe was installed before 1870 and approximately 6.1% is over 100 years old. The following tables set forth distribution of pipe by size and age, based on the City's 1992 fixed asset inventory files. Totals may vary due to rounding.

Water System Pipe Inventory: Diameter

| <u>Diameter (inches)</u> | <u>Length (miles)</u> |
|------------------------------|---------------------------|
| 6 | 418 |
| 8 | 2,499 |
| 12 | 1,828 |
| 16 | 170 |
| 20 | 452 |
| 24 | 52 |
| 30 | 50 |
| 36 | 71 |
| 48 | 165 |
| 54 | * |
| 60 | 40 |
| 72 | 38 |
| 84 | * |
| Total | <u>5,783</u> |

*Less than one mile in length

Water System Pipe Inventory: Age

| <u>Installation Year</u> | <u>Length (miles)</u> | <u>Percent of System</u> |
|--------------------------|---------------------------|------------------------------|
| Pre-1870 | 54 | 0.9% |
| 1870-1879 | 207 | 3.6 |
| 1880-1889 | 93 | 1.6 |
| 1890-1899 | 256 | 4.4 |
| 1900-1909 | 463 | 8.0 |
| 1910-1919 | 905 | 15.7 |
| 1920-1929 | 1,027 | 17.8 |
| 1930-1939 | 700 | 12.1 |
| 1940-1949 | 447 | 7.7 |
| 1950-1959 | 575 | 9.9 |
| 1960-1969 | 500 | 8.7 |
| 1970-1979 | 296 | 5.1 |
| 1980-1989 | 222 | 3.8 |
| 1990-1992 | 38 | 0.7 |
| Total | <u>5,783</u> | <u>100.0%</u> |

Of the 5,783 miles of pipe in service, about 3,005 miles are unlined cast iron laid before 1930. Pipe laid between 1930 and 1969 is concrete-lined cast iron and comprises about 2,222 miles of the Distribution System. Pipe laid after 1970 is concrete-lined ductile iron and comprises about 556 miles of the Distribution

System. The Distribution System also includes over 87,091 mainline valves, about 98,099 hydrants, four distribution facilities, 15 gatehouses, 15 pump stations, and eight maintenance and repair yards.

Water pressure in the Distribution System is regulated so that it ranges between 35 and 60 pounds per square inch at street level. This range is sufficient to supply water to the top of a five- or six-story building. Normally about 95% of the total consumption is delivered to the network by gravity. The system regularly operates only three staffed pump stations, one in Manhattan, one in Queens and one in Staten Island, to deliver the majority of the remaining 5% to areas of higher elevation in order to keep the pressure within the desired range. Additional pumping may be necessary during periods of drought.

The Distribution System is judged to be in adequate condition (the highest rating category) based upon evaluation of key water system parameters: water main breaks, pressure tests, flow tests and leak detection. Based on studies conducted by the U.S. Army Corps of Engineers on the fewest pipeline breaks per 1,000 miles, the Distribution System has the fourth-lowest number of such breaks of 17 major United States cities. With few exceptions, all areas served by the Distribution System enjoy reliable water supply service at adequate pressure. During peak flow periods low and inadequate pressures may exist in certain areas of the City. Parts of Staten Island, the Co-Op City complex in the Bronx and the Starrett City complex in Brooklyn require improvements either to provide greater pressure or redundant feeds to improve reliability. Growth and development resulting in increasing water demands in Staten Island also require that provision be made to supply more water to that Borough in the near future. The 48-inch trunk main currently under construction from the Richmond tanks will improve Staten Island's water pressure and system reliability. A design contract associated with Co-Op City is currently in progress, to be followed by construction within the next two years. Problems associated with the Starrett City complex will be alleviated by construction, including the installation of a 60-inch trunk main, which is now underway.

Collection System

The Collection System collects and conveys wastewater from the user's service connection to the point where the sewage is discharged into Wastewater Treatment System.

The Collection System includes approximately 6,331 miles of sewer pipe, divided into 14 drainage areas together with manholes, catch basins, and maintenance and repair yards. Some pipe in the Collection System was installed before 1870, and about 6.4% of all sewer pipe in the Collection System is over 100 years old. The following table sets forth an inventory of sewer pipe by hydraulic diameter based on the City's 1992 fixed asset inventory files. (The hydraulic diameter of a given pipe is the diameter of a circular pipe with the same cross-sectional area.)

Collection System Pipe Inventory: Hydraulic Diameter

| Hydraulic Diameter (inches) | Length (miles) |
|--|---------------------------|
| 6-10 | 1,875 |
| 11-13 | 1,701 |
| 14-19 | 931 |
| 20-29 | 360 |
| 30-39 | 473 |
| 40-49 | 373 |
| 50-59 | 89 |
| 60-89 | 290 |
| over 89 | 239 |
| Total | <u>6,331</u> |

The sewer pipe inventory by age as of June 30, 1992 is shown in the following table:

Collection System Pipe Inventory: Age

| <u>Installation Year</u> | <u>Length (miles)</u> | <u>Percent of System</u> |
|--------------------------|---------------------------|--------------------------|
| Pre-1870 | 205 | 3.2% |
| 1870-1879 | 82 | 1.3 |
| 1880-1889 | 118 | 1.9 |
| 1890-1899 | 680 | 10.7 |
| 1900-1909 | 492 | 7.8 |
| 1910-1919 | 720 | 11.4 |
| 1920-1929 | 1,020 | 16.1 |
| 1930-1939 | 991 | 15.7 |
| 1940-1949 | 593 | 9.4 |
| 1950-1959 | 590 | 9.3 |
| 1960-1969 | 440 | 6.9 |
| 1970-1979 | 225 | 3.6 |
| 1980-1989 | 121 | 1.9 |
| 1990-1992 | 54 | 0.8 |
| Total | <u>6,331</u> | <u>100.0%</u> |

The Collection System is in adequate condition (the highest rating category) based on evaluation of Infiltration/Inflow studies. These studies have been completed for 13 of the 14 drainage areas and indicate that infiltration rates in the Collection System are relatively low. In addition to the results of Infiltration/Inflow studies prepared by consultants, the Bureau of Water Supply and Wastewater Collection has extensive data available from in-house studies assessing the adequacy of pipelines. This information is considered when developing capital projects. Maintenance yards in the Collection System are generally adequate for their purpose. Minor repair work and relocation of these yards is planned to correct deficiencies. Some sewer maintenance equipment is at or has exceeded its useful life and is scheduled for replacement.

The System must also provide new or larger sewers to serve newly developed sections of the City, particularly in Staten Island. In recent years the Bureau of Water Supply and Wastewater Collection has undertaken an extensive review of sewer service throughout the City. This review has led to the inclusion of two sewer construction programs in the CIP. The first program addresses the augmentation of sewer lines in areas of the City which are undergoing rapid development or where land use patterns have changed. The second program will provide sewers in areas which are not presently served.

Wastewater Treatment System

The Bureau of Environmental Engineering of DEP is responsible for the design and construction, and the Bureau of Clean Water of DEP is responsible for the operation and maintenance of all facilities related to the treatment of sewage, including 14 currently operating water pollution control plants, eight sludge dewatering facilities, one storm-overflow retention plant, 88 pump stations, five wastewater laboratories and three inner-harbor vessels (the "Wastewater Treatment System"). Overall the condition of the Wastewater Treatment System is judged to be adequate (the highest rating category).

Public officials and local conservationists have been concerned with water pollution control for over a century. The first water pollution control facility in the City was opened in 1886, when a small plant was constructed in Coney Island to protect the bathing beaches. In 1931 a massive plant construction program was begun to construct a system of water pollution control plants and associated facilities to treat and control all wastewater produced within the City. The first of these modern plants, Coney Island, opened in 1935 and three more large plants, Wards Island, Tallmans Island and Bowery Bay, were placed into operation before the

end of the decade. During the 1940s two other plants, Jamaica and 26th Ward, were opened. The postwar years witnessed an intensified effort and by 1968 twelve major plants were in operation treating about 1,000 mgd at an average removal efficiency of about 65%. This was at a time when most other urban areas were providing only about 35% removal efficiency.

In 1972 the City began a program of upgrading its existing plants to operate in conformance with the requirements of the Federal Clean Water Act (the "Clean Water Act"), which requires effluent suspended solids and five day biological oxygen demand (BOD₅) to be 30 milligrams per liter ("mg/l") or less, or that the plant remove 85% or more of these pollutants, whichever provision is more stringent ("Full Secondary Treatment"). Eleven of the System's 14 plants have already been upgraded at a construction cost of \$1.4 billion. In 1983 the City commenced the upgrading to Full Secondary Treatment of an additional two plants in Brooklyn, Owls Head and Coney Island. Upgrading of these plants will be completed in 1995 and 1994, respectively, at an estimated total cost of \$1.1 billion.

In December 1991, NYSDEC withdrew its approval of the Newtown Creek facility plan to bring it to Full Secondary Treatment, because it included technology that had caused operational problems at North River. The schedule for the planned upgrade of the Newtown Creek facility is under discussion with the State. The CIP includes approximately \$800 million to initiate this upgrade.

Issues of treatment capacity have been raised at the Newtown Creek, Wards Island, Coney Island and North River plants. Conservation measures have reduced the flow to the Wards Island plant but it is still necessary to increase the plant's capacity to 270 mgd. The CIP includes \$100 million for this interim expansion and upgrade. Interim conservation measures have reduced flow to the Newtown Creek plant to below its permitted capacity.

DEP believes that the actual capacity of the Coney Island plant exceeds its current rating and can accommodate expected flow. DEP is therefore seeking an increase to the Coney Island plant's rated capacity from the State.

Currently DEP is addressing issues of odor control, air emissions and excess flow in accordance with a consent order for its North River plant.

Beginning in Fiscal Year 1994, DEP initiated a program to encourage the installation of low-flow toilets which should reduce flow to the System's sewage treatment plants. The issue of how to most effectively deal with excess flows in the East River portion of the System will be evaluated as part of the Newton Creek facility plan.

During periods of heavy rainfall a combination of stormwater and sewage bypasses treatment and is released into the City's waterways via combined sewer overflows ("CSO"). The CSO Abatement Program provides for studies, design and construction of facilities to address this issue. The CIP includes over \$1.6 billion for this program.

The System operates and maintains 88 wastewater pump stations located throughout the City. These stations are used to convey wastewater over long distances, to drain low-lying areas, and to lift wastewater to treatment plants. Many of the stations were constructed in the 1930s and earlier. The majority of the stations are in need of some reconstructive work. The CIP includes an ongoing program to reconstruct and refurbish stations.

The System has 490 sewer regulators and 552 tide gates which control flow in the Collection System. Recent inspections of the regulator system have found it to be structurally adequate, but many portions are in need of mechanical reconstruction. A detailed evaluation of the regulator and tide gate system has been completed and funds have been provided in the CIP for mechanical refurbishment of these facilities.

The following table describes wastewater treatment plants currently in service.

Water Pollution Control Facilities

| <u>Plants in Service</u> | <u>Design Capacity (mgd)</u> | <u>Year of Completion</u> | <u>Completion of Upgrading to Full Secondary Treatment or Reconstruction</u> |
|----------------------------------|--------------------------------------|-------------------------------|--|
| Newtown Creek | 310 | 1967 | — (1) |
| Wards Island | 250 | 1937 | 1979 |
| Hunts Point | 200 | 1952 | 1978 |
| Bowery Bay | 150 | 1939 | 1978 |
| Owls Head | 120 | 1952 | 1995 |
| Coney Island | 100 | 1935 | 1994 |
| Jamaica | 100 | 1943 | 1978 |
| 26th Ward (2) | 85 | 1944 | 1979 |
| Tallmans Island | 80 | 1939 | 1978 |
| Port Richmond | 60 | 1953 | 1979 |
| Rockaway | 45 | 1952 | 1978 |
| Oakwood Beach | 40 | 1956 | 1979 |
| North River | 170 | 1986 | 1991 |
| Red Hook | 60 | 1987 | 1989 |
| Total System-wide Capacity | <u>1,770</u> | | |

(1) Currently under discussion with the State.

(2) There is a storm-overflow retention facility at Spring Creek, which is connected to the 26th Ward Plant.

All but three of the plants listed above currently use the step aeration process which meets Federal requirements for full secondary treatment. The Coney Island and Owls Head plants are being converted to this process from the less efficient modified aeration process. The schedule for the upgrade of the Newtown Creek plant is currently under discussion with the State.

The useful life of some of the mechanical components of the Wastewater Treatment System is less than 20 years. To maintain desired treatment levels, corrective and preventive maintenance programs are carried out and periodic major refurbishment of such mechanical components is provided for in the CIP.

Sludge Disposal. Pursuant to a consent decree (the "Consent Decree") under the Marine Protection, Research and Sanctuaries Act of 1972 ("MPRSA") as amended by the Ocean Dumping Ban Act of 1988 (the "Ban Act"), DEP ceased the ocean disposal of sludge in June 1992.

The Consent Decree required the implementation of interim measures and a long-term program for land-based disposal of sludge. As part of the interim measures, DEP is operating facilities to dewater its sludge and reduce its volume. Sludge dewatering facilities are located at eight of the sewage treatment plants and have capacity to dewater all of the sludge generated by the System. DEP has contracted with various private firms for the beneficial use or disposal of its dewatered sludge. Firms are disposing of the dewatered sludge through the use of a fully permitted landfill facility and through land application. One private firm began operation of a thermal drying facility with a capacity of 220 dry tons per day in the Bronx in August 1993. Currently, over 85 percent of the total volume of sludge produced is being beneficially used. The eight dewatering facilities are currently operable and cost approximately \$850 million to construct. The City's financial plan includes \$100 million in each year for contracts with private vendors to dispose of the dewatered sludge. The Manhattan District Attorney's office is investigating the procurement of contracts relating to the interim sludge program.

The Consent Decree also requires DEP to develop and implement long-term solutions for sludge disposal capable of processing 50% of the City's sludge by December 31, 1995 and 100% by June 30, 1998. In

accordance with the Consent Decree, DEP approved a Long Range Sludge Management Plan in May 1991, which was modified in April 1992 and again in June 1993. Such plan is designed to provide for recycling or beneficial use of sludge. The plan will utilize four technologies: thermal drying, chemical stabilization, composting and land application of liquid or dewatered sludge. The modified plan provides for a total average processing capacity of 621 dry tons per day. The required facilities will be located throughout the City and include the thermal drying facility currently operating in the Bronx. Although the City did not meet its September 1, 1992 milestone regarding the commencement of the final design for City-owned long-term facilities, DEP has negotiated a modification to the Consent Decree changing this milestone to June 1, 1993. The final design for these facilities was begun prior to June 1, 1993. The CIP includes \$1.1 billion for the construction of long-term disposal facilities.

Ocean disposal fees and penalties imposed by the Ban Act and the Consent Decree were paid through September 14, 1993. The Ban Act and the Consent Decree provide that 85% of the fees and penalties paid shall be deposited into a Trust Account and shall be available to reimburse the City for costs incurred for developing alternative sludge disposal facilities. As of September 14, 1993, the value of the Trust Account was approximately \$78 million. A portion of the balance of the fees and penalties was paid to USEPA with the remainder divided equally between the New York State Water Pollution Control Revolving Fund and the New York State Clean Oceans Fund. Amounts paid to the Clean Oceans Fund are also available to reimburse the City for the costs of developing alternative sludge management programs.

Staffing Evaluation

Current Staffing. Current staffing levels are adequate for operation and maintenance of existing water and wastewater facilities.

Future Staffing. To assure that staffing levels will continue to be adequate a review of DEP's manpower planning process was undertaken. The planning process was found to be comprehensive and responsive to the long-term needs of the System. It is concluded, therefore, that future staffing should be adequate to implement the CIP and associated operating programs.

CAPITAL IMPROVEMENT PROGRAM

Capital Improvement Program 1994-2003

On May 4, 1993 the City announced a Ten-Year Capital Strategy for Fiscal Years 1994-2003 (the "Ten-Year Capital Strategy"), which provides for the rebuilding of the City's infrastructure, including water and sewer facilities. The City's Ten-Year Capital Strategy included projected expenditures of \$9.988 billion for water and sewer facilities.

The Capital Improvement Program (the "CIP") is based on the Ten-Year Capital Strategy in conjunction with a review of the present condition and long-term needs of the plant and equipment constituting the System. The CIP incorporates the requirements of legal mandates, the present replacement cycle for these facilities, extensions to the present service area, and programs to enhance and optimize the operation of the System. Adequate allowances are included in the CIP for emergency repair and replacement.

An annual allowance for escalation in cost due to inflation of approximately 4% has been included, using 1993 as the base year. The costs identified in the following table represent estimated capital commitments for specific projects in each Fiscal Year. The System's annual cash flow requirements are based upon these commitments and are used to determine annual construction financing needs.

The sequence of projects in the CIP is based on the relative need and importance of each improvement as determined by a uniform rating system used by the Bureaus of Water Supply and Wastewater Collection, Clean Water and Environmental Engineering. The time required for planning and design work, legally

mandated schedules, and the extent to which modifications and extensions to the System could be implemented without affecting ongoing operations were also considered.

The validity of the ten year Capital Improvement Program for water and sewer facilities was evaluated independently under this study. We concluded that the plan was comprehensive and responsive to the long-term needs of the operation of the System.

Elements of the Capital Improvement Program

Water Supply and Transmission.

Tunnel 3 — Stage I: This stage consists of 13 miles of tunnel from Hillview Reservoir in Yonkers passing under Central Park in Manhattan and then east under the East River and Roosevelt Island to Long Island City in Queens. Stage I parallels Tunnel 1 most of this route. This leg of the tunnel will improve the reliability of the water supply system.

Tunnel 3 — Stage II: This stage consists of a section from Roosevelt Island to Brooklyn and Queens and a section from Central Park to lower Manhattan. Funding for completion of both sections is included in the CIP. Completion of this stage will improve delivery reliability and service pressures.

Miscellaneous Expenditures: This program will provide for greater control of water pressure in the Delaware System.

Water Distribution.

Augmentation of Water Supply Systems: This program includes the design of water supply facilities to provide 300 mgd from the Hudson River.

Water Quality Preservation: This program provides for upstate sewage treatment plant reconstruction, road resurfacing, the covering of Hillview reservoir, land acquisitions and the annual upgrading of upstate facilities.

Trunk and Distribution Main Replacement: This program consists of the replacement of mains prone to failure and those affected by sewer and highway programs. The program to avoid pipeline breaks includes the systematic replacement of small diameter water mains and mains installed prior to 1870.

Trunk and Distribution Main Extension: This program will provide improved reliability and redundancy within the Water Supply System. Specific areas have been targeted to prevent low pressure during peak demand periods and to ensure emergency service.

Croton Filter Project: This program will provide facilities to ensure that water from the Croton System consistently meets turbidity, bacteriological and chemical standards set by the State.

Dam Safety Program: This program will bring dams in the System into compliance with recently established national standards.

Miscellaneous Expenditures:

(a) *Corrosion Protection System.* This is a citywide program to control and prevent external corrosion of water mains.

(b) *Brooklyn-Queens Aquifer Study.* This is a study to determine supply potential and the work that would be required to make use of the existing underground water supplies in the Brooklyn-Queens Aquifer to supplement the System's upstate reservoir supply.

(c) *Mapping and Telemetry.* Design of a citywide telemetry system.

Water Pollution Control.

Consent Decree Construction and Upgrading: This program provides for the upgrading of the Coney Island, Owls Head and Newtown Creek plants to provide Full Secondary Treatment as required by the Clean Water Act and construction of the interceptor for the Oakwood Beach plant. See "SYSTEM DESCRIPTION AND EVALUATION — Wastewater Treatment System".

Water Quality Mandates: This program will provide for studies, design, and construction to eliminate impact of wastewater bypass during periods of heavy rainfall and to reduce pollution in tributaries around the City. It also includes studies pursuant to Section 208 of the Clean Water Act to assess the impact of industrial wastes, runoff and tidal flows on treatment plant operation.

Plant Upgrading and Reconstruction: This program will provide for the upgrading and reconstruction of plants to ensure continuous and reliable operation.

Plant Component Stabilization: This program will provide for interim reconstruction necessary to maintain process reliability before full-scale reconstruction takes place.

Sludge Disposal: This program will provide for design and construction of long term sludge disposal facilities as required by the Ban Act.

Sewers.

Replacement of Chronically Failing Components: This program includes replacement of components of the Sewer System that have already collapsed or that experience chronic malfunction which maintenance fails to correct. In addition, it includes replacement of components which experience chronic malfunction due to inadequate capacity.

Programmatic Replacement and Reconstruction: This program provides for systematic replacement of cement sewers in Brooklyn and Queens and lining of brick sewers.

Programmatic Response to Regulatory Mandates: This program allocates funds to the construction of sewers to eliminate the discharge of untreated sewage into the surrounding bodies of water as dictated by Section 208 of the Clean Water Act.

Replacement or Augmentation to Existing System: This program allocates funds for construction to increase the capacity of sewers by increasing their size or installing additional pipes to provide proper service levels. It also provides for the replacement of components which will be affected by other construction programs.

Extension to Accommodate New Development: This program will provide sewer service in portions of the City where such service is not available at present.

The CIP illustrated on the following table was published in May 1993. Actual construction costs to be incurred may vary from the estimates shown due to changes in business conditions, service requirements, environmental requirements, and availability and cost of equipment, labor and materials.

**Capital Improvement Program
(thousands)**

| | 1994 | 1995 | 1996 | 1997 | 1998 | 1999 | 2000 | 2001 | 2002 | 2003 | TOTAL |
|---|-----------|-----------|-----------|-----------|---------|-----------|-----------|---------|---------|---------|-----------|
| WATER SUPPLY AND TRANSMISSION | | | | | | | | | | | |
| City Tunnel No. 3, Stage 1 | \$ 17,126 | \$ 9,012 | \$ — | \$ — | \$ — | \$ — | \$ 92,000 | \$ — | \$ — | \$ — | \$ 26,138 |
| City Tunnel No. 3, Stage 2 | 37,023 | 231,383 | 242,300 | 327,035 | 81,357 | 8,600 | — | — | — | — | 1,019,698 |
| Miscellaneous Programs | — | — | — | 2,036 | — | — | — | — | — | — | 2,036 |
| Subtotal | 54,149 | 240,395 | 242,300 | 329,071 | 81,357 | 8,600 | 92,000 | — | — | — | 1,047,872 |
| WATER DISTRIBUTION | | | | | | | | | | | |
| Augmentation of Water Supply System | — | — | — | — | — | 27,145 | — | — | — | — | 27,145 |
| Water Quality Preservation | 113,010 | 143,825 | 28,000 | 53,518 | 24,733 | 10,000 | 10,000 | 180,096 | 10,000 | 10,000 | 583,182 |
| Trunk & Distribution Main Replacement | 103,553 | 32,656 | 61,485 | 49,834 | 36,867 | 29,694 | 37,639 | 17,685 | 24,023 | 17,883 | 411,319 |
| Trunk & Distribution Main Extension | 37,278 | 12,502 | — | 39,691 | 14,391 | 6,217 | 33,198 | — | — | 7,428 | 150,705 |
| Croton Filter Project | — | 5,072 | 232,000 | 310,000 | 50,100 | — | — | — | — | — | 597,172 |
| Dam Safety Program | — | 37,273 | 52,959 | 64,701 | 41,931 | — | — | 50,000 | — | — | 246,864 |
| Miscellaneous Expenditures | 2,900 | — | 5,096 | — | — | 35,918 | — | — | — | — | 43,914 |
| Subtotal | 256,741 | 231,328 | 379,540 | 517,744 | 168,022 | 108,974 | 80,837 | 247,781 | 34,023 | 35,311 | 2,060,301 |
| WATER POLLUTION CONTROL | | | | | | | | | | | |
| Consent Decree Upgrading/Construction | 101,084 | 58,296 | — | 20,000 | 19,000 | 252,145 | — | 210,000 | — | 350,000 | 1,010,525 |
| Water Quality Mandates | 72,370 | 57,610 | 7,984 | 166,375 | 341,150 | 459,750 | 385,000 | 47,125 | 95,000 | 20,000 | 1,652,364 |
| Plant Upgrading & Reconstruction | 47,321 | 65,966 | 45,485 | 41,740 | 33,000 | 36,800 | 43,500 | 105,350 | 43,000 | 44,500 | 506,662 |
| Plant Component Stabilization | 71,153 | 110,500 | 67,500 | 63,300 | 41,000 | 55,000 | 143,500 | 46,200 | — | 112,200 | 710,353 |
| Sludge Disposal | 31,323 | 515,000 | 490,000 | — | — | 150,000 | — | — | — | — | 1,186,323 |
| Subtotal | 323,251 | 807,372 | 610,969 | 291,415 | 434,150 | 933,695 | 572,000 | 408,675 | 138,000 | 526,700 | 5,066,227 |
| SEWERS | | | | | | | | | | | |
| Replacement of Chronically Failing Components | 54,532 | 49,373 | 46,405 | 51,199 | 47,760 | 49,125 | 48,275 | 68,579 | 64,230 | 82,169 | 561,647 |
| Programmatic Replacement/Reconstruction | 10,786 | 12,675 | 9,892 | 8,889 | 9,665 | 9,268 | 4,763 | 7,629 | 4,900 | 5,000 | 83,467 |
| Programmatic Response to Legal Mandates | 6,060 | — | 16,373 | — | — | — | — | — | — | — | 22,433 |
| Replacement or Augmentation to Existing Systems | 21,560 | 11,739 | — | — | — | 3,600 | — | 12,268 | 26,552 | 13,415 | 89,134 |
| Extension to Accommodate New Development | 69,314 | 61,352 | 33,523 | 30,850 | 17,151 | 17,426 | 14,938 | 72,080 | 35,692 | 69,317 | 421,643 |
| Subtotal | 162,252 | 135,139 | 106,193 | 90,938 | 74,576 | 79,419 | 67,976 | 160,556 | 131,374 | 169,901 | 1,178,324 |
| EQUIPMENT | | | | | | | | | | | |
| Plumbing Retrofit Program | 67,000 | 50,000 | 85,000 | 85,000 | — | — | — | — | — | — | 287,000 |
| Universal Metering | 31,000 | 31,000 | 31,000 | 31,000 | 31,000 | — | — | — | — | — | 155,000 |
| Other Equipment | 30,964 | 18,103 | 34,110 | 21,110 | 16,026 | 16,261 | 13,744 | 13,858 | 14,650 | 14,664 | 193,490 |
| Subtotal | 128,964 | 99,103 | 150,110 | 137,110 | 47,026 | 16,261 | 13,744 | 13,858 | 14,650 | 14,664 | 635,490 |
| TOTAL FUNDS | 925,357 | 1,513,337 | 1,489,112 | 1,366,278 | 805,131 | 1,166,949 | 826,557 | 830,870 | 318,047 | 746,576 | 9,988,214 |
| Total System Funds | 849,447 | 1,440,393 | 1,451,987 | 1,333,278 | 772,131 | 1,131,749 | 751,482 | 699,792 | 318,047 | 614,866 | 9,363,172 |
| Total Non-System Funds | 75,910 | 72,944 | 37,125 | 33,000 | 33,000 | 35,200 | 75,075 | 131,078 | — | 131,710 | 625,042 |

Current Capital Program Forecasts 1994-1997

In September 1993, DEP revised the forecast capital program levels for Fiscal Year 1994-1997 as set forth below (the "1994-1997 Current Forecast").

1994-1997 CURRENT FORECAST (Thousands)

| SYSTEM FUNDS | 1994 | 1995 | 1996 | 1997 | Total |
|--|------------------|--------------------|--------------------|--------------------|--------------------|
| WATER SUPPLY AND TRANSMISSION | | | | | |
| Tunnel 3 Stage I | \$ 19,007 | \$ 10,712 | — | — | \$ 29,719 |
| Tunnel 3 Stage II | 45,000 | 197,650 | \$ 275,000 | \$ 300,000 | 817,650 |
| Miscellaneous Expenditures | — | — | — | 2,036 | 2,036 |
| Subtotal | 64,007 | 208,362 | 275,000 | 302,036 | 849,405 |
| WATER DISTRIBUTION | | | | | |
| Augmentation of Water Supply Systems | — | — | — | — | — |
| Water Quality Preservation | 109,907 | 187,038 | 40,000 | 153,253 | 490,198 |
| Trunk and Distribution Main Replacement | 114,211 | 60,958 | 44,125 | 39,838 | 259,132 |
| Trunk and Distribution Main Extension | 392 | 12,502 | 4,493 | 5,651 | 23,038 |
| Croton Filter Project | 146 | 5,072 | 232,000 | 310,000 | 547,218 |
| Dam Safety Program | — | 33,884 | 52,959 | 64,701 | 151,544 |
| Miscellaneous Expenditures | 2,900 | — | 5,096 | — | 7,996 |
| Subtotal | 227,556 | 299,454 | 378,673 | 573,443 | 1,479,126 |
| WATER POLLUTION CONTROL | | | | | |
| Consent Decree Upgrading and Construction | 80,715 | 24,904 | 5,000 | 20,000 | 130,619 |
| Water Quality Mandates | 43,503 | 105,632 | 7,984 | 166,375 | 323,494 |
| Plant Upgrading and Reconstruction | 49,384 | 63,902 | 45,485 | 41,740 | 200,511 |
| Plant Component Stabilization | 38,352 | 55,290 | 30,375 | 30,300 | 154,317 |
| Sludge Disposal | 16,738 | 528,520 | 490,000 | — | 1,035,258 |
| Subtotal | 228,692 | 778,248 | 578,844 | 258,415 | 1,844,199 |
| SEWERS | | | | | |
| Replacement of Chronically Failing Components | 63,549 | 45,152 | 46,405 | 51,199 | 206,305 |
| Programmatic Replacement and Reconstruction | 8,573 | 7,937 | 9,892 | 8,889 | 35,291 |
| Programmatic Response to Regulatory Mandates | 8,277 | — | 16,373 | — | 24,650 |
| Replacement or Augmentation to Existing System ... | 15,672 | 18,634 | — | — | 34,306 |
| Extension to Accommodate New Development | 67,493 | 63,402 | 33,523 | 30,850 | 195,268 |
| Subtotal | 163,564 | 135,125 | 106,193 | 90,938 | 495,820 |
| EQUIPMENT | 118,900 | 129,431 | 155,938 | 138,726 | 542,995 |
| Total System Funds | 802,719 | 1,550,620 | 1,494,648 | 1,363,558 | 5,211,545 |
| STATE FEDERAL AND PRIVATE FUNDS | | | | | |
| WATER DISTRIBUTION | | | | | |
| Trunk and Distribution Main Replacement | 50 | — | — | — | 50 |
| Water Quality Preservation | 546 | — | — | — | 546 |
| Subtotal | 596 | — | — | — | 596 |
| WATER POLLUTION CONTROL | | | | | |
| Consent Decree Upgrading and Construction | 64,041 | 29,619 | — | — | 93,660 |
| Water Quality Mandates | 621 | 0 | — | — | 621 |
| Plant Component Stabilization | 23,650 | 41,250 | 37,125 | 33,000 | 135,025 |
| Sludge Disposal | — | 12,980 | — | — | 12,980 |
| Subtotal | 88,312 | 83,849 | 37,125 | 33,000 | 242,286 |
| Total State and Federal Funds | 88,908 | 83,849 | 37,125 | 33,000 | 242,882 |
| TOTAL FUNDS — ALL SOURCES | <u>\$891,627</u> | <u>\$1,634,469</u> | <u>\$1,531,773</u> | <u>\$1,396,558</u> | <u>\$5,454,427</u> |

Comparison of the CIP and the 1994-1997 Current Forecast

The differences between the 1994-1997 Current Forecast and the CIP reflect an increase of approximately \$24 million in the State and Federal funds and a decrease of approximately \$136 million in System funds. The following table presents a comparison of the 1994-1997 portion of the CIP with the 1994-1997 Current Forecast. A discussion of major changes follows this table.

Comparison of 1994-1997 Current Projections

(Thousands)

| | <u>CIP 1994-1997</u> | <u>1994-1997 Current Forecast</u> | <u>Increase/ (Decrease)</u> |
|--|--------------------------|---|---------------------------------|
| SYSTEM FUNDS | | | |
| Water Supply and Transmission | \$ 865,915 | \$ 849,405 | \$ (16,510) |
| Water Distribution | 1,381,007 | 1,479,126 | 98,119 |
| Water Pollution Control | 1,818,374 | 1,844,199 | 25,825 |
| Sewers | 494,522 | 495,820 | 1,298 |
| Equipment | 515,287 | 542,995 | 27,708 |
| Total System Funds | <u>\$5,075,105</u> | <u>\$5,211,545</u> | <u>\$136,440</u> |
| STATE FEDERAL & PRIVATE FUNDS | | | |
| Water Distribution | 4,346 | 596 | (3,750) |
| Water Pollution Control | 214,633 | 242,286 | 27,653 |
| Total | 218,979 | 242,882 | 23,903 |
| Total Funds All Sources | <u>\$5,294,084</u> | <u>\$5,454,427</u> | <u>\$160,343</u> |

Overall there were not any significant changes between the current forecast and the CIP except in the Water Distribution category. In this category \$66 million was added to the 1994-97 program for additional land purchases in the watershed. Further, the construction of the Hillview Reservoir cover was outside the 1994-97 program. However, this project has been advanced into the 1994-97 current forecast. There was also some rescheduling of water main replacement and extension projects which affected the forecast including advancing \$37 million into 1993 that was scheduled for commitment in the CIP in 1994.

The actual work done in any given year will differ from that outlined in the CIP. Likewise, actual forecasts of the capital program contained in the 1994-1997 Current Forecast, since they are revised more frequently than the ten-year plan embodied in the CIP, have differed and will differ from those of the CIP. Projections contained in the CIP concerning routine replacement and extension work on the System and its components are likely to vary from actual performance. Generally, work, occurs more slowly in aggregate than originally projected. The CIP presents the maximum authorized levels of work, however, unforeseen events may result in delays. Timing of this work is not critical to the welfare of the System. Works projected in the CIP substantially exceed those levels required in order to maintain the currently top-rated condition of the System.

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| Plant Location | Capacity (MGD) |
|----------------|----------------|
|----------------|----------------|

MANHATTAN

| | |
|--------------|-----|
| Wards Island | 250 |
| North River | 170 |

BRONX

| | |
|-------------|-----|
| Hunts Point | 200 |
|-------------|-----|

BROOKLYN

| | |
|---------------|-----|
| Newtown Creek | 310 |
| 26th Ward | 85 |
| Coney Island | 100 |
| Red Hook | 60 |
| Owls Head | 120 |

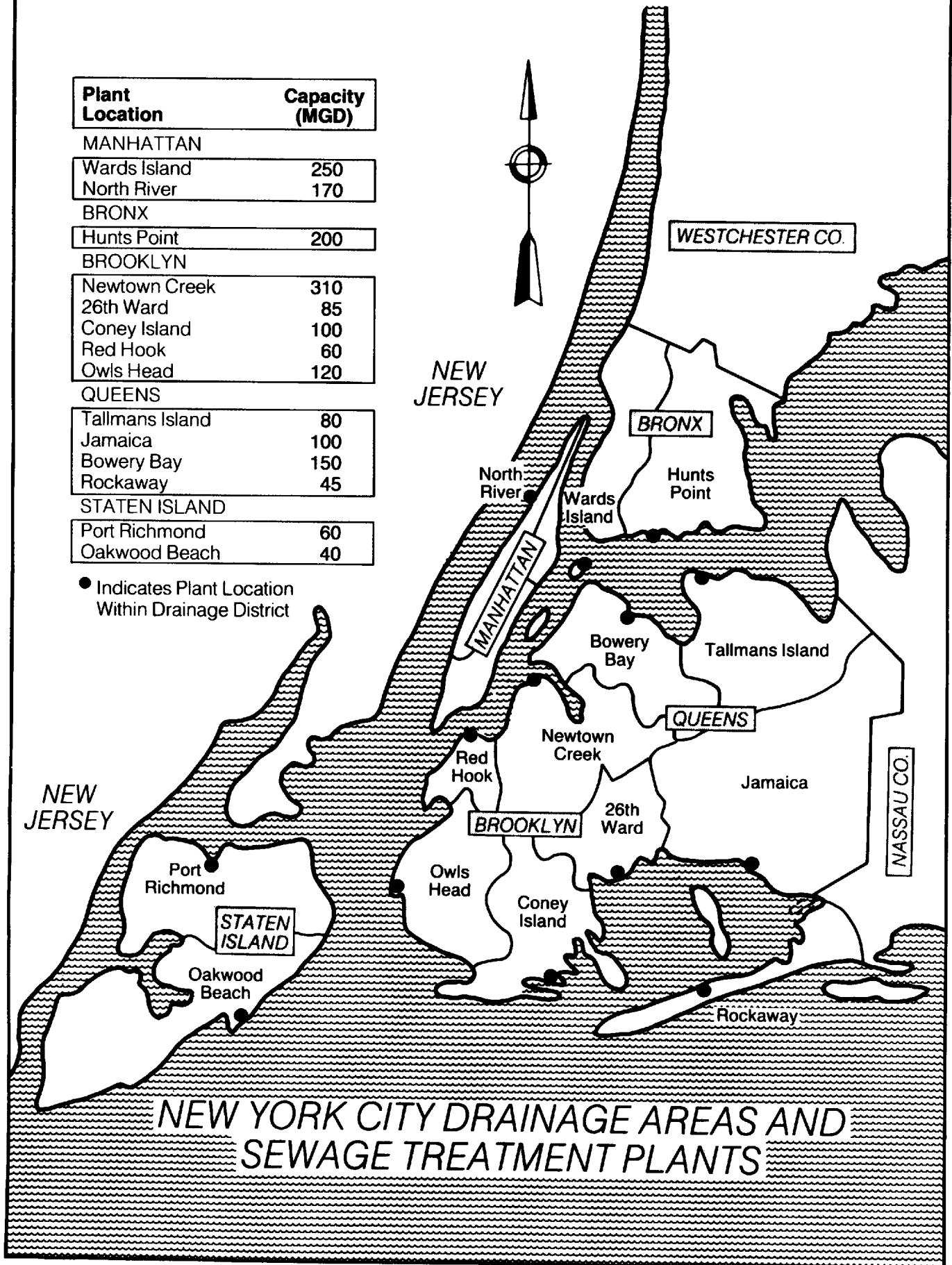
QUEENS

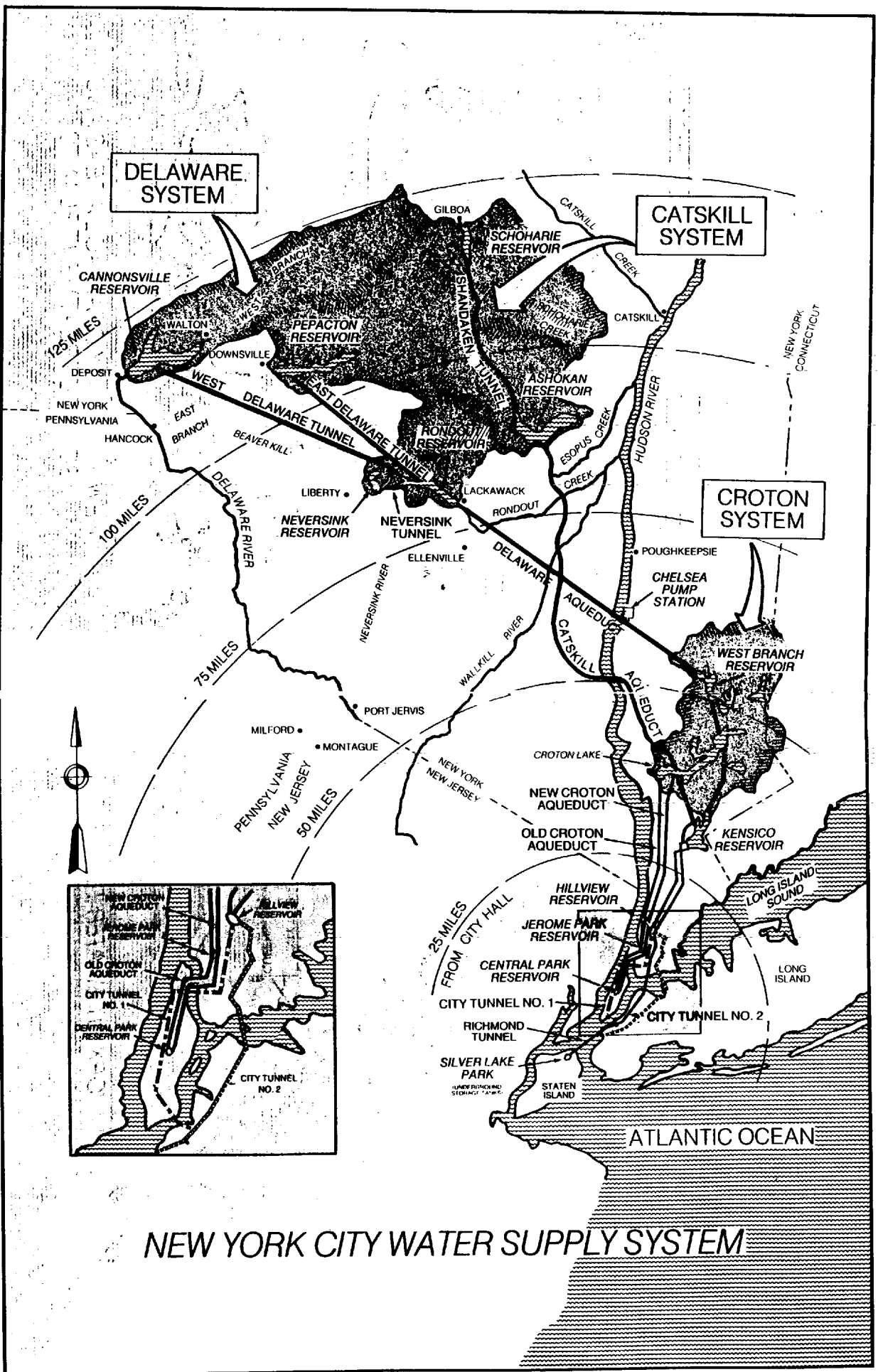
| | |
|-----------------|-----|
| Tallmans Island | 80 |
| Jamaica | 100 |
| Bowery Bay | 150 |
| Rockaway | 45 |

STATEN ISLAND

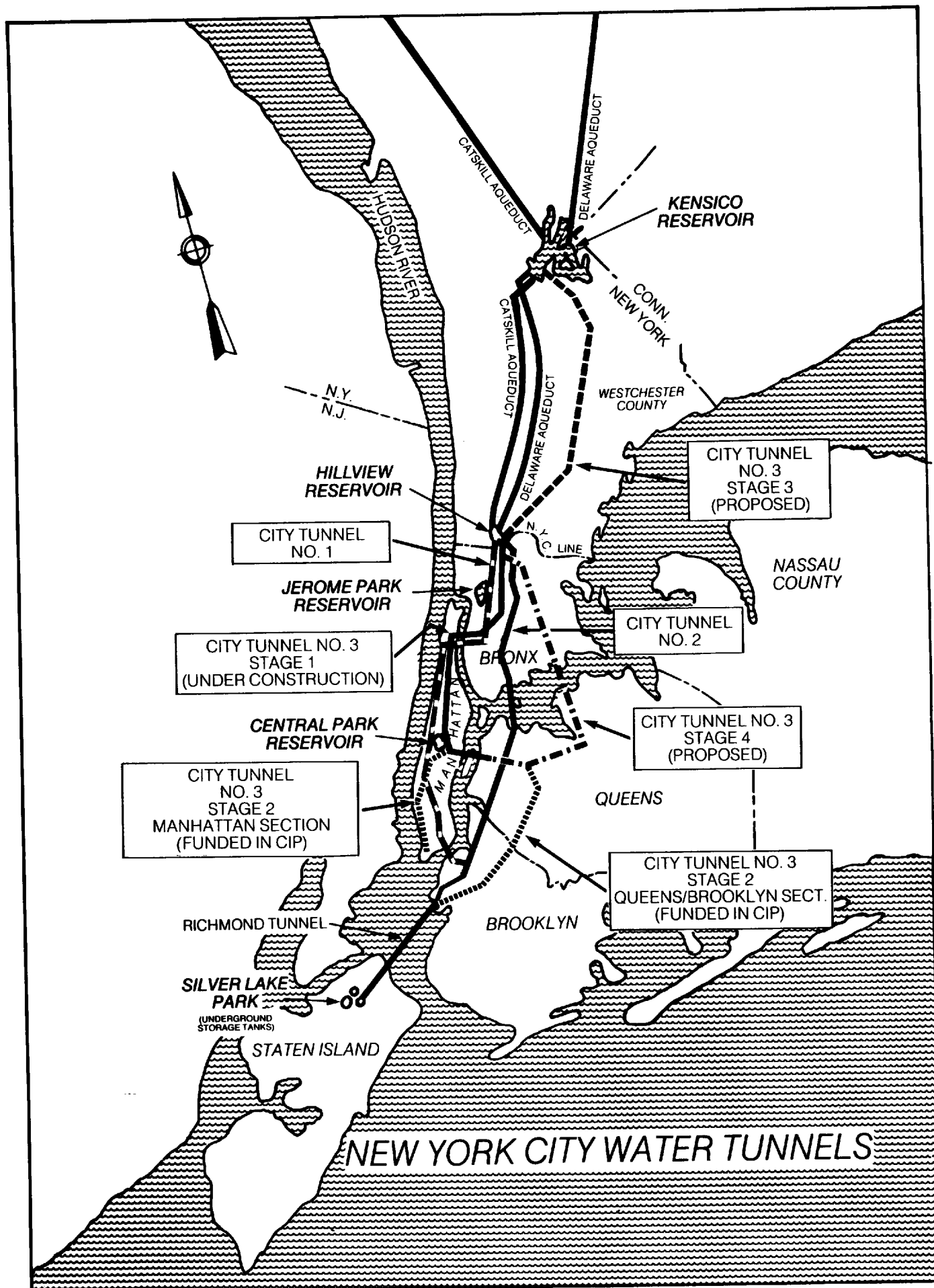
| | |
|---------------|----|
| Port Richmond | 60 |
| Oakwood Beach | 40 |

- Indicates Plant Location Within Drainage District





NEW YORK CITY WATER SUPPLY SYSTEM



**REPORT ON THE FORECASTED CASH FLOWS
OF THE WATER AND SEWER SYSTEM
SERVING THE CITY OF NEW YORK**

TABLE OF CONTENTS

| | <u>Page</u> |
|--|-------------|
| OPINION OF BLACK & VEATCH | B- 1 |
| INTRODUCTION | B- 3 |
| Purpose | B- 3 |
| Scope | B- 3 |
| BLACK & VEATCH Qualifications | B- 3 |
| Organization and Management | B- 3 |
| Existing Rates | B- 3 |
| PROJECTED REVENUE | B- 5 |
| CAPITAL IMPROVEMENTS FINANCING | B- 6 |
| PROJECTED REVENUE REQUIREMENTS | B- 8 |
| OPERATION AND MAINTENANCE EXPENSE | B- 8 |
| 1. The Authority and the Board | B- 8 |
| 2. Water System | B- 9 |
| 3. Wastewater System | B- 9 |
| 4. Other Expenses | B-10 |
| 5. Credits Against Operation and Maintenance Expense | B-10 |
| CASH FINANCED CAPITAL CONSTRUCTION | B-11 |
| DEBT SERVICE REQUIREMENTS | B-11 |
| OTHER REQUIREMENTS | B-12 |
| PROJECTED FINANCIAL OPERATION | B-12 |
| PRINCIPAL ASSUMPTIONS | B-14 |



BLACK & VEATCH

8400 Ward Parkway, P.O. Box No. 8405, Kansas City, Missouri 64114, (913) 339-2000

November 10, 1993

Mr. Mark Page, Executive Director
New York City Municipal Water Finance Authority
75 Park Place, 6th Floor
New York, New York 10007

Re: New York City Municipal Water Finance Authority
Water and Sewer System Revenue Bonds Fiscal 1994 Series B,
Fiscal 1994 Series C, Fiscal 1994 Series D and Fiscal 1994 Series E

Dear Mr. Page:

We are submitting herewith our Financial Feasibility Report (the "Report") prepared in connection with the issuance of \$659,025,000 in Water and Sewer System Revenue Bonds, Fiscal 1994 Series B, \$200,000,000 in Water and Sewer System Revenue Bonds, Fiscal 1994 Series C, \$83,500,000 in Water and Sewer Revenue Bonds, Fiscal 1994 Series D, and \$83,500,000 in Water and Sewer Revenue Bonds, Fiscal 1994 Series E (collectively the "FY 1994 Series B, C, D and E Bonds") by the New York City Municipal Water Finance Authority (the "Authority"). Proceeds from the FY 1994 Series B, C, D and E Bonds are to be used to finance a portion of the capital improvements indicated in Table B-II of the Report, including both water and wastewater system improvements, and to advance refund a portion of the outstanding amount of Water and Sewer System Revenue Bonds (the "Outstanding Bonds") of the System (hereinafter defined). The purpose of the Report is to present the results of our independent analysis of the forecasted cash flows of the Authority for fiscal years 1994 through 1999 (the "reporting period").

The forecast includes provisions for the financing of improvements to The City of New York (the "City") water and sewer system (the "System") as reflected in the Capital Improvement Program (the "CIP") for the reporting period. The forecasted cash flows set forth the ability of the System to meet the operating costs, working capital needs and other financial requirements of the System, including the debt service requirements associated with the Outstanding Bonds and additional bonds whose issuance by the Authority during the six years ending June 30, 1999 is anticipated.

Revenues pledged to secure the FY 1994 Series B, C, D and E Bonds are to be derived from the following sources: (i) all Revenues, (ii) all moneys or securities in any of the Funds and Accounts, and (iii) all other monies and securities to be received, held or set aside by the Authority or by any Fiduciary pursuant to the Resolution. The term "Revenues," as defined by the Resolution, includes, but is not limited to, all rents, fees, charges and other income and receipts derived by the New York City Water Board (the "Board") from users of the System, and certain investment proceeds received by the Board.

The Report summarizes the anticipated financial operations of the Authority for the reporting period. We have reviewed, to the extent practicable, the Authority's books, records, financial reports, and statistical data, and have conducted other such investigations and analyses as deemed necessary to assemble and analyze the forecast of revenues, revenue requirements, and debt service coverage for the reporting period. We have performed various financial tests and analyses necessary to support our findings and conclusions. The Authority uses a fiscal year ending June 30, and all references in the Report to a fiscal year ("FY") relate to the 12 month period ending June 30 of the year shown.

Proposed improvements and additions to the System under the CIP for the reporting period were independently evaluated and confirmed by Metcalf & Eddy of New York, Inc. ("Metcalf & Eddy") in a separate "Report on the Engineering Feasibility of the Water and Sewer System Serving the City of New York." The forecasted cash flows contained in our Report rely upon the conclusions of Metcalf & Eddy regarding the level of planned capital improvement expenditures required during the reporting period to maintain the System in good working order.

Based upon our studies, we offer the following opinions and conclusions:

1. It is our opinion that Revenues as defined in the Resolution (including projected revenue increases resulting from anticipated future rate increases to be implemented by the Board), as set forth in the forecasted cash flows, are currently and will be sufficient to meet the following requirements during the reporting period:
 - a. One hundred and fifteen percent (115%) of the principal of and interest on all bonds, as the same shall become due and payable, for which such Revenues are pledged;
 - b. One hundred percent (100%) of all expenses of operation, maintenance, and repair of the water and wastewater system; and
 - c. One hundred percent (100%) of required Fund deposits as required by the Resolution.

In addition, revenues are adequate to make all payments to the City of New York.

2. In the analysis of the forecast of future operations summarized in this Report, Black & Veatch has reviewed certain assumptions with respect to conditions, events and circumstances which may occur in the future. We believe that these assumptions are reasonable and attainable, although actual results may differ from those forecast as influenced by the conditions, events and circumstances which actually occur.
3. In our opinion, the water and wastewater rates, fees, and charges of the Board, including projected increases, compare favorably to the rates and charges of other major cities and are reasonable.

We appreciate the opportunity to be of service to the Authority in this important matter.

Very truly yours,

BLACK & VEATCH

J. Rowe McKinley

INTRODUCTION

Purpose

The purpose of this Report is to summarize and present the findings of the financial feasibility study performed by Black & Veatch for the New York City Municipal Water Finance Authority in connection with the Fiscal 1994 Series B, C, D and E Bonds (the "Bonds").

Scope

This report summarizes the findings of our studies related to historical and projected financial operations of the Authority including the forecasted cash flows of the System for FY 1994 through FY 1999. We have reviewed, to the extent practicable, the Authority's books, records, financial reports and statistical data, and have conducted other such investigations and analyses as deemed necessary regarding the projected revenues, revenue requirements, and debt service coverage for a six year period of fiscal years 1994 through 1999.

Black & Veatch Qualifications

Black & Veatch is a nationally recognized authority in all aspects of strategic and financial planning for government and investor-owned utilities, industry, municipalities, and other entities. The experience of the firm includes the planning, design, and operations analysis of water and wastewater systems. In the last five years the Management Consulting Division of the firm has engaged in over 1,000 financial and management studies. The Division provides utility consulting services in four main areas: strategic financial planning and modelling, information management, regulated utility and energy services, and institutional planning and management. The Division employs a staff of over 80 professionals, with a diversity of undergraduate and advanced degrees in finance, accounting, engineering, economics, business administration, human resource management and computer science. Most of the staff have devoted all or a major portion of their careers to utility financial and management services.

Organization and Management

Three separate entities coordinate, manage, and control the activities of the water and sewer system (the "System"). Those entities are briefly described herein for informational purposes. More detailed definitions are contained in the Official Statement for the Bonds.

The New York City Municipal Water Finance Authority (the "Authority") is a separate legal entity established in 1984. The Authority has the power to borrow money, issue debt, and enter into other obligations for the purpose of financing the renovation and improvement of the System. The Authority also has the power to require the New York City Water Board (the "Board") to fix rates sufficient to pay the costs of operating and financing improvements to the System and to require the City to adequately maintain the System.

The Board is a separate legal entity established in 1984. The Board has leased the System from the City and is authorized to fix and collect rates, fees, and charges adequate to pay the cost of operating and financing the System.

The Department of Environmental Protection of the City of New York (the "DEP") operates and maintains the System. The DEP is responsible for water supply, the distribution of water, sewage collection, and sewage treatment.

Existing Rates

Retail Service

The current rate structure for water and wastewater service includes two formats for billing retail accounts depending upon whether an account is metered or not. Metered accounts are billed based upon metered water consumption and non-metered accounts receive flat-rate bills based upon property frontage, number of household fixtures, and other factors. All commercial and industrial accounts are required to be

metered. Sewer charges are computed as a percentage of water charges.

The System provides retail service to approximately 472,880 metered accounts and 334,120 flat-rate accounts. Both water and sewer service is provided to the vast majority of accounts. Approximately 90,000 accounts receive only wastewater service from the City, with water service being provided by the Jamaica Water Supply Company.

The Universal Metering Program, commenced by the City and the Board in FY 1988, is expected to convert all flat-rate accounts to metered accounts by the end of FY 1998. The program will also replace many existing meters. The objectives of the program are to bill all customers quarterly on the basis of metered consumption thereby providing a more level revenue stream (flat-rate accounts are billed once annually), and to provide a more equitable basis for charges by the System. Revenues from newly metered accounts may increase or decrease somewhat depending on how closely the flat-rate billing factors previously used compare to actual metered consumption for these accounts. Based upon recent experience, a one-time decrease in collections will occur for each account as it is metered due to the transition from billing in advance under flat-rates to billing after consumption occurs. The one-time effect is taken into account in the forecasted revenues of the System.

Based upon 1987 billing data, there are twelve major customer classifications. These classifications and their respective percentage of billings are presented below:

| <u>Customer Classifications</u> | <u>Percent of Billings</u> |
|--|----------------------------|
| Single-Family Dwellings | 9.6% |
| Two-Family Dwellings | 10.3 |
| Walkup Apartments(1) | 19.0 |
| Elevator Apartments(1) | 25.7 |
| Factory and Industrial Buildings | 5.2 |
| Stores | 8.3 |
| Office Buildings | 5.6 |
| Utility Properties | 2.8 |
| Loft Buildings | 2.6 |
| Hospitals and Health Facilities | 1.5 |
| Hotels | 2.3 |
| Other | 7.1 |
| Total | <u>100.0%</u> |

(1) Includes commercial accounts located in apartment dwellings.

Wholesale Service

The City is required by State law to make water available for sale to communities in upstate counties where sources of supply or transmission facilities for providing water to the City are located. Upstate water consumption averaged 114 mgd for 1992. The sale of water and the rates and charges for these accounts are regulated by State law as well as individual agreements between these communities and the City and have been lower than the unit charges for water delivered within the City.

Each contract provides for the metering of water sales to individual communities and the application of a specified charge per unit of metered volume. In most cases, per capita consumption in the upstate communities is less than that of customers within the City. In those instances where the community per capita consumption exceeds that of the City, the specified rate of charge for the excess is increased to match the rates and charges applied to retail service in the City.

The Board most recently implemented increased water rates for upstate communities effective on July 1, 1992, and July 1, 1993. These new rates have been challenged by some customers with the New York State Department of Environmental Conservation ("NYSDEC") and the New York State Supreme Court. The

Board has indicated its intent to implement future rate increases, if so warranted, following the completion of studies authorized by the Board and the County of Westchester.

Projected Revenue

Table B-I indicates estimated revenues of the System for the reporting period. Revenues of the System consist of several components which have been analyzed and projected independently. Projected revenues are inclusive of revenue increases required during the reporting period.

Operating revenues consist of user payments, upstate revenues and miscellaneous revenues. User payments, indicated on Line 1 of Table B-I, consist of rate revenues from metered and flat-rate accounts, and account for over 98% of all operating revenue received during the reporting period. The forecasted cash flows currently anticipate that water consumption by metered customers in FY 1993 and FY 1994 will be less than water use by such customers in FY 1992 due to water conservation initiatives. Before giving effect to changes in the customer base and rates and charges, it is presently assumed that billings to metered customers in FY 1993 and 1994, respectively, will be 4% and 2% lower than FY 1992 due to the effects of such initiatives.

User payments include an increase in cash receipts due to implementation of a quarterly billing program for all metered customers of the System and an enhanced follow-up program for delinquent accounts. Both programs are expected to be enacted in conjunction with the new Customer Information System ("CIS") which will begin a phased-in operation in FY 1995.

As indicated in the table, user payments are projected to increase from \$1,093,976,000 in FY 1994 to \$1,416,625,000 in FY 1999. While no rate increase is forecast for FY 1995, anticipated future rate increases averaging 5.5% in FY 1996 and FY 1997, 9.6% in FY 1998 and 9.4% in FY 1999 account for the majority of this increase. Upstate revenues, shown on Line 2 of the table, are projected to increase from \$6,600,000 in FY 1994 to \$9,043,000 in FY 1999. This revenue growth is due to an assumption that future revenue from these customers will more closely match the cost of providing service. Miscellaneous revenues, shown on Line 4 of Table B-I include fees from such activities as the review, inspection, and approval of system connections.

Nonoperating income consists of interest income on System Funds, miscellaneous interest income, and other income. Line 6 of Table B-I shows projected earned interest on System Funds including available balances in the Construction Fund and debt service reserve funds. Line 7 of the table shows miscellaneous interest earnings which is interest paid by customers on overdue accounts.

TABLE B-I
Historical and Projected Revenues
(Thousands of Dollars)

| Line No. | Description | Projected | | | | | |
|-----------------------|--|-----------|-----------|-----------|-----------|-----------|-----------|
| | | FY 1994 | FY 1995 | FY 1996 | FY 1997 | FY 1998 | FY 1999 |
| Operating Revenues | | | | | | | |
| 1 | User Payments(1) | 1,093,976 | 1,102,520 | 1,164,640 | 1,229,150 | 1,291,040 | 1,416,625 |
| 2 | Upstate Revenues | 6,600 | 7,029 | 7,486 | 7,972 | 8,491 | 9,043 |
| 3 | Subtotal Service Revenue | 1,100,576 | 1,109,549 | 1,172,126 | 1,237,122 | 1,299,531 | 1,425,668 |
| 4 | Miscellaneous Revenues(2) | 4,718 | 4,954 | 5,202 | 5,462 | 5,735 | 6,021 |
| 5 | Total Operating Revenue | 1,105,294 | 1,114,503 | 1,177,328 | 1,242,584 | 1,305,266 | 1,431,689 |
| Nonoperating Revenues | | | | | | | |
| 6 | Interest Income on System Funds(3) | 18,342 | 20,477 | 30,555 | 43,260 | 61,847 | 59,635 |
| 7 | Miscellaneous Interest Income(4) | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 |
| 8 | Subtotal Nonoperating Revenues | 43,342 | 45,477 | 55,555 | 68,260 | 86,847 | 84,635 |
| 9 | Additional Interest Income on System Funds(5) | 30,391 | 31,055 | 11,928 | 13,478 | 15,234 | 16,752 |
| 10 | Total Revenues | 1,179,027 | 1,191,035 | 1,244,811 | 1,324,322 | 1,407,347 | 1,533,076 |

Notes:

- (1) User payments include service revenues from metered and flat rate customers.
- (2) Miscellaneous revenues include fees from the review, inspection and approval of system connections.
- (3) Includes interest income on the Construction Fund and the Debt Service Reserve Fund.
- (4) Includes interest income on overdue accounts.
- (5) Includes interest on the Debt Service Fund through FY 1999 and the New York State Environmental Facilities Corporation ("EFC") subsidy in FY 1994 and FY 1995.

Capital Improvements Financing

Table B-II presents the capital improvement program for the System for FY 1994 through FY 1999 as evaluated and confirmed by the firm of Metcalf & Eddy of New York, Inc. ("Metcalf & Eddy"). While Black & Veatch has not performed a detailed independent review of the capital program elements and has not made an engineering evaluation of the System, the gross level of anticipated commitments appears to be reasonable compared to other large water and wastewater utilities. The level of commitments indicated include an allowance of approximately 4% per year for inflation and are presented herein for information purposes only.

TABLE B-II
Projected Annual Capital Improvement Expenditures(1)
(Thousands of Dollars)

| <u>Line No.</u> | <u>Description</u> | <u>FY 1994</u> | <u>FY 1995</u> | <u>FY 1996</u> | <u>FY 1997</u> | <u>FY 1998</u> | <u>FY 1999</u> | <u>Period Total</u> |
|-----------------|-------------------------------------|----------------|------------------|------------------|------------------|----------------|------------------|---------------------|
| | System Funds | | | | | | | |
| 1 | Water Supply and Transmission | 64,007 | 208,362 | 275,000 | 302,036 | 81,357 | 8,600 | 939,362 |
| 2 | Water Distribution | 227,556 | 299,454 | 378,673 | 573,443 | 168,022 | 108,974 | 1,756,122 |
| 3 | Water Pollution Control | 228,692 | 778,248 | 578,844 | 258,415 | 401,150 | 918,495 | 3,163,844 |
| 4 | Sewers | 163,564 | 135,125 | 106,193 | 90,938 | 74,576 | 79,419 | 649,815 |
| 5 | Equipment | 118,900 | 129,431 | 155,938 | 138,726 | 47,026 | 16,261 | 606,282 |
| 6 | Total System Funds | 802,719 | 1,550,620 | 1,494,648 | 1,363,558 | 772,131 | 1,131,749 | 7,115,425 |
| 7 | Non-System Funds(2) | 88,908 | 83,849 | 37,125 | 33,000 | 33,000 | 35,200 | 311,082 |
| 8 | Total Commitments | <u>891,627</u> | <u>1,634,469</u> | <u>1,531,773</u> | <u>1,396,558</u> | <u>805,131</u> | <u>1,166,949</u> | <u>7,426,507</u> |

Notes:

- (1) Source: Report on The Engineering Feasibility of the Water and Sewer System Serving the City of New York, dated November 10, 1993, by Metcalf and Eddy of New York, Inc. Includes an annual allowance for escalation in cost due to inflation of approximately 4 percent.
- (2) Non-System capital improvement program funding provided by state, federal and private funds.

Table B-III presents the flow of funds in the Construction Fund of the System, showing total proceeds from the Bonds and the total amount for each of the future Bond issues on Line 1. Lines 2 through 5 show the disposition of the bond proceeds. Lines 6 through 11 of Table B-III indicate activity in the Construction Fund for each year of the reporting period.

TABLE B-III
Sources and Uses of Capital Funds
(Thousands of Dollars)

| <u>Line No.</u> | <u>Description</u> | <u>FY 1994</u> | <u>FY 1995</u> | <u>FY 1996</u> | <u>FY 1997</u> | <u>FY 1998</u> | <u>FY 1999</u> | <u>Period Total</u> |
|-----------------|--|----------------|----------------|----------------|----------------|----------------|----------------|---------------------|
| | Disposition of Bond Proceeds | | | | | | | |
| 1 | Proceeds From Sale of Bonds | 1,836,731 | 829,294 | 1,198,314 | 1,405,105 | 1,340,685 | 1,122,194 | 7,732,323 |
| | Transfers | | | | | | | |
| 2 | Escrow Fund(1) | 1,180,802 | | | | | | 1,180,802 |
| 3 | Construction Fund | 552,788 | 721,125 | 1,042,012 | 1,221,830 | 1,165,813 | 975,821 | 5,679,389 |
| 4 | Other(2) | 103,141 | 108,169 | 156,302 | 183,275 | 174,872 | 146,373 | 872,132 |
| 5 | Total Issue..... | 1,836,731 | 829,294 | 1,198,314 | 1,405,105 | 1,340,685 | 1,122,194 | 7,732,323 |
| | Construction Fund | | | | | | | |
| 6 | Beginning Balance | 206,308 | 242,849 | 277,848 | 277,848 | 277,848 | 277,846 | — |
| 7 | Transfer From Bond Proceeds | 552,788 | 721,125 | 1,042,012 | 1,221,830 | 1,165,813 | 975,821 | 5,679,389 |
| 8 | Cash Financed Capital Improvements | 36,541 | 35,000 | | | | | 71,541 |
| 9 | Total Available | 795,637 | 998,974 | 1,319,860 | 1,499,678 | 1,443,661 | 1,253,667 | 7,311,477 |
| 10 | Less: Total Requirements(3) .. | 552,788 | 721,126 | 1,042,012 | 1,221,830 | 1,165,815 | 975,821 | 5,679,389 |
| 11 | Ending Balance..... | 242,849 | 277,848 | 277,848 | 277,848 | 277,846 | 277,846 | — |

Notes:

- (1) FY 1994 deposit to escrow includes \$806 million refunding of existing bonds, and \$375 million refunding of Fiscal 1993 Series A Notes.
- (2) Includes issuance costs, Debt Service Reserve Fund requirements, and capitalized interest.
- (3) Cash requirements reflect commitments from current and prior years.

Projected Revenue Requirements

Operation and Maintenance Expense

Operation and maintenance expenses includes day to day administrative costs associated with the Authority and the Board, direct operating costs for the water and wastewater system, indirect operating costs of the DEP, and other expenses and adjustments to annual operating expenses. Each of these is explained more fully below. The FY 1994 budget has been used as a base for the forecast of operation and maintenance expenses.

1. The Authority and the Board. Administrative expenses of the Authority and the Board, shown on Line 1 of Table B-IV, include annual fees required by EFC in connection with the Authority's involvement in the State Revolving Fund Program. These fees are estimated at approximately \$0.9 million in FY 1994 and are projected to increase to a level of approximately \$1.9 million in FY 1999. One-time costs associated with the development and installation of a new water and sewer system billing system are included in FY 1994 estimated costs at \$4.0 million.

TABLE B-IV
Projected Operation and Maintenance Expense
(Thousands of Dollars)

| <u>Line No.</u> | <u>Description</u> | <u>FY 1994</u> | <u>FY 1995</u> | <u>FY 1996</u> | <u>FY 1997</u> | <u>FY 1998</u> | <u>FY 1999</u> |
|-----------------|------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| 1 | Authority/Board Operations | 9,183 | 5,500 | 5,775 | 6,064 | 6,367 | 6,686 |
| | Water Operations | | | | | | |
| 2 | Personal Services | 83,785 | 85,212 | 86,738 | 88,473 | 90,242 | 97,047 |
| 3 | Other Than Personal Services | 113,105 | 111,849 | 114,910 | 118,832 | 122,397 | 151,069 |
| 4 | Total Water Operations | 196,890 | 197,061 | 201,648 | 207,305 | 212,639 | 248,116 |
| | Wastewater Operations | | | | | | |
| 5 | Personal Services | 157,178 | 159,370 | 162,510 | 165,760 | 169,075 | 172,457 |
| 6 | Other Than Personal Services | 205,434 | 220,799 | 228,294 | 272,081 | 273,784 | 197,927 |
| 7 | Total Wastewater Operations | 362,612 | 380,169 | 390,804 | 437,841 | 442,859 | 370,384 |
| 8 | Indirect Expenses | 22,918 | 23,606 | 24,314 | 25,043 | 25,794 | 26,568 |
| 9 | Judgements and Claims | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 |
| 10 | Total Operating Expenses | 594,603 | 609,336 | 625,541 | 679,253 | 690,659 | 654,754 |
| | Less: | | | | | | |
| 11 | Trust Account Withdrawals | | | | | 20,000 | 42,000 |
| 12 | State Grants | 4,932 | 18,903 | 23,273 | 52,762 | 51,500 | 6,050 |
| 13 | Net Operating Expenses | 589,671 | 590,433 | 602,268 | 626,491 | 619,159 | 606,704 |

2. Water System. The operating costs of the water system include direct operation and maintenance costs applicable to one or more functional areas of the water system and the distribution system as well as certain indirect operating costs of the DEP which are allocated between the water system and the sewer system. The operating costs of the water system are divided into personal services costs and other than personal services costs. Personal services costs include direct salary costs plus fringe benefit and pension costs.

Other than personal services costs include property taxes paid to upstate communities for watershed properties as well as chemicals, electricity, and other expenses. All but a small percentage of the water system functions by gravity so that electricity costs necessary to maintain normal water distribution are relatively small. In drought conditions, additional pumping, and thus increased electricity costs, is necessary for optimal distribution of water available from the System.

Personal services and other than personal services costs are assumed to increase at an estimated rate of 2% and 3% per year, respectively, for the forecast period. Certain other cost adjustments are reflected in the forecasted cash flows as adjustments are made to specific operating programs based upon System needs. The adjustments include provisions for the startup of the Croton Filter Plant in FY 1999.

3. Wastewater System. The operating costs of the sewer system include direct operation and maintenance costs applicable to one or more functional areas of the sewer system as well as certain indirect operating costs of DEP allocated to the water system and the sewer system. The operating costs of the sewer system are also divided into personal services and other than personal services costs. Personal services costs include direct salary costs plus fringe benefits and pension costs.

Other than personal services costs include electricity for the wastewater treatment plants, pump stations and service yards, chemicals, and other expenses. Electricity, which represents a significant expense in operating the treatment plants and pump stations, is supplied primarily by the Power Authority of the State of New York and is projected to cost approximately \$30.8 million for FY 1994. The major other than personal services cost component is sludge disposal. The annual costs of sludge disposal are anticipated to remain relatively constant at \$100 million per year through FY 1998. The costs of sludge disposal in FY 1999 are estimated to decline to \$70 million. The remaining personal services and other than personal services costs are assumed to increase at an estimated rate of 2% and 3% per year, respectively, for the forecast period. Certain

other cost adjustments are reflected in the forecasted cash flow as adjustments are made to specific operating programs based upon System needs.

In June 1992, the DEP halted all ocean sludge disposal as required by a consent decree (the "Consent Decree") under the Marine Protection, Research and Sanctuaries Act of 1972 as amended by the Ocean Dumping Ban Act of 1988 (the "Ban Act"). The Consent Decree required the City to implement immediate interim programs for the land based sludge disposal, as well as long term initiatives.

Interim measures currently in place include sludge dewatering facilities at eight of the existing wastewater treatment plants capable of dewatering all of the sludge generated by the System. In addition, a thermal drying facility rated at 220 dry tons per day began operation in August 1993.

The DEP has outlined its long term sludge management program in the City's Long Range Sludge Management Plan published in May of 1991 and subsequently updated in April 1992 and June 1993. The plan recommends the use of four sludge management programs: thermal drying, chemical stabilization, composting, and land application. The updated plan calls for these facilities to be capable of processing a total average capacity of 621 dry tons per day. The thermal drying facility mentioned above represents the first operational component of this requirement. The City intends to comply with the Consent Decree requirement that 50% of all sludge be processed by December 31, 1995, and 100% by June 30, 1998.

The City did not meet its September 1, 1992 milestone set by the Consent Decree for commencing final design of the long term sludge handling facilities, and renegotiated a modification to the Consent Decree which changed this milestone to June 1, 1993. The City met this amended requirement and has provided for the construction of these facilities in its capital program.

4. Other Expenses. Other expenses of the System include indirect expenses and judgements and claims. Indirect expenses, shown on Line 8 of Table B-IV, reflect costs allocated to the System for support provided by various City agencies and departments. Services provided include budget preparation and review, cost and revenue accounting, billing and collection, and legal support. The method of allocating these costs to the System is based upon costs initially allocated to DEP and subsequently divided between those attributable to water and sewer and those costs associated with other activities of DEP. The costs allocated to DEP as a whole are derived from the total costs of City support agencies and departments and a formalized cost allocation plan which distributes the costs to affected departments and agencies.

Judgments and claims against the System, shown on Line 9 of the table, have averaged approximately \$2.2 million per year between FY 1989 and FY 1993, exclusive of construction contract claims for which an annual allowance is included in the capital improvement program. Estimated claims for FY 1994 and subsequent years are projected at \$3.0 million per year.

5. Credits Against Operation and Maintenance Expense. Ocean disposal fees and penalties imposed by the Ban Act and the Consent Decree were paid through September 14, 1993. The Ban Act and the Consent Decree provide that 85% of the fees and penalties paid shall be deposited into a Trust Account and shall be available to reimburse the City for costs incurred for developing alternative sludge disposal facilities. As of September 14, 1993, the value of the Trust Account was approximately \$78 million. A portion of the balance of the fees and penalties were paid to USEPA with the remainder divided equally between the New York State Water Pollution Control Revolving Fund and the New York State Clean Oceans Fund. Amounts paid to the Clean Oceans Fund are also available to reimburse the City for the costs of developing alternative sludge management programs. It is anticipated that \$20.0 million in FY 1998 and \$42.0 million in FY 1999 will be available as an offset to operation and maintenance expenses in those years.

State grant funding is indicated on Line 12 of Table B-IV. These funds constitute state reimbursement of costs associated with the clean-up of five hazardous sites within the City as provided under the 1986 Environmental Quality Bond Act. Up to 75% of the costs may be reimbursed by the state. The projected costs to be incurred by the DEP are included with direct wastewater operating expenses in the table, and include clean-up costs and costs associated with capping each of these sites with processed sludge. Projected grant funds indicated reflect an assumed 75% reimbursement of eligible costs.

Cash Financed Capital Construction

Cash financed capital improvements are projected to amount to \$36.5 million in FY 1994 and \$35 million in FY 1995. The availability of these funds will be used to fund capital construction in lieu of issuing bonds.

Debt Service Requirements

Table B-V shows expected debt service payments including payments on outstanding bonds (Line 1), the Bonds (Line 2), and on future bonds to be issued in financing the capital improvement program.

Debt service payments on anticipated future bond issues of the Authority reflect a 30 year term with level annual payments. The interest rates utilized in computing the anticipated debt service payments for future fixed rate issues are approximately 7.25%. The interest rate utilized for the Series C Bonds and future variable rate issues is 4.0%. The amount of variable rate debt outstanding is expected to be approximately 10% of the Authority's total debt outstanding by the end of FY 1997 and will continue at approximately 10% thereafter. Varying principal amounts are necessary to meet the annual capital funding needs as reviewed by Metcalf & Eddy. The principal amounts include funds necessary for construction, Reserve Funds, and the costs of issuance, as shown previously in Table B-III of this report.

The Capitalized Interest and EFC subsidy shown on Line 7 of Table B-V, includes interest capitalized for one year on bonds sold to EFC and subsidies expected to be provided by EFC for these issues. It is anticipated that future Authority bond issues sold to EFC will be structured so that an amount equal to the EFC subsidy will not be included in the Authority's debt service.

TABLE B-V
Future Debt Service Requirements
(Thousands of Dollars)

| <u>Line No.</u> | <u>Description</u> | <u>Bond Issue</u> | <u>FY 1994</u> | <u>FY 1995</u> | <u>FY 1996</u> | <u>FY 1997</u> | <u>FY 1998</u> | <u>FY 1999</u> |
|-------------------------------------|---|-------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| Revenue Bonds | | | | | | | | |
| 1 | Outstanding Bonds(1) | | 328,726 | 344,988 | 345,215 | 341,366 | 341,350 | 333,464 |
| 2 | Fiscal Year 1994 Series C Bonds | | 4,622 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 |
| Projected Future Bond Issues | | | | | | | | |
| 3 | Fiscal Year 1994 Bonds(2) | 810,706 | 7,462 | 85,457 | 62,934 | 62,934 | 62,934 | 62,934 |
| 4 | Fiscal Year 1995 Bonds | 829,294 | | 22,102 | 82,988 | 63,229 | 63,229 | 63,229 |
| 5 | Fiscal Year 1996 Bonds | 1,198,314 | | | 33,811 | 122,175 | 93,842 | 93,842 |
| 6 | Fiscal Year 1997 Bonds | 1,405,105 | | | | 42,538 | 143,113 | 111,620 |
| 7 | Fiscal Year 1998 Bonds | 1,340,685 | | | | | 40,757 | 137,562 |
| 8 | Fiscal Year 1999 Bonds | 1,122,194 | | | | | | 35,635 |
| 9 | Subtotal Revenue Bond Obligations | | 340,810 | 460,547 | 532,948 | 640,242 | 753,225 | 846,286 |
| 10 | Less Capitalized Interest and EFC Subsidies | | | 91,064 | 75,762 | 93,129 | 102,258 | 101,601 |
| 11 | Total Revenue Bond Obligations | | 340,810 | 369,483 | 457,186 | 547,113 | 650,967 | 744,685 |
| 12 | Subordinated Obligations | | 7,500 | | | | | |
| 13 | Total Debt Service | | 348,310 | 369,483 | 457,186 | 547,113 | 650,967 | 744,685 |

Notes:

- (1) Includes the principal and interest payments on the Fiscal 1994 Series B Bonds, Fiscal 1994 Series D Bonds and Fiscal 1994 Series E Bonds and the effect of refunding certain Outstanding Bonds with the proceeds of the Fiscal 1994 Series B Bonds, Fiscal 1994 Series D Bonds and Fiscal 1994 Series E Bonds.
- (2) Projected Fiscal Year 1994 Bonds include issuance of \$375 million of Series A Bonds to retire the outstanding Fiscal 1993 Series A Notes.

Other Requirements

The lease agreement between the City and the Board provides for an annual lease payment to the City not to exceed the greater of either principal and interest payments on General Obligation Bonds issued by the City for System improvements, or 15 percent of principal and interest payments on bonds of the Authority for the given fiscal year. For projection purposes, it is assumed that the City will request the maximum permitted payment authorized under the lease agreement, which through FY 1999 is the General Obligation Debt Service.

Projected Financial Operations

Table B-VI shows a summary of the forecasted cash flows for the Authority for FY 1994 through FY 1999. Revenue and expenditure items shown in Table B-VI have been previously developed in prior sections of the report with the exception of Line 7, Carry Forward Revenues. The figure of \$32,187,000 for FY 1994 represents the carry forward balance from the net surplus at the end of FY 1993. As mentioned in the section of the report concerning projected rate increases, overall revenue increases of 5.5% in FY 1996 and FY 1997, 9.6% in FY 1998 and 9.4% in FY 1999 have been assumed in order to meet cash expenditure requirements and comply with debt service requirements as set forth in the Water and Sewer System General Revenue Bond Resolution. As shown on Line 28 of Table B-VI, positive net surpluses are maintained throughout the reporting period. Line 29 of the table shows that the annual debt service coverage requirement of 1.15 is met each year.

TABLE B-VI
Forecasted Cash Flows
(Thousands of Dollars)

| Line No. | Description | FY 1994 | FY 1995 | FY 1996 | FY 1997 | FY 1998 | FY 1999 |
|---------------------------|---|-----------|-----------|-----------|-----------|-----------|-----------|
| Operating Revenues | | | | | | | |
| 1 | Water and Sewer User Payments | 1,093,976 | 1,102,520 | 1,164,640 | 1,229,150 | 1,291,040 | 1,416,625 |
| 2 | Upstate Revenue | 6,600 | 7,029 | 7,486 | 7,972 | 8,491 | 9,043 |
| 3 | Miscellaneous Revenue | 4,718 | 4,954 | 5,202 | 5,462 | 5,735 | 6,021 |
| Other Revenues | | | | | | | |
| 4 | Miscellaneous Interest Income ... | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 | 25,000 |
| 5 | Interest Income on Authority Funds | 18,342 | 20,477 | 30,555 | 43,260 | 61,847 | 59,635 |
| 6 | Current Revenues Available for Debt Service | 1,148,636 | 1,159,980 | 1,232,883 | 1,310,844 | 1,392,113 | 1,516,324 |
| 7 | Carry Forward Revenues(1) | 32,187 | 59,059 | 84,335 | 93,254 | 58,076 | 209 |
| 8 | Additional Interest Income on System Funds | 30,391 | 31,055 | 11,928 | 13,478 | 15,234 | 16,752 |
| 9 | Gross System Revenues | 1,211,214 | 1,250,094 | 1,329,146 | 1,417,576 | 1,465,423 | 1,533,285 |
| Debt Service | | | | | | | |
| 10 | Outstanding Bonds(2) | 328,726 | 344,988 | 345,215 | 341,366 | 341,350 | 333,464 |
| 11 | Fiscal Year 1994 Series C Bonds | 4,622 | 8,000 | 8,000 | 8,000 | 8,000 | 8,000 |
| 12 | Projected Future Bond Issues ... | 7,462 | 107,559 | 179,733 | 290,876 | 403,875 | 504,822 |
| 13 | Less: Capitalized Interest and EFC Subsidies | | 91,064 | 75,762 | 93,129 | 102,258 | 101,601 |
| 14 | Subtotal | 340,810 | 369,483 | 457,186 | 547,113 | 650,967 | 744,685 |
| 15 | Subordinated Obligations | 7,500 | | | | | |
| 16 | Total Debt Service | 348,310 | 369,483 | 457,186 | 547,113 | 650,967 | 744,685 |
| Operating Expenses | | | | | | | |
| 17 | Authority/Board Operations | 9,183 | 5,500 | 5,775 | 6,064 | 6,367 | 6,686 |
| 18 | Water System | 196,890 | 197,061 | 201,648 | 207,305 | 212,639 | 248,116 |
| 19 | Wastewater System | 362,612 | 380,169 | 390,804 | 437,841 | 442,859 | 370,384 |
| 20 | Indirect Expense | 22,918 | 23,606 | 24,314 | 25,043 | 25,794 | 26,568 |
| 21 | Judgements and Claims | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 |
| 22 | Total Operating Expenses | 594,603 | 609,336 | 625,541 | 679,253 | 690,659 | 654,754 |
| 23 | Less State Grants and Trust Account Withdrawals | 4,932 | 18,903 | 23,273 | 52,762 | 71,500 | 48,050 |
| 24 | Net Operating Expenses | 589,671 | 590,433 | 602,268 | 626,491 | 619,159 | 606,704 |
| 25 | Rental Payment to City of New York | 177,633 | 170,843 | 176,438 | 185,896 | 195,088 | 181,179 |
| 26 | Cash Financed Capital Construction | 36,541 | 35,000 | | | | |
| 27 | Total Expenses | 803,845 | 796,276 | 778,706 | 812,387 | 814,247 | 787,883 |
| 28 | Net Surplus | 59,059 | 84,335 | 93,254 | 58,076 | 209 | 717 |
| 29 | Debt Service coverage (Ln 6 - Ln 24 / Ln 14) | 1.64 | 1.54 | 1.38 | 1.25 | 1.19 | 1.22 |

Notes:

- (1) Carry forward revenues are equal to net surplus from prior year.
- (2) Includes the principal and interest payments on the Fiscal 1994 Series B Bonds, Fiscal 1994 Series D Bonds and Fiscal 1994 Series E Bonds and the effect of refunding certain Outstanding Bonds with the proceeds of the Fiscal 1994 Series B Bonds, Fiscal 1994 Series D Bonds and Fiscal 1994 Series E Bonds.

Principal Assumptions

Black & Veatch has relied on certain historical financial and statistical data supplied by the Authority. While such data is considered reliable, Black & Veatch has not independently verified the detailed accuracy of such data. In the analysis of the forecast of future operations summarized in this report, Black & Veatch has reviewed assumptions with respect to conditions, events, and circumstances which may occur in the future. We believe that these assumptions are reasonable and attainable, although actual results may differ from those forecast as influenced by the conditions, events, and circumstances which actually occur. The principal assumptions used in the forecast of future operations are as follows:

1. The Board approves future increases in rates which will provide revenue as projected herein.
2. All contracts and agreements of the Authority which have been relied upon in preparing this report are fully enforceable in accordance with their terms and conditions.
3. There will be no material changes in Federal or state law which would materially adversely impact the Authority's operations.

CERTAIN INFORMATION CONCERNING THE CITY OF NEW YORK

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CERTAIN INFORMATION CONCERNING THE CITY OF NEW YORK

This Appendix provides only a brief summary of the complex factors affecting the City and is based on information presented in the City's financial plans or the official statements prepared by the City in connection with the issuance of its securities, and information contained in other reports and statements referred to herein.

Operating Results

The City achieved balanced operating results as reported in accordance with GAAP for the 1992 fiscal year. In order to achieve a balanced budget for the 1992 fiscal year, the City implemented various actions during the 1991 fiscal year to close a projected gap of \$3.3 billion in the 1992 fiscal year. This \$3.3 billion gap resulted from, among other things, projected tax revenue shortfalls of approximately \$1.4 billion; proposed State aid for the City which was \$564 million less than the amount projected by the City; and approximately \$400 million of projected increases in legally mandated expenditures, including public assistance and Medicaid expenditures. The gap-closing measures for the 1992 fiscal year included receipt of \$605 million from tax increases; approximately \$1.5 billion of proposed service reductions; and proposed productivity savings of \$545 million. On June 23, 1993 the City released a fourth quarter modification to the 1993-1996 financial plan (the "1993 Modification") which adjusts projections for the 1993 fiscal year only. The City projects a balanced budget in accordance with GAAP for the 1993 fiscal year after taking into account a discretionary transfer of \$280 million to the 1994 fiscal year as a result of a 1993 fiscal year surplus.

Pursuant to State law, since 1978 the City has annually prepared a four-year financial plan, which is reviewed on a quarterly basis. The current financial plan, which was submitted to the New York State Financial Control Board (the "Control Board") in August 1993 and which relates to the City, the Board of Education ("BOE") and City University of New York ("CUNY"), covers the 1994 through 1997 fiscal years (the "Financial Plan"). In 1975, the City encountered severe financial difficulties and lost access to the public credit markets. The City's revision of its financial systems and accounting practices, and the requirement to submit four-year financial plans and budgets for review and, during a Control Period (as defined in the New York State Financial Emergency Act for the City of New York (the "Financial Emergency Act")), approval to various oversight bodies, including the Control Board, were in response to that crisis. In addition, the Municipal Assistance Corporation for The City of New York ("MAC") was organized in 1975 to provide financing assistance for the City and also to exercise certain oversight and review functions with respect to the City's finances. MAC reviews (i) City expense budgets to determine compliance with various statutory provisions, (ii) City operations to determine compliance with expenditure limitations contained in the City's expense budget, and (iii) proposed City note issuances to determine compliance with certain short-term limitations.

On June 30, 1986, the City satisfied the statutory conditions for termination of the Control Period. The City, in compliance with its obligations under the Financial Emergency Act, will continue to submit four-year financial plans, terms of proposed borrowings, and certain contracts and other operating information to the Control Board for its review. However, with the termination of the Control Period, the Control Board's powers of prior approval have been terminated.

1994-1997 Financial Plan

On August 6, 1993, the City submitted to the Control Board the 1994-1997 Financial Plan, which relates to the City, the BOE and CUNY and is based on the City's expense and capital budgets for the City's 1994 fiscal year, which were adopted on June 14, 1993 (the "Adopted Budget"). The City subsequently submitted technical revisions to the 1994-1997 Financial Plan on August 30, 1993. The 1994-1997 Financial Plan projects revenues and expenditures for the 1994 fiscal year balanced in accordance with GAAP. The first

quarterly modification to the 1994-1997 Financial Plan is expected to be released in the second half of November.

The 1994-1997 Financial Plan sets forth actions to close a previously projected gap of approximately \$2.0 billion in the 1994 fiscal year. The gap-closing actions for the 1994 fiscal year include agency actions aggregating \$666 million, including productivity savings and savings from restructuring the delivery of City services; service reductions aggregating \$274 million; the sale of delinquent real property tax receivables for \$215 million; discretionary transfers from the 1993 fiscal year of \$110 million; reduced debt service costs aggregating \$187 million, resulting from refinancings and other actions; \$150 million in proposed increased Federal assistance; a continuation of the personal income tax surcharge, resulting in revenues of \$143 million; \$80 million in proposed increased State aid, which is subject to approval by the Governor; and revenue actions aggregating \$173 million. The projected expenditures for the 1994 fiscal year reflect the \$131 million of expenditure reductions announced subsequent to the adoption of the budget on June 14, 1993, including a \$50 million reduction in BOE expenditures, a \$30 million reduction in personal service costs and a \$25 million reduction in other than personal services.

The Financial Plan also sets forth projections for the 1995 through 1997 fiscal years and outlines a proposed gap-closing program to close projected budget gaps of \$1.3 billion, \$1.8 billion and \$2.0 billion for the 1995 through 1997 fiscal years, respectively. The projections include \$150 million of increased Federal assistance in each of the 1995 through 1997 fiscal years and \$131 million, \$291 million and \$291 million of increased State assistance in the 1995, 1996 and 1997 fiscal years, respectively, which could include savings from the proposed State assumption of Medicaid costs or various proposed mandate relief measures and include the continuation of the personal income tax surcharge, resulting in revenues of \$420, \$446 and \$471 million in the 1995, 1996 and 1997 fiscal years, respectively. The proposed gap-closing actions are expected to include City actions aggregating \$287 million, \$564 million and \$645 million in the 1995 through 1997 fiscal years, respectively; \$100 million and \$200 million in proposed additional Federal assistance in the 1996 and 1997 fiscal years, respectively; savings from various proposed mandate relief measures and the proposed reallocation of State education aid among various localities, aggregating \$175 million, \$325 million and \$475 million in the 1995 through 1997 fiscal years, respectively; and other unspecified Federal, State or City actions of \$800 million, \$800 million and \$700 million in the 1995, 1996 and 1997 fiscal years, respectively.

Various actions proposed in the Financial Plan, including the proposed continuation of the personal income tax surcharge beyond December 31, 1995 and the proposed increase in State aid, are subject to approval by the Governor and the State Legislature, and the proposed increase in Federal aid is subject to approval by Congress and the President. The State Legislature has in previous legislative sessions failed to approve proposals for the State assumption of certain Medical costs, mandate relief and reallocation of State education aid, thereby increasing the uncertainty as to the receipt of the State assistance included in the Financial Plan. If these actions cannot be implemented, the City will be required to take other actions to decrease expenditures or increase revenues to maintain a balanced financial plan. The Financial Plan has been the subject of extensive public comment and criticism particularly regarding the sale of delinquent property tax receivables, the sale of the New York City Off-Track Betting Corporation ("OTB"), the amount of State and Federal aid included in the Financial Plan, the implementation of proposed BOE expenditure reductions and the inclusion of non-recurring actions.

On January 11, 1993, the City announced a settlement with a coalition of municipal unions, including Local 237 of the International Brotherhood of Teamsters ("Local 237"), District Council 37 of the American Federation of State, County and Municipal Employees ("District Council 37") and other unions covering approximately 44% of the City's workforce. The settlement, which has been ratified by the unions, includes a total net expenditure increase of 8.25% over a 39-month period, ending March 31, 1995 for most of these employees. On April 9, 1993 the City announced an agreement with the Uniformed Fire Officers Association (the "UFOA") which is consistent with the coalition agreement. The agreement has been ratified. On August 30, 1993, the BOE and the City announced an agreement with the United Federation of Teachers ("UFT"). The agreement, which has been ratified by the UFT members, is generally consistent with the coalition agreement. However, while the coalition agreement covers a period of 39 months, the UFT

agreement is for 48½ months. The Financial Plan reflects the costs for all City-funded employees (other than those who are UFT members) associated with these settlements and provides for similar increases for all other City-funded employees. Additional expenditures aggregating \$30 million and \$111 million will be added to the Financial Plan for fiscal years 1996 and 1997, respectively, to provide funding for the additional 9½ months provided for under the UFT agreement.

The Financial Plan provides no additional wage increases for City employees after their contracts expire in the 1995 and 1996 fiscal years. Each 1% wage increase for all employees commencing in the 1995 and 1996 fiscal years would cost the City an additional \$30 million for the 1995 fiscal year, \$135 million for the 1996 fiscal year and \$150 million each year thereafter above the amounts provided for in the Financial Plan.

In the event of a collective bargaining impasse, the terms of wage settlements could be determined through the impasse procedure in the New York City Collective Bargaining Law, which can impose a binding settlement.

As a result of the national and regional economic recession, the State's tax receipts for its 1991 and 1992 fiscal years were substantially lower than projected. In addition, the Governor's Executive Budget for the State's 1993 fiscal year (commencing April 1, 1992) identified a potential budgetary imbalance for the State's 1993 fiscal year of \$4.8 billion (after providing for repayment of \$531 million of short-term deficit notes, but without giving effect to any remedial actions reflected in the State's budget). To correct such potential imbalance, the State took various actions for its 1992 and 1993 fiscal years, which included reductions in State aid to localities from amounts previously projected. The State completed its 1993 fiscal year with a positive margin of \$671 million in the General Fund which was deposited into a tax refund reserve account.

The 1993-94 State Financial Plan, which is based upon the enacted State budget, projects a balanced General Fund. The first quarterly update of the 1993-94 State Financial Plan was released on July 30, 1993. The Division of the Budget has cautioned, however, that its projections are subject to the risk that actual economic growth may be weaker than projected.

From time to time, the Control Board staff, MAC, Office of the State Deputy Comptroller ("OSDC"), the City Comptroller, various Federal agencies and others issue reports and make public statements regarding the City's financial condition, commenting on, among other matters, the City's financial plans, projected revenues and expenditures and actions by the City to eliminate projected operating deficits. Some of these reports and statements have warned that the City may have underestimated certain expenditures and overestimated certain revenues and have suggested that the City may not have adequately provided for future contingencies. Certain of these reports have analyzed the City's future economic and social conditions and have questioned whether the City has the capacity to generate sufficient revenues in the future to meet the costs of its expenditure increases and to provide necessary services. It is reasonable to expect that such reports and statements will continue to be issued and to engender public comment. It is expected that the staff of the Control Board, OSDC and the City Comptroller will issue reports in the near future reviewing the 1994-1997 Financial Plan.

The City Comptroller issued a report on the state of the City's economy on December 15, 1992. The report projected that the City's economy would slowly follow the national economy out of recession. The report noted that, from the peak employment level in April 1989 through September 1992, the City lost more than 350,000 jobs. The report stated that job loss, while continuing, had decelerated and that the productivity of persons employed in the City had risen rapidly in 1992. The report also noted that Gross City Product had stopped declining in 1992. The report projected that job losses would continue to occur in the City in 1993, but that Gross City Product would rise. The report noted that increased productivity and Gross City Product had led to raises for those persons with jobs, but that new jobs were not being created for the unemployed. The City Comptroller warned that this phenomenon was increasing the disparity between the employed and the unemployed and that the City needed to stimulate job growth to allow the unemployed to become productive members of the economy.

In her previous economic reports, the City Comptroller had stated that the recession in the City's economy began earlier and was more devastating than the national recession. The reports stated that the local

recession began in the wake of the October 1987 stock market crash and that the subsequent upheaval in the financial services sector had adverse effects on the rest of the City's economy. The national recession that followed emphasized the weaknesses in the local economy, especially the high cost of doing business in the City. Such weaknesses include inflation higher than the national average, reflected in both wages and rents, a higher state and local tax burden than the national average and concerns about the quality of life and quality of services in the City. The problems in the local economy have forced and will continue to force businesses seeking to lower costs to consider relocating out of the City, decisions that are made easier by improvements in telecommunications technology and declines in the real cost of air travel. The result was an acceleration of the loss of businesses and jobs from the City.

The reports forecast that overall employment in the City's export industries that provide goods and services to the rest of the country and the world, such as financial services, communications media, corporate headquarters and producers and distributors of goods, would decline in 1992. These job losses were expected to have a devastating effect on the City's local service industries. The combined effect was reduced personal income tax collections by the City and also reduced consumer spending, thereby affecting sales and business tax collections. At the same time, the local recession caused increased demand for social services provided by the City.

The Comptroller also noted that the City economy's reliance on the financial services sector would keep the City from participating fully in the increase in manufacturing and trading activity projected to lead the nation out of its recession. The report also noted that the loss of manufacturing jobs, and a decline in retailing jobs, means there are fewer entry-level jobs available for unskilled workers, putting greater burdens on the City's social services. The report concluded that the structural weaknesses in the City's economy would persist and affect tax collections adversely throughout the 1990s.

The City Comptroller's Office issued a report on September 30, 1992 detailing the causes of, and the effects on the City's economy from, the relocation of corporate headquarters away from the City. The report explained that each corporate headquarters has a multiplier effect on the City economy because such headquarters use services provided by the local economy, such as advertising, banking, communications and real estate. Therefore, a move by a corporate headquarters out of the City means the local economy suffers from the loss of not only the jobs of the persons employed by the corporation, but also the jobs of the persons who provided such services to the corporation. The report predicted that state and local tax increases in fiscal years 1991 and 1992 will continue to drive headquarters from the City.

On August 4, 1993, the City Comptroller issued a report on the Financial Plan that identified risks of \$340 million, \$1.5 billion, \$2.2 billion and \$2.0 billion in fiscal years 1994 through 1997, respectively. The City Comptroller's estimate of risks to the fiscal year 1994 budget is based on the uncertainty of (i) receiving all the Federal aid anticipated, (ii) completing the sale or reorganization of OTB in fiscal year 1994 and (iii) winning approval to eliminate preparation time for certain teachers and on higher projections of spending on overtime. Additional risks in the out years of the Financial Plan include unspecified State and Federal aid in the gap-closing program and lower projections from the Safe Streets/Safe City lottery.

On October 21, 1993, the City Comptroller issued a report on the Financial Plan that found that recent City actions had reduced the potential fy 94 budget gap by \$60 million to \$280 million from the August projection. Positive developments included (i) elimination of the preparation time risk through the contract settlement with the United Federation of Teachers, and (ii) a reduction in the uncertainty regarding portions of the Federal aid anticipated. Offsetting these developments were (i) poorer than anticipated tax collections for July through September and (ii) higher than anticipated expenditures.

In other reports, the City Comptroller has warned that State and local tax increases in a recession can have adverse effects on the local economy and can prolong the recession. She has also expressed concerns about the effects on the City's economy and budgets of rapidly increasing water and sewer rates, decreasing rental payments in future years from the Port Authority under the leases for LaGuardia and Kennedy airports, the dependence on increased aid from the State and Federal Governments for the gap-closing program, the escalating costs of judgments and claims, federal deficit reduction measures and the increasing percentage of future years' revenues projected to be consumed by debt service, even after reductions in the capital program.

In her reports, the City Comptroller has called for improved productivity, increased competition in the City contracting process, greater savings from attrition, the consolidation of agencies, the use of savings from reduced pension fund contributions and the consideration of furloughs and wage deferrals to close the budget gaps.

On August 10, 1993, OSDC released a report on the Financial Plan. The report stated that expenditures for the 1994 fiscal year could be higher by \$240 million, due primarily to higher City payments to HHC and overtime costs in the uniformed services, and that revenues could be lower by \$182 million, resulting primarily from lower estimated tax receipts, lower estimated revenues from the sale of restructuring of OTB and the need for additional reserves for dissallowances for Federal and State aid. The report noted that additional uncertainties for the 1994 fiscal year included \$150 million of projected Federal aid and \$215 million from the sale of real estate receivables.

With respect to the 1995 through 1997 fiscal years, the report noted that the budget gaps projected in the Financial Plan could rise by \$556 million, \$561 million and \$515 million in the 1995, 1996 and 1997 fiscal years, respectively, primarily reflecting higher City payments to HHC, higher overtime costs in the uniformed services, increased spending for BOE and lower than anticipated tax receipts, principally from a City-run lottery, the personal income tax and general corporation tax. The report noted that additional uncertainties for the 1995 through 1997 fiscal years included the amount of projected State and Federal aid that would ultimately be received by the City. The report noted that these gaps will increase even further to the extent that the City incurs increased collective bargaining costs after the expiration of the current contracts in the middle of the 1995 fiscal year. The report further notes that the gap-closing program for the 1995 through 1997 fiscal years has not yet been fully developed by the City and relies heavily on Federal and State assistance. The report concluded that, with the growth in spending projected to exceed the growth in revenues, the City faces a formidable challenge as it seeks to maintain annual budget balance and moves towards recurring structural balance.

On May 25, 1993 the private members of the Control Board, Heather L. Ruth, Robert R. Kiley and Stanley S. Shuman, issued a statement which concluded that the City has a structural budget problem which has worsened into a permanent deficit and which must be resolved through permanent changes in the types of activities the City undertakes and the types of revenues the City raises. The private members stated that if the May Financial Plan had been submitted during a Control Period, they would not have been able to vote for its approval. The private members stated that the City needs to balance its budget with actions that are reasonably under its control and that have recurring benefits, and that too many actions presented in the May Financial Plan do neither. The statement noted that the budget for the 1994 fiscal year set forth in the May Financial Plan was proposed to be balanced by relying on over \$1 billion of non-recurring actions and actions which are unlikely to occur.

On August 5, 1993, the staff of the Control Board issued a report on the Financial Plan. The staff identified risks of \$687 million, \$1.9 billion, \$2.4 billion and \$2.5 billion in each of the 1994 through 1997 fiscal years, respectively. The major risks identified in the report include actions that require State and/or Federal approval and risks associated with the City's revenues and expenditure estimates, including higher than planned overtime costs, larger City subsidy payments to HHC and proposed BOE expenditure reductions. The staff noted that the \$131 million of expenditure reductions for the City's 1994 fiscal year announced on July 2, 1993 are largely unspecified and, accordingly, there is uncertainty over the ultimate value of these proposed reductions. The staff also noted that the Financial Plan does not fundamentally change the structural incompatibility between the City's revenues and expenditures, and that the vast majority of the gap-closing actions consist of unspecified actions expected to be taken by the City, State or Federal governments. In addition, the report concludes that enhanced monitoring and control systems are needed to insure that savings from the hiring freeze are achieved and that the City's reliance upon nonrecurring resources to balance budgets has allowed structural problems to persist and, in some cases, produced larger future gaps.

On October 12, 1993, the staff of the Control Board issued a report to the members of the Board (the "Board Report") on the status of the City's budget for the 1994 fiscal year. The Board Report identified risks of \$681 million for the 1994 fiscal year, a decrease of \$6 million compared to the staff's August 1993 analysis.

The principal risks continued to include greater overtime costs of approximately \$124 million, which could grow to as much as \$200 million; larger City subsidy payments to HHC of approximately \$150 million; and uncertainty concerning the projected receipt of \$150 million in Federal aid. The Board Report noted that, while the risks to BOE's budget have been significantly reduced, there may be additional costs for asbestos abatement, overtime and transportation as a result of the asbestos problem in the City's schools. In addition, the Board Report noted that, although it is too early in the fiscal year to discern a trend, sales, general property and non-bank business tax collections through August have been weak, while preliminary September results from the bank tax were extraordinarily large, bringing year-to-date growth in the bank tax to 90%. The Board Report concluded that additional gap-closing actions will be necessary to assure balance, because the City does not have many of the additional resources which were available in the 1993 fiscal year, such as lower than expected headcount, greater pension investment earnings and reduced OTPS expenditures, to offset shortfalls or failures in the gap-closing program and to fund new needs.

Seasonal and Capital Financing Needs

Since the beginning of Fiscal Year 1981, the City has obtained all of its seasonal financing through short-term borrowings in the public credit markets. To date in Fiscal Year 1994, the City has issued \$1.75 billion of notes.

The City anticipates long-term financing needs of approximately \$4.2 billion during Fiscal Year 1993, to be funded principally through City public bond issuances and the issuance of water and sewer revenue bonds by the Authority.

Fiscal Oversight Mechanisms

The City utilizes financial monitoring, reporting and control systems, including the Integrated Financial Management System and a comprehensive Capital Projects Information System, which provide comprehensive current and historical information regarding the City's financial condition. This information, which is independently evaluated by the Mayor's Office of Management and Budget and the Office of the Comptroller, provides a basis for City action required to maintain a balanced budget and continued financial stability. The Mayor's Office of Management and Budget and the Office of the Comptroller continuously monitor the City's financial condition. Since 1978, pursuant to State law, the City has annually prepared a four-year financial plan, which is reviewed on a quarterly basis. The City must submit its four-year financial plans and budgets for review, and, during a Control Period as defined in the Financial Emergency Act, approval, to various oversight bodies, including the Control Board. This requirement was enacted in response to the severe financial difficulties and loss of access to the public credit market encountered by the City in 1975. In addition, the Municipal Assistance Corporation for The City of New York was organized in 1975 to provide financing assistance for the City and also to exercise certain oversight and review functions with respect to the City's finances.

On June 30, 1986, the City satisfied the statutory conditions for termination of the Control Period. The City, in compliance with its obligations under the Financial Emergency Act, will continue to submit four-year financial plans, terms of proposed borrowings, and certain contracts and other operating information to the Control Board for its review. However, with the termination of the Control Period the Control Board's powers of prior approval have been suspended. If the City were to experience certain adverse financial circumstances, including the occurrence of the substantial likelihood and imminence of the occurrence of an annual operating deficit of more than \$100 million or the loss of access to the public credit markets to satisfy the City's capital and seasonal financing requirements, the Control Board would be required by State law to exercise powers, among others, of prior approval of City financial plans, proposed borrowings and certain contracts.

Economic Activity, 1969-1991

For at least a decade prior to the end of the fiscal crisis in the mid-seventies, New York City's economy lagged behind the nation, as evidenced by certain of the broad economic indicators. The City's economy improved after that crisis and, through 1987, certain of the key economic indicators posted steady growth.

From 1987 to 1991, the rate of economic growth in the City slowed substantially as a result of the 1987 stock market crash and the beginning of the national recession.

Trends of certain major economic indicators for the City and the nation are shown in the following table.

| Trends of Major Economic Indicators 1969-1991 | | | | | | | |
|--|------------|------------|------------|------------|-------------------------------|---------|---------|
| | Levels | | | | Average Annual Percent Change | | |
| | 1969 | 1976 | 1988 | 1991 | 1969-76 | 1976-88 | 1988-91 |
| NYC | | | | | | | |
| Population (1) (millions) | 7.9 | 7.4 | 7.4 | 7.3 | (0.9) | (0.1) | (0.1) |
| Employment (2) (millions) | 3.8 | 3.2 | 3.6 | 3.4 | (2.4) | 1.0 | (2.2) |
| Personal Income (3) (billions) | \$38.8 | \$58.3 | \$143.8 | \$169.6 | 6.0 | 7.8 | 5.7 |
| Real Per Capita Personal Income (4) | \$12,842.5 | \$12,858.8 | \$15,812.2 | \$16,004.1 | 0.0 | 1.7 | 0.4 |
| United States | | | | | | | |
| Population (1) (millions) | 201.3 | 217.6 | 244.5 | 252.2 | 1.1 | 1.0 | 1.0 |
| Employment (2) (millions) | 70.4 | 79.4 | 105.2 | 108.3 | 1.7 | 2.4 | 1.0 |
| Personal Income (3) (billions) | \$773.7 | \$1,446.3 | \$4,075.9 | \$4,828.3 | 9.3 | 9.0 | 5.8 |
| Real Per Capita Personal Income (4) | \$10,474.9 | \$11,676.3 | \$14,083.8 | \$14,050.8 | 1.6 | 1.6 | (0.1) |

(1) 1970, 1980 and 1990 figures are based on final census count. All other years are estimates. Sources: U.S. Department of Commerce, Bureau of the Census.

(2) Payroll employment based on Bureau of Labor Statistics ("BLS") establishment survey. Sources: U.S. Department of Labor, Bureau of Labor Statistics and New York State Department of Labor, Division of Research and Statistics.

(3) In current dollars. Income by place of residence. Source: U.S. Department of Commerce, Bureau of Economic Analysis.

(4) In average dollars for 1982-1984.

Population Characteristics

The City has been the most populous city in the United States since 1810. The City's population is almost as large as the combined population of the next three most populous cities in the United States.

The population of the City grew steadily through 1950, remained relatively stable between 1950 and 1970 in the aggregate and declined substantially, for the first time in its history, during the 1970's. The Bureau of Census final 1990 census results show moderately increasing population for the City since 1980.

POPULATION OF NEW YORK CITY

| Year | Distribution of Population by County (Borough) | | | | | | |
|----------------|--|----------|----------------------|---------------------|-------------------------|--------------------|--------------------------------|
| | Total Population | 1970=100 | Bronx (The Bronx) | Kings (Brooklyn) | New York (Manhattan) | Queens (Queens) | Richmond (Staten Island) |
| 1960..... | 7,781,984 | 98.6 | 1,424,815 | 2,627,319 | 1,698,281 | 1,809,578 | 221,991 |
| 1970..... | 7,895,563 | 100.0 | 1,471,701 | 2,602,012 | 1,539,233 | 1,987,174 | 295,443 |
| 1980 (1) | 7,071,639 | 89.6 | 1,168,972 | 2,231,028 | 1,428,285 | 1,891,325 | 352,029 |
| 1984 (2) | 7,234,514 | 91.6 | 1,179,413 | 2,288,807 | 1,457,879 | 1,943,568 | 364,847 |
| 1985 (2) | 7,274,054 | 92.1 | 1,187,894 | 2,304,368 | 1,464,286 | 1,949,579 | 367,927 |
| 1986 (2) | 7,319,246 | 92.7 | 1,198,837 | 2,320,507 | 1,475,202 | 1,953,616 | 371,084 |
| 1987 (2) | 7,342,476 | 93.0 | 1,210,712 | 2,324,361 | 1,481,531 | 1,952,640 | 373,232 |
| 1988 (2) | 7,353,719 | 93.1 | 1,215,834 | 2,326,439 | 1,484,183 | 1,951,557 | 375,706 |
| 1989 (1) | 7,344,175 | 93.0 | 1,213,675 | 2,316,966 | 1,486,046 | 1,950,425 | 377,063 |
| 1990 (1) | 7,322,564 | 92.7 | 1,203,789 | 2,300,664 | 1,487,536 | 1,951,598 | 378,977 |
| 1991 (1) | 7,320,510 | 92.7 | 1,197,523 | 2,292,394 | 1,494,082 | 1,951,928 | 384,583 |

(1) Final census count, which may reflect an undercount of a significant number of persons and is subject to modification as a result of certain litigation with the Census Bureau.

(2) 1984-1988 based on mid-year population estimate of the Bureau of the Census as of September 1989.

NOTE: Does not include an undetermined number of undocumented aliens.

SOURCES: U.S. Department of Commerce, Bureau of the Census.

The following table sets forth the distribution of the City's population by age between 1960 and 1990.

DISTRIBUTION OF POPULATION BY AGE

(In Thousands)

| Age | 1960 | | 1970 | | 1980 | | 1990 | |
|-------------------|-------|---------------|-------|---------------|-------|---------------|-------|---------------|
| | | % of Total | | % of Total | | % of Total | | % of Total |
| Under 5 | 687 | 8.8 | 616 | 7.8 | 471 | 6.7 | 510 | 7.0 |
| 5 to 17 | 1,478 | 19.0 | 1,619 | 20.5 | 1,295 | 18.3 | 1,177 | 16.1 |
| 18 to 24 | 663 | 8.5 | 889 | 11.3 | 826 | 11.7 | 778 | 10.6 |
| 25 to 34 | 1,056 | 13.6 | 1,076 | 13.6 | 1,203 | 17.0 | 1,369 | 18.7 |
| 35 to 44 | 1,071 | 13.8 | 916 | 11.6 | 834 | 11.8 | 1,117 | 15.2 |
| 45 to 64 | 2,013 | 25.9 | 1,832 | 23.2 | 1,491 | 21.1 | 1,419 | 19.4 |
| 65 and Over | 814 | 10.4 | 948 | 12.0 | 952 | 13.4 | 953 | 13.0 |

SOURCES: U.S. Department of Commerce, Bureau of the Census.

Employment Trends

From 1969 to 1977, economic activity in the City declined sharply while the U.S. economy expanded, despite two national recessions (1969 to 1970 and 1973 to 1975) during this period. Locally, total employment dropped 16.1 percent from 3,798,000 jobs to 3,188,000 jobs, or 2.2 percent per year over the eight-year period. The manufacturing industry accounted for nearly half of the City's total employment loss during this period. Employment in the FIRE sector declined by about 1.4 percent per year, while service sector employment remained relatively constant.

The ripple effects of the decline in the manufacturing and FIRE sectors on the City's economy, along with stagnation in the services sector, caused declines during the 1969 to 1977 period in other sectors sensitive to the health of the rest of the local economy. Conversely, from 1969 to 1977, U.S. real GDP rose on average 2.6 percent per year and employment increased at an average annual rate of 2.0 percent. Thus, as the nation emerged from the OPEC-induced recession in 1973 to 1975, a continuing local economic decline plunged the City into a fiscal crisis that led it to the brink of bankruptcy.

Employment trends in the City began to rebound during the final quarter of 1977, and continued to increase over prior year levels through March 1982. In the second half of 1982, the City's economy began to reflect the national recession, and the City experienced its first job loss after four years of job gains. During 1983, the City's economy began to recover from the recession with employment growth in most sectors.

Due to the strong growth in the FIRE and service sectors, total City employment rose 1.2 percent a year to reach 3,590,000 in 1987, the highest level in a decade and a half. FIRE employment during this period grew by 2.9 percent per year; service sector employment rose 3.5 percent per year; wholesale and retail trade employment increased 0.3 percent per year; government employment grew 1.3 percent per year; and construction employment increased 6.3 percent per year. Meanwhile, employment in the manufacturing, transportation and public utilities sectors continued to decline.

The stock market crash of 1987 caused significant job losses and stalled the City's growth in 1988. After increases of 40,000 jobs a year from 1977 to 1987, City employment increased by only 15,000 jobs, or 0.4 percent, in 1988, all of which was attributable to growth in government employment. During 1989, the City's economy continued to show declines in employment in the FIRE and manufacturing sectors and weak growth in government employment. The next year, 1990, the national economic downturn began and the City experienced losses of 42,000 jobs, or 1.2 percent. These losses continued into 1991 with job losses of 191,000 or 5.3 percent. In 1992, job losses moderated in the City, with employment in the City decreasing by 90,000, or 2.7 percent. As of August 1993, employment in the U.S. increased by 1.7 million jobs while employment in the City decreased by 37,000 jobs from August 1992.

Non-Agricultural Payroll Employment: Establishment Survey

Non-agricultural employment trends in the City are shown in the table below.

CHANGES IN PAYROLL EMPLOYMENT IN NEW YORK CITY (In Thousands)

| Industry Sector | Peak | | Average Annual Employment | | | | | | | |
|---|---------------|---------|---------------------------|---------|---------|---------|---------|---------|---------|---------|
| | Employment(1) | | | | | | | | | |
| | Year | Level | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
| Private Sector | | | | | | | | | | |
| Non-Manufacturing | 1989 | 2,647.2 | 2,523.7 | 2,575.9 | 2,630.1 | 2,638.8 | 2,647.2 | 2,621.1 | 2,475.2 | 2,408.2 |
| Services (2) | 1990 | 1,149.0 | 1,038.5 | 1,076.2 | 1,108.4 | 1,123.1 | 1,147.2 | 1,149.0 | 1,096.9 | 1,091.1 |
| Wholesale and Retail Trade | 1969 | 749.1 | 638.1 | 638.5 | 637.6 | 634.3 | 630.2 | 608.3 | 565.3 | 547.9 |
| Finance, Insurance and Real Estate | 1987 | 549.7 | 507.6 | 529.3 | 549.7 | 542.4 | 530.5 | 519.6 | 494.4 | 477.2 |
| Transportation and Public Utilities | 1969 | 323.9 | 232.0 | 217.3 | 214.9 | 218.4 | 218.1 | 229.1 | 218.4 | 205.4 |
| Contract Construction | 1962 | 139.1 | 106.3 | 113.7 | 118.8 | 120.1 | 120.8 | 114.9 | 99.8 | 86.2 |
| Mining | 1967 | 2.5 | 1.2 | 0.8 | 0.7 | 0.5 | 0.3 | 0.3 | 0.3 | 0.4 |
| Manufacturing | 1960 | 946.8 | 407.7 | 391.5 | 379.6 | 370.1 | 359.5 | 337.5 | 307.8 | 293.1 |
| Durable | 1960 | 303.6 | 112.2 | 106.5 | 100.0 | 97.7 | 94.3 | 88.0 | 77.3 | 72.8 |
| Non-Durable | 1960 | 643.2 | 295.5 | 285.0 | 279.6 | 272.4 | 265.2 | 249.5 | 230.5 | 220.2 |
| Government (3) | 1990 | 607.6 | 556.6 | 573.5 | 580.4 | 596.1 | 601.5 | 607.6 | 592.6 | 584.0 |
| Total Non-Agricultural | 1969 | 3,797.7 | 3,488.1 | 3,540.6 | 3,590.0 | 3,605.0 | 3,608.2 | 3,566.2 | 3,375.6 | 3,285.2 |

RECENT MONTHLY TRENDS
(Total Payroll Employment In Thousands)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|-----------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|
| 1985..... | 3,427.3 | 3,439.6 | 3,462.5 | 3,464.1 | 3,485.6 | 3,483.9 | 3,487.4 | 3,495.0 | 3,491.7 | 3,512.8 | 3,547.6 | 3,559.1 |
| 1986..... | 3,480.5 | 3,492.2 | 3,524.0 | 3,525.0 | 3,536.9 | 3,552.5 | 3,543.9 | 3,535.3 | 3,544.0 | 3,566.5 | 3,585.2 | 3,600.7 |
| 1987..... | 3,523.3 | 3,537.8 | 3,568.5 | 3,577.9 | 3,588.6 | 3,610.6 | 3,582.0 | 3,584.5 | 3,588.7 | 3,615.3 | 3,641.1 | 3,661.8 |
| 1988..... | 3,557.8 | 3,575.3 | 3,609.4 | 3,603.9 | 3,603.8 | 3,625.1 | 3,578.3 | 3,583.0 | 3,595.4 | 3,611.2 | 3,651.4 | 3,665.0 |
| 1989..... | 3,566.9 | 3,584.6 | 3,611.2 | 3,617.5 | 3,622.2 | 3,641.5 | 3,592.5 | 3,584.6 | 3,594.7 | 3,601.6 | 3,623.9 | 3,657.6 |
| 1990..... | 3,555.9 | 3,563.1 | 3,588.9 | 3,578.2 | 3,601.7 | 3,606.0 | 3,549.4 | 3,553.9 | 3,556.2 | 3,540.1 | 3,548.4 | 3,553.1 |
| 1991..... | 3,389.2 | 3,387.7 | 3,407.6 | 3,395.1 | 3,396.9 | 3,406.5 | 3,340.7 | 3,336.6 | 3,343.0 | 3,358.9 | 3,372.9 | 3,372.4 |
| 1992..... | 3,260.8 | 3,260.5 | 3,284.9 | 3,293.7 | 3,297.7 | 3,302.6 | 3,278.8 | 3,275.7 | 3,264.9 | 3,283.7 | 3,305.2 | 3,313.7 |
| 1993..... | 3,224.0 | 3,230.8 | 3,257.0 | 3,257.3 | 3,264.6 | 3,275.5 | 3,243.8 | 3,238.5 | | | | |

(1) For the period 1960 through 1992.

(2) "Services" includes miscellaneous establishments. Data for 1981 to present include a phased-in addition of family care attendants employed by social service agencies who previously were hired directly by the individual receiving such services and who were therefore excluded by definitional reasons from tabulations in prior years.

(3) Excludes military establishments.

NOTE: Details may not add up to totals due to rounding. Payroll employment is based upon reports of employer payroll data ("establishment data"), which exclude the self-employed and workers employed by private households or agriculture, forestry and fishery.

SOURCES: U.S. Department of Labor, BLS and State of New York, Department of Labor, Division of Research and Statistics.

Employment, Labor Force and Unemployment: Current Population Survey

Changes in the employment status of the City's resident labor force are shown in the following table.

EMPLOYMENT STATUS OF THE RESIDENT POPULATION OF NEW YORK CITY

| Year | Civilian Labor Force | | | Labor Force Participation Rate(1) | | Unemployment Rate(2) | |
|----------------|----------------------|----------------------------|------------|-----------------------------------|---------------|----------------------|---------------|
| | Total | (In Thousands) Employed | Unemployed | New York City | United States | New York City | United States |
| 1982 | 3,093 | 2,798 | 296 | 55.2% | 64.3% | 9.6% | 9.7% |
| 1983 | 3,047 | 2,759 | 288 | 53.8 | 64.4 | 9.4 | 9.6 |
| 1984 | 3,081 | 2,806 | 275 | 53.9 | 64.7 | 8.9 | 7.5 |
| 1985 | 3,227 | 2,965 | 261 | 56.1 | 65.1 | 8.1 | 7.2 |
| 1986 | 3,220 | 2,983 | 237 | 55.5 | 65.6 | 7.4 | 7.0 |
| 1987 | 3,244 | 3,058 | 186 | 55.6 | 65.9 | 5.7 | 6.2 |
| 1988 | N/A | N/A | N/A | N/A | 66.2 | N/A | 5.5 |
| 1989 (3) | 3,441 | 3,201 | 240 | 58.8 | 66.8 | 7.0 | 5.3 |
| 1990 | 3,339 | 3,111 | 228 | 57.0 | 66.7 | 6.8 | 5.5 |
| 1991 | 3,307 | 3,023 | 284 | 56.4 | 66.3 | 8.6 | 6.8 |
| 1992 | 3,311 | 2,952 | 359 | 56.3 | 66.6 | 10.8 | 7.4 |

(1) Percentage of civilian non-institutional population, age 16 and over, in labor force, employed or seeking employment.

(2) Percentage of civilian labor force unemployed; excludes those persons unable to work and discouraged workers (i.e., persons not actively seeking work because they believe no suitable work is available).

(3) From April 1988 through October 1989, the monthly Current Population survey was discontinued. The annual 1989 employment information for the City represents year-end (December) data.

Note: Monthly and semi-annual data are not seasonally adjusted. Because these estimates are based on a sample rather than a full count of population, these data are subject to sampling error. Accordingly, small differences in the estimates over time should be interpreted with caution. The Current Population Survey includes wage and salary workers, domestic and other household workers, self-employed persons, and unpaid workers who work 15 hours or more during the survey week in family businesses.

SOURCES: U.S. Department of Labor, BLS.

RECENT MONTHLY TRENDS

Unemployment Rate

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|----------------|------|------|------|------|------|------|------|------|-------|------|------|------|
| 1985 | 8.2% | 9.6% | 9.0% | 9.1% | 8.4% | 7.4% | 6.9% | 7.7% | 8.1% | 8.4% | 7.3% | 7.1% |
| 1986 | 7.3 | 8.4 | 7.9 | 8.7 | 7.9 | 7.3 | 7.9 | 6.9 | 6.6 | 6.9 | 6.1 | 6.2 |
| 1987 | 7.4 | 6.0 | 5.8 | 5.2 | 5.4 | 6.0 | 6.0 | 5.1 | 4.5 | 5.8 | 6.6 | 5.0 |
| 1988 (1) | 5.3 | 4.2 | 4.6 | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| 1989 (1) | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | N/A | 6.5 | 7.0 |
| 1990 | 7.0 | 6.5 | 6.8 | 5.9 | 6.9 | 6.0 | 7.2 | 6.2 | 7.9 | 7.7 | 7.4 | 6.3 |
| 1991 | 7.4 | 7.3 | 8.1 | 8.9 | 8.9 | 8.7 | 8.8 | 9.3 | 7.7 | 8.5 | 10.2 | 9.3 |
| 1992 | 10.4 | 10.9 | 10.3 | 9.5 | 10.5 | 11.5 | 12.1 | 11.1 | 11.4 | 11.0 | 10.5 | 11.0 |
| 1993 | 13.4 | 11.3 | 9.6 | 9.8 | 9.5 | 9.4 | 9.5 | 9.5 | | | | |

(1) From April 1988 through October 1989, the monthly Current Population survey was discontinued. The annual 1989 employment information for the City represents year-end (December) data.

Note: Monthly and semi-annual data are not seasonally adjusted. Because these estimates are based on a sample rather than a full count of population, these data are subject to sampling error. Accordingly, small differences in the estimates over time should be interpreted with caution. The Current Population Survey includes wage and salary workers, domestic and other household workers, self-employed persons, and unpaid workers who work 15 hours or more during the survey week in family businesses.

SOURCES: U.S. Department of Labor, BLS.

Personal Income

While per capita personal income for City residents, unadjusted for the effects of inflation and the differential in living costs, has increased in recent years and remains higher than the average for the United States, it fell from 1950 through 1979 as a proportion of both the national and New York metropolitan area levels. This relative decline in per capita income of City residents was partially because the incomes of households moving into the City were substantially lower than those of departing households, which relocated mostly to the City's suburbs.

The following table sets forth recent information regarding personal income in the City.

PERSONAL INCOME IN NEW YORK CITY(1)

| Year | Personal Income | | | Per Capita Personal Income | | | | | |
|------------|-------------------------------|----------------------------|------|----------------------------|----------------------------|------|-------------------------------|-------------------------|-------------------------|
| | NYC Total (in billions) | Average Annual % change | | NYC | Average Annual % change | | New York City as a percent of | | |
| | | NYC | U.S. | | NYC | U.S. | U.S. | Suburban Counties(2) | Metropolitan Area(3) |
| 1983 | \$102.1 | 7.4% | 6.4% | \$14,215 | 6.3% | 5.4% | 116.1% | 84.1% | 82.1% |
| 1984 | 112.3 | 10.0 | 10.2 | 15,520 | 9.2 | 9.2 | 116.0 | 83.2 | 82.0 |
| 1985 | 118.4 | 5.5 | 7.1 | 16,278 | 4.9 | 6.2 | 114.6 | 81.2 | 81.7 |
| 1986 | 126.1 | 6.5 | 6.2 | 17,234 | 5.9 | 5.3 | 115.3 | 79.9 | 81.6 |
| 1987 | 133.0 | 5.5 | 5.9 | 18,120 | 5.1 | 4.9 | 115.5 | 77.7 | 81.2 |
| 1988 | 143.8 | 8.1 | 7.2 | 19,557 | 7.9 | 6.2 | 117.3 | 77.1 | 81.0 |
| 1989 | 154.3 | 7.3 | 7.5 | 21,006 | 7.4 | 6.5 | 118.4 | 76.6 | 80.8 |
| 1990 | 165.0 | 6.9 | 6.5 | 22,528 | 7.2 | 5.7 | 120.1 | 78.3 | 81.1 |
| 1991 | 169.6 | 2.8 | 3.5 | 23,174 | 2.9 | 2.1 | 121.0 | 79.8 | 81.4 |

(1) In current dollars. Personal Income is a place of residence measure of income which includes wages and salaries, other labor income, proprietors' income, personal dividend income, personal interest income, rental income of persons, and transfer payments.

(2) Suburban Counties consists of the counties of Nassau, Putnam, Rockland, Suffolk, and Westchester in New York State.

(3) Based on Primary Metropolitan Statistical Area ("PMSA") which includes New York City, Putnam, Rockland, and Westchester counties.

SOURCES: U.S. Department of Commerce, Bureau of Economic Analysis ("BEA") and the Bureau of the Census.

Sectoral Distribution of Employment and Income

Data on the sectoral distribution of employment and income reflect a growing concentration of FIRE and services employment and a shrinking manufacturing base in the City relative to the nation. Within FIRE and services, the expanding trend is especially more marked in finance, business and related professional services. There are important implications of this structural shift from the manufacturing to the FIRE and services sectors. First, average employee income in finance and related business and professional services has been considerably higher than in manufacturing. Although the employment share of the FIRE sector increased by 2 percentage points during 1977 to 1989, its earnings share increased by about 9 percentage points, which reflects its high per employee income. However, the sudden shock in the financial industry of the October 1987 stock market crash had a disproportionately adverse effect on the City's employment and income relative to the nation. Payroll employment data indicates that through December 1991 the City's FIRE sector lost 71,000 jobs since the October 1987 crash, significantly offsetting the employment gains in other sectors. The City's and the nation's employment and income by industry sector are set forth in the following table.

SECTORAL DISTRIBUTION OF EMPLOYMENT AND EARNINGS(1)

| Sector | Employment | | | | Earnings (2) | | | |
|---|------------|-------|-------|-------|--------------|-------|-------|-------|
| | 1977 | | 1991 | | 1977 | | 1991 | |
| | NYC | U.S. | NYC | U.S. | NYC | U.S. | NYC | U.S. |
| Private Sector | | | | | | | | |
| Non-Manufacturing | 67.2% | 57.8% | 73.3% | 66.0% | 70.7% | 56.7% | 78.4% | 63.9% |
| Services (3) | 24.6 | 18.5 | 32.5 | 26.2 | 26.0 | 19.6 | 33.7 | 27.0 |
| Wholesale and Retail trade..... | 19.5 | 22.5 | 16.7 | 23.4 | 16.7 | 16.6 | 12.1 | 16.3 |
| Finance, Insurance and Real Estate | 13.0 | 5.4 | 14.6 | 6.2 | 14.4 | 5.6 | 22.2 | 6.8 |
| Transportation and Public Utilities | 8.1 | 5.7 | 6.5 | 5.3 | 11.2 | 7.5 | 7.0 | 6.8 |
| Contract Construction | 2.0 | 4.7 | 3.0 | 4.3 | 2.3 | 5.9 | 3.2 | 5.5 |
| Mining | 0.0 | 1.0 | 0.0 | 0.0 | 0.1 | 1.5 | 0.0 | 0.9 |
| Manufacturing | 16.9 | 23.9 | 9.1 | 17.0 | 15.6 | 26.1 | 8.0 | 19.3 |
| Durable | 5.1 | 14.1 | 2.3 | 9.8 | 4.5 | 16.6 | 1.9 | 11.7 |
| Non-Durable..... | 11.8 | 9.8 | 6.8 | 7.2 | 11.1 | 9.5 | 6.1 | 7.6 |
| Government (4) | 15.9 | 18.3 | 17.6 | 17.0 | 13.7 | 17.2 | 13.6 | 16.8 |
| Total Non-agricultural..... | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 | 100.0 |

(1) The sectoral distributions are obtained by dividing each industry's employment or earnings by total non-agricultural employment or earnings.

(2) Includes the sum of wage and salary disbursements, other labor income, and proprietors' income. The latest information available for New York City is 1991 preliminary data.

(3) Services include miscellaneous establishments.

(4) Excludes military establishments.

SOURCES: The two primary sources of employment and earnings information are U.S. Dept. of Labor, BLS, and U.S. Dept. of Commerce, BEA, respectively.

Consumer Prices

The following table presents information on consumer price trends for the New York-Northeastern New Jersey and four other metropolitan areas and the nation.

CHANGES IN CONSUMER PRICE INDEX: SELECTED AREAS

| Area(1) | All Items-Urban Areas | | | | | | | | | | | | | | |
|------------------------|----------------------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| | Percent Increase Over Prior Year | | | | | | | | | | | | | | |
| | 1970 | 1975 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
| New York-NE. | | | | | | | | | | | | | | | |
| N.J. (2) | 7.4 | 7.6 | 11.3 | 9.8 | 5.8 | 4.7 | 5.0 | 3.7 | 3.3 | 5.1 | 4.9 | 5.6 | 6.1 | 4.5 | 3.6 |
| Philadelphia, Pa.- | | | | | | | | | | | | | | | |
| N.J. | 6.8 | 8.3 | 13.1 | 10.2 | 4.9 | 2.9 | 4.7 | 4.5 | 2.5 | 4.8 | 4.8 | 4.8 | 5.9 | 4.7 | 3.1 |
| Chicago, Ill.- | | | | | | | | | | | | | | | |
| Northwestern Ind. | 5.7 | 7.9 | 14.4 | 9.6 | 6.8 | 4.0 | 3.8 | 3.8 | 2.1 | 4.1 | 3.9 | 5.1 | 5.4 | 4.1 | 2.9 |
| San Francisco- | | | | | | | | | | | | | | | |
| Oakland (3) | 5.1 | 9.9 | 15.1 | 13.0 | 6.9 | 1.0 | 5.8 | 4.0 | 3.0 | 3.5 | 4.4 | 4.9 | 4.5 | 4.4 | 3.3 |
| L.A.-Long Beach, | | | | | | | | | | | | | | | |
| Anaheim, | | | | | | | | | | | | | | | |
| Calif..... | 5.2 | 10.6 | 15.8 | 9.7 | 6.0 | 1.8 | 4.6 | 4.6 | 3.3 | 4.2 | 4.6 | 5.1 | 5.9 | 4.1 | 3.6 |
| U.S. city average | 5.9 | 9.1 | 13.5 | 10.4 | 6.2 | 3.2 | 4.4 | 3.5 | 1.9 | 3.7 | 4.1 | 4.8 | 5.4 | 4.2 | 3.0 |

(1) Area is generally the Standard Metropolitan Statistical Area (the "SMSA"), exclusive of farms. L.A.-Long Beach, Anaheim, Calif. is a combination of two SMSA's, and N.Y., N.Y.-Northeastern N.J. and Chicago, Ill.-Northwestern Ind. are the more extensive Standard Consolidated Areas. Area definitions are those established by the U.S. Office of Management and Budget in 1973. Cities in the respective areas had a population of one million or more according to 1990 census.

(2) Since January 1987, the New York area coverage has been expanded. The New York-Northeastern New Jersey area comprises the five boroughs of New York City, Nassau, Suffolk, Westchester, Rockland, Putnam, and Orange Counties in New York State; Bergen, Essex, Hudson, Hunterdon, Middlesex, Monmouth, Morris, Ocean, Passaic, Somerset, Sussex, and Union Counties in New Jersey; and Fairfield County and parts of Litchfield and New Haven Counties in Connecticut.

(3) The Consumer Price Index for San Francisco-Oakland was reported bi-monthly prior to 1987.

SOURCES: U.S. Department of Labor, BLS.

Information on consumer price trends in the New York-Northeastern New Jersey metropolitan areas for certain items is set forth in the table below.

BY EXPENDITURE CLASS

| Expenditure Class | Average Annual % Increase 1982-92 | | % Increase 1992 | | % Increase August 1993 over August 1992 | |
|----------------------------------|--------------------------------------|-------------------|-----------------|-------------------|--|-------------------|
| | U.S. | New York-NE. N.J. | U.S. | New York-NE. N.J. | U.S. | New York-NE. N.J. |
| All Items | 3.8 | 4.6 | 3.0 | 3.6 | 2.8 | 3.0 |
| Food and Beverages..... | 3.6 | 4.1 | 1.4 | 1.2 | 1.9 | 2.1 |
| Housing..... | 3.6 | 4.8 | 2.9 | 3.9 | 2.7 | 2.8 |
| Apparel and Upkeep | 3.0 | 2.8 | 2.5 | 3.2 | 1.3 | (0.2) |
| Transportation | 2.7 | 3.2 | 2.2 | 2.8 | 2.6 | 5.1 |
| Medical Care | 7.5 | 8.1 | 7.4 | 7.2 | 6.0 | 4.9 |
| Entertainment | 4.0 | 4.4 | 2.8 | 4.0 | 2.2 | 2.0 |
| Other Goods and Services..... | 7.2 | 7.8 | 6.8 | 7.8 | 5.2 | 5.2 |

NOTE: Monthly data are not seasonally adjusted.

SOURCES: U.S. Department of Labor, BLS.

Historically the New York Area inflation rate does not conform very well with the national inflation rate. Since 1960, the difference in the New York Area rate from the national rate varied from 1.6 percentage points higher in 1970 to 2.6 percentage points lower in 1979. Prices in the metropolitan area rose at a rate higher than the nation during the periods 1960 to 1966, 1968 to 1972 and 1983 to the present. During 1967 and the period from 1973 to 1982 prices in the area rose either at par with or more slowly than the nation and many of the 15 metropolitan areas for which CPI data are maintained.

Since 1983, the local Consumer Price Index increased more than the national average, rising 4.6 percent per year on average through 1989 versus 3.6 percent per year for the nation. This was a reversal of the trend in the 1970s and early 1980s, when local inflation lagged the national rate by a percentage point. In 1989, local inflation measured 5.6 percent compared to the national 4.8 percent rate. In 1990, prices at the local and national levels experienced a sharp increase over 1989, climbing 6.1 percent and 5.4 percent, respectively. In 1991, local prices rose 4.5 percent or 0.3 percent higher than the U.S. In 1992, inflation was generally subdued both nationally and locally, with prices in the New York area rising 3.6 percent compared to 3.0 percent nationally. The premium of the New York area inflation rate over the national rate was 0.2 percentage points in August of 1993, with local inflation running at a rate of 3.0 percent and national inflation running at a rate of 2.8 percent.

Public Assistance

Between 1960 and 1972, the number of persons in the City who were recipients of some form of public assistance more than tripled, from 324,200 to 1,265,300. The bulk of the long-term increase occurred in the Aid to Families with Dependent Children ("AFDC") program, which more than quadrupled during that period.

Between 1972 and 1982 the number of recipients, including those in the Supplemental Security Income ("SSI") program, declined fairly steadily, except for temporary increases noted in 1975 and 1976, when the City was experiencing the effects of a national recession. From 1983 until 1987, the number of recipients increased, reflecting lingering effects of the 1982 recession. While figures for 1988 and 1989 indicate a decrease in public assistance recipients, the number of recipients has increased throughout 1990, 1991 and thus far in 1992.

Public assistance and SSI recipients rose as a proportion of total City population from 4.2% in 1960 to 16.5% in 1975. Between 1975 and 1985, that proportion decreased to 15.8% of total population.

The following table sets forth the number of persons receiving public assistance in the City.

PERSONS RECEIVING PUBLIC ASSISTANCE IN NEW YORK CITY
(Annual Averages In Thousands)

| Year(1) | Total | Average Annual Change (%) | Home Relief | AFDC | AFDA Unemployed Parent | AFDC Predetermination Grant |
|------------|---------|---------------------------|-------------|-------|------------------------|-----------------------------|
| 1985 | 926.1 | 0.8 | 174.0 | 731.1 | 21.0 | — |
| 1986 | 911.5 | (1.6) | 174.3 | 717.6 | 19.6 | — |
| 1987 | 871.5 | (4.4) | 162.0 | 694.2 | 15.3 | — |
| 1988 | 840.1 | (3.6) | 155.8 | 671.2 | 13.0 | — |
| 1989 | 817.9 | (2.6) | 149.3 | 642.0 | 12.0 | 14.6(2) |
| 1990 | 858.3 | 4.9 | 139.7 | 641.4 | 12.8 | 64.5 |
| 1991 | 939.4 | 9.5 | 166.5 | 677.5 | 15.0 | 80.4 |
| 1992 | 1,007.6 | 7.3 | 189.3 | 710.1 | 15.9 | 92.3 |

(1) Figures do not include aged, disabled or blind persons who were transferred from public assistance to the SSI program, which is primarily Federally funded. According to the U.S. Department of Health and Human Services, the SSI program supported, as of December of each year, a total of 227,068 persons in 1979; 223,934 persons in 1980; 217,274 persons in 1981; 207,484 persons in 1982; 206,330 persons in 1983; 211,728 persons in 1984; 217,852 persons in 1985; 223,404 in 1986 and 227,918 in 1987.

(2) Figure comprise persons receiving Public Assistance as predetermination grant recipients pending AFDC eligibility for October through December 1989 only.

NOTE: Due to a change in statistical measurements, the decline in public assistance recipients for 1987 may be slightly overstated.

RECENT MONTHLY TRENDS
(Total Recipients In Thousands)

| Year | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. |
|------------|--------|--------|--------|--------|--------|--------|--------|--------|--------|-------|-------|-------|
| 1985 | 923.9 | 921.0 | 931.2 | 935.7 | 924.5 | 925.1 | 925.8 | 930.5 | 922.6 | 927.6 | 922.0 | 922.9 |
| 1986 | 920.2 | 917.8 | 918.9 | 919.7 | 916.5 | 913.0 | 915.6 | 906.8 | 904.9 | 907.8 | 897.6 | 898.9 |
| 1987 | 894.8 | 890.1 | 893.9 | 894.0 | 889.5 | 885.9 | 873.5 | 859.3 | 854.0 | 845.2 | 831.2 | 847.0 |
| 1988 | 839.4 | 852.2 | 856.8 | 865.1 | 852.6 | 846.3 | 838.9 | 836.3 | 826.2 | 825.9 | 820.1 | 822.3 |
| 1989 | 813.4 | 816.2 | 821.1 | 816.7 | 815.3 | 815.0 | 813.0 | 820.7 | 817.8 | 825.1 | 824.3 | 823.0 |
| 1990 | 823.6 | 827.6 | 839.0 | 841.7 | 849.7 | 859.6 | 859.8 | 871.4 | 871.7 | 880.2 | 883.1 | 892.3 |
| 1991 | 895.9 | 899.9 | 914.0 | 923.2 | 929.2 | 936.8 | 945.1 | 953.8 | 955.2 | 969.5 | 972.8 | 977.2 |
| 1992 | 988.8 | 985.4 | 987.1 | 989.1 | 994.4 | 999.7 | 1005.2 | 1011.6 | 1018.3 | | | |
| 1993 | 1047.5 | 1053.9 | 1068.0 | 1078.9 | 1081.8 | 1089.0 | 1092.0 | 1096.7 | | | | |

NOTE: Due to a change in statistical measurements, the figures for 1987 maybe slightly overstated.

SOURCES: The City of New York, Human Resources Administration, Office of Budget and Fiscal Affairs, Division of Statistics.

Business Activity Index

The City has a highly diversified economic base, and sustains a substantial volume of business activity in the service industry, wholesale and retail trade, and manufacturing.

The largest aggregate of economic activity in the City is the corporate headquarters complex, together with ancillary services. The City is the location of a large number of major corporate headquarters, and is the leading center for corporate services, such as commercial and investment banking, law, accounting and advertising. While the City experienced a substantial number of business relocations during the previous decade, the number of relocations declined significantly after 1976, although declines in front office employment continued. During 1977 and 1982 employment rebounded, primarily in the banking and securities industry. Most of the corporations which relocated moved to sites within the City's metropolitan area, and continue to rely in large measure on services provided by businesses which are still located in the City.

The City is a leading center for the banking and securities industry, life insurance, communications, publishing, fashion design and retailing, among other fields. The City is a major seaport and a focal point for international business. Many of the major corporations headquartered in the City are multinational in scope

and have extensive foreign operations. Numerous foreign-owned companies in the United States are also headquartered in the City. These firms, which have increased in number substantially over the past decade, are found in all sectors of the City's economy, but are concentrated in trade, manufacturing sales offices, tourism and finance. Foreign banking activities have increased significantly since the early 1970s and have continued to grow rapidly through the 1980s. Real estate purchases in the United States disclosed by foreigners are heavily concentrated in the City in terms of dollar value. The City is the location of the headquarters of the United Nations, and several affiliated organizations maintain their principal offices in the City. A large diplomatic community exists in the City to staff the 157 missions to the United Nations and the 88 foreign consulates.

The Business Activity Index ("BAI") for the City, which is a measure of the overall health of the economy, reflects both long-term trends in the City's economic base and short-term fluctuations in the performance of the national economy. Due to a partial erosion of its economic base, the City was particularly vulnerable to national economic downturns, while lagging behind in times of national expansion during the 1970s. The impact of the national economic recession of 1974-1975 was particularly severe. From a peak of 111 early in 1973, the BAI for the City declined to a low of 96 during the spring of 1975. The effects of the 1980 and 1981-1982 national recessions were less severe to the City's economy. The table below shows the City and State BAI for the past several years.

BUSINESS ACTIVITY INDEX

(Annual Average: 1977 = 100)

| | <u>1984</u> | <u>1985</u> | <u>1986</u> | <u>1987</u> | <u>1988</u> | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | <u>1993(1)</u> |
|--------------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|----------------|
| New York City | 109 | 112 | 116 | 121 | 124 | 125 | 126 | 122 | 120 | 121 |
| New York State | 114 | 119 | 124 | 129 | 135 | 137 | 137 | 135 | 135 | 136 |

(1) January 1993.

SOURCES: State of New York, Department of Commerce, Division of Economic Research and Statistics.

NOTE: The Business Activity Index comprises seven basic business activities, which include: factory output; retail; service; wholesale; construction; transportation; communications and public utilities; and finance, insurance and real estate.

Many factors have been cited as placing the City during the early 1970s at a competitive disadvantage as a business location in relation to its suburbs and the Sunbelt region and contributing to the erosion of the City's economic base. Among these factors were the City's tax burden, energy costs, labor costs, office space market and cost of living.

The combined state and local tax burden on residents of the City is one of the highest among all cities in the United States. In the 1988 fiscal year, average per capita City taxes were \$1,812 and average per capita State taxes paid by residents of the state were \$1,462, a combined tax burden of \$3,274 per capita. Nationwide, per capita local taxes averaged \$698 and per capita state taxes averaged \$1,074 for the 1988 fiscal year for a combined tax burden of \$1,772.

The cost of energy in the City is one of the highest in the nation, particularly for electricity. In May 1991, electric costs in the City for industrial users was ranked the third highest among electric utility service areas in the nation.

From 1977 through most of 1982, the office space market tightened in response to an increase in demand. At the end of 1982 and in early 1983, construction activity increased and the office market softened. Recent data from Cushman and Wakefield indicate that the office market in the City, particularly in the downtown area where older, poorly maintained buildings have been vacated, has been softening due to an increased availability of office space with the overall vacancy rate in Manhattan at approximately 18.4 percent.

A major world center for culture and the arts, the City is the nation's leading tourist center and tourism is a major revenue producing industry in the City. In 1979, the City hosted a record number of tourists and business visitors, 17.5 million, who injected nearly \$2.3 billion into the local economy and filled the City's hotels to 81 percent of capacity. Despite current economic conditions worldwide, tourism continues as one of the City's major economic strengths. Based on revised estimates, during 1988, 25.5 million people visited the

City, a sharp rise over 1987; and spent a total of \$9.76 billion, a 9.7 percent increase from 1987. A rise in overseas visitor business occurred, with the number of foreign visitors increasing to over 4.6 million in 1988, a 15 percent increase from 1987. Overseas visitors continued to increase for the fourth consecutive year after three years of declines in visitor business from abroad. The number of conventions increased to 973 in 1988 from 965 in 1987, and the number of delegates attending stood at 3.0 million in 1988.

The table below shows the number of visitors to the City and the City's hotel occupancy rate for each year since 1980.

NUMBER OF VISITORS AND HOTEL OCCUPANCY RATE IN NEW YORK CITY

| <u>Year</u> | <u>Visitors(1)</u> <u>(in Millions)</u> | <u>Hotel Occupancy Rate(2)</u> <u>Annual Average of Monthly Rates</u> |
|-------------|--|--|
| 1980 | 17.1 | 78.4% |
| 1981 | 17.0 | 72.8 |
| 1982 | 16.9 | 69.7 |
| 1983 | 17.1 | 71.9 |
| 1984 | 17.2 | 75.1 |
| 1985 | 17.1 | 72.2 |
| 1986 | 17.4 | 76.0 |
| 1987 | 19.8* | 76.2 |
| 1988 | 25.5* | 76.7 |
| 1989 | 25.4* | 74.5 |
| 1990 | 25.3* | 72.6 |
| 1991 | N/A | 67.1 |

(1) SOURCE: New York City Convention & Visitors Bureau, Inc.

(2) SOURCE: Pannell, Kerr, Forster & Company, Statistics and Trend of Hotel and Motor Hotel Survey and Report.

* 1987 through 1990 figures have been revised and are inconsistent with the rest of this series.

Retail Sales

The City is a major retail trade market and has the greatest volume of retail sales of any city in the nation. Between 1984 and 1986, retail sales, particularly of durable goods, grew at an increased rate, outpacing the nation in 1985 and 1986. Retail sales decreased slightly by 0.2 percent in 1987 mainly because consumers shifted their purchases into 1986 (sales increased 17.3 percent) to take advantage of the expiring sales tax deductibility on federal income tax returns. The October 1987 stock market crash had a temporary dampening effect on retail sales, but in 1988 retail sales increased by 10.8 percent. The 1989 and 1990 figures, however, indicate declines of 0.4 percent and 0.8 percent, respectively, over the previous years' figures. Retail sales decreased in 1991 by 4.4 percent and by 3.4 percent in 1992. The July 1993 figures indicate a decrease of 4.7 percent over July 1992. The retail sales figures for 1992 are based on a different sample of data than for 1991; as a result, year over year comparisons for 1992 may be distorted. Retail sales figures prior to 1992 were based, and, for 1993 and thereafter will be based, on the same sample of data as the prior year figures.

Trends in the City's retail sales are shown in the table below.

RETAIL SALES IN NEW YORK CITY

| Year | Total Retail Sales (In Billions) | | Annual Percent Change | | | | | |
|------------|-------------------------------------|-----------|-----------------------|------|----------------|------|------------|-------|
| | | | Total Retail Sales | | Non-Durable(1) | | Durable(2) | |
| | NYC | U.S. | NYC | U.S. | NYC | U.S. | NYC | U.S. |
| 1982 | \$26.4 | \$1,067.5 | 0.7 % | 2.8% | (2.0)% | 2.6% | 7.4 % | 3.2 % |
| 1983 | 29.0 | 1,167.4 | 9.8 | 9.4 | 5.5 | 6.2 | 20.0 | 16.3 |
| 1984 | 30.9 | 1,283.8 | 6.6 | 10.0 | 4.5 | 6.8 | 10.0 | 16.2 |
| 1985 | 33.8 | 1,373.8 | 9.4 | 7.0 | 6.4 | 5.6 | 15.3 | 9.7 |
| 1986 | 39.6 | 1,449.2 | 17.2 | 5.5 | 9.1 | 3.7 | 32.1 | 8.6 |
| 1987 | 39.7 | 1,538.6 | 0.3 | 6.2 | 1.7 | 6.1 | (2.1) | 6.3 |
| 1988 | 44.0 | 1,650.0 | 10.8 | 7.2 | 11.6 | 6.0 | 9.6 | 9.3 |
| 1989 | 44.2 | 1,762.0 | 0.5 | 6.8 | 3.3 | 7.9 | (4.2) | 5.0 |
| 1990 | 43.8 | 1,849.9 | (0.9) | 5.0 | 3.7 | 6.8 | (8.7) | 1.9 |
| 1991 | 41.9 | 1,865.8 | (4.3) | 0.9 | 0.0 | 2.8 | (13.0) | (2.6) |
| 1992 | 40.4 | 1,956.5 | (3.6) | 4.9 | 2.9 | 3.4 | (17.6) | 7.5 |

(1) Includes food stores, eating and drinking places, gasoline stations, liquor stores, drug stores, fuel dealers, florists, hay-grain-feed stores, farm and garden supply stores, stationery stores, newsstands and news dealers, cigar stores and ice dealers and general merchandise and apparel stores.

(2) Includes building materials, hardware, garden supply and mobile home dealers, automotive dealers, and furniture, home furnishings and equipment stores.

SOURCES: U.S. Department of Commerce, Bureau of the Census, Current Business Reports, Monthly Retail Trade.

Infrastructure

The physical infrastructure of a city, its systems of water supply, sewers, bridges, streets and mass transit, is the underlying component of its economic base and is vital to its economic health.

The City owns and operates an upstate reservoir system covering in excess of 1,950 square miles. Water is carried to the City by a transmission system, consisting of three aqueducts, two tunnels and over 5,700 miles of trunk and distribution lines. The City has undertaken construction of a third water tunnel project to enhance the delivery capabilities and proper maintenance of the City's distribution system. In addition to supplying the needs of its residents and businesses, the City is required by State law to sell water to municipalities in counties where its water supply facilities are located. The City and its upstate watershed areas are subject to periodic drought conditions, which led the City to impose mandatory water conservation measures during 1965, 1981 and 1985.

The sewer system contains approximately 6,300 miles of sewer lines and the City's water pollution system includes 14 operating treatment facilities. The City's road network consists of some 6,200 miles of streets and arterial highway, and more than 1,300 bridges and tunnels.

The Department of Sanitation operates the City's one landfill. The capacity of the Fresh Kills site is expected to last until approximately 2015. The City's Ten-Year Capital Plan reflects the estimated costs of capital improvements necessary to maximize current waste disposal capacity and to provide for the construction of six resource recovery plants at an estimated cost of \$2.4 billion. The City has also entered into an administrative settlement with the State Department of Environmental Conservation which will require the City to spend approximately \$200 million over ten years to install pollution control systems at Fresh Kills landfill.

The City's mass transit system includes a subway system which covers over 238 route-miles with 469 stations and is the most extensive underground system in the world. The concentration of employment in the City and its metropolitan area in the Manhattan central business district increases the importance of the City's mass transit system to the City's economy. Two-fifths of all workers residing in the New York area use public transportation to reach their workplace, the largest proportion among 26 large areas surveyed. New York City's subway system continues to undergo its most extensive overhaul since it was completed 50 years ago.

The City has developed a ten-year capital program for the period 1994-2003 which projects available capital funds over this period of \$51.6 billion, of which approximately 93% will be financed through City sources. A portion of these funds is for rehabilitation or replacements of various elements of the infrastructure.

Housing

The housing stock in the City in 1987 consisted of 2,840,257 housing units, excluding units in special places, primarily institutions such as hospitals and universities. The 1987 housing inventory represented an increase of 36,988 units, or 1.3 percent, since 1984. While the total population of the City declined by 10.4 percent between 1970 and 1980, housing in the City remains in short supply. A concurrent trend toward smaller sized households resulted in a decrease during the 1970s of only 1.7 percent in the total number of resident households. The following table presents the housing inventory in the City.

HOUSING INVENTORY IN NEW YORK CITY (Housing Units in Thousands)

| <u>Ownership/Occupancy Status</u> | <u>1981</u> | <u>1984</u> | <u>1987</u> |
|--|-------------|-------------|-------------|
| Total Housing Units | 2,792 | 2,803 | 2,840 |
| Owner Units | 755 | 807 | 837 |
| Owner-Occupied | 746 | 795 | 817 |
| Conventional Home | 581 | 598 | 576 |
| Cooperative (1) | 165 | 197 | 242 |
| Vacant for Sale | 9 | 12 | 19 |
| Rental Units | 1,976 | 1,940 | 1,932 |
| Renter-Occupied | 1,934 | 1,901 | 1,884 |
| Vacant for Rent | 42 | 40 | 47 |
| Vacant, Not Available For Sale Or Rent (2) | 62 | 56 | 72 |

(1) Includes condominiums.

(2) Vacant units that are dilapidated, intended for seasonal use, held for occasional use, held for maintenance purposes or other reasons.

SOURCE: Stegman, Michael A., *Housing and Vacancy Report: New York City*, The City of New York Department of Housing Preservation and Development (New York: April 1988).

The 1987 Housing and Vacancy Survey indicates that rental housing units predominate in the City. Of all occupied housing units in 1987, 30.2% were conventional home-ownership units, cooperatives or condominiums and 69.8% were rental units. Most of the recent growth in owner-occupied units has come from the conversion of existing rental units to cooperatives rather than through the new construction of housing for sale to occupants in the City. The vacancy rate for rental housing was 2.46% in 1987, and median rent consumed 29% of the gross income of tenants. The housing condition of occupied rental units improved greatly since 1984, with a decrease in the proportion of rental units in dilapidated or deficient condition. Only 2% of renter-occupied housing units were located in dilapidated structures, and 14% were in structures with at least three serious maintenance deficiencies.

After a significant decline during the early 1970s, a slight recovery in housing construction occurred between 1975 and 1979. However, in 1980, new housing construction declined again. Of all new housing units constructed in the City between 1975 and 1978, over two-thirds were government financed or government aided; of privately financed housing units, nearly half received full or partial tax exemptions. Rehabilitation of existing housing units and conversions of housing units from other uses, through private financing and City-administered Federal funds or tax abatement programs, has increased substantially in recent years, and is now a significant segment of the City's housing market.

Construction

Office building construction in the Manhattan Central Business District is undergoing a substantial decline after experiencing significant growth during the 1980s. Between 1954 and 1968 an annual average of more than 4.7 million square feet of new office space was completed. An unusual surge of construction activity occurred between 1969 and 1972, when 61 new office building completions added a total of 51.2 million square feet of office space to the market, during a period of substantial decline in employment in the City. Construction activity declined after 1972, and by 1979 only 110,000 square feet of office space entered the market as a result of building completions.

During the late 1970s demand for office space, as a result of increased employment in the services and finance sectors of the City's economy and an increase in office space per employee, reduced the vacancy rate in the office space market from an estimated 15% in 1972 to 2% in 1981. The vacancy rate rose to 5.4% in 1983, 7.1% in 1984 and 8.2% in 1985 due to the strong upswing in construction activity. This trend continued during 1986 indicating a vacancy rate of 8.4%. In 1987 construction in the City had increased while commercial rents declined. Vacancy rates have continued to rise as a result of the 1987 stock market crash and subsequent retrenchment of the FIRE and services sectors. By the end of 1990, vacancy rates for the Manhattan commercial market were close to 17%, as office construction continued and very little new space was occupied. As of July 1992, the overall office vacancy rate in Manhattan stood at 18.4%.

With respect to housing construction between 1975 and 1979, the number of building permits for new housing units and the value of all new construction increased, indicating that a partial recovery in construction activity in the City occurred, although at a level much reduced from the 1962 peak. During 1980, permits were issued for 7,800 new housing units, compared to 14,524 issued in 1979, and the value of all new construction rose to \$1.063 billion, up from \$589 million in 1979.

Since 1988, office building and housing construction activity has slowed substantially.

Real Estate Valuation

The following tables present data on a fiscal year basis regarding recent trends in the assessed valuation of taxable real property in the City.

TRENDS IN ASSESSED VALUATION OF TOTAL TAXABLE REAL PROPERTY IN NEW YORK CITY (In Millions)

| County (Borough) | Fiscal Year | | | | | |
|--------------------------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| | 1989 | 1990 | 1991 | 1992 | 1993 | 1994 |
| Bronx (The Bronx) | \$ 3,670 | \$ 3,973 | \$ 4,330 | \$ 4,516 | \$ 4,719 | \$ 4,983 |
| Kings (Brooklyn) | 8,363 | 9,023 | 9,723 | 9,896 | 9,950 | 10,440 |
| New York (Manhattan) | 38,928 | 42,889 | 47,227 | 48,755 | 49,143 | 46,892 |
| Queens (Queens) | 10,807 | 11,543 | 12,386 | 12,666 | 12,776 | 13,185 |
| Richmond (Staten Island) | 2,374 | 2,627 | 2,669 | 2,635 | 2,590 | 2,678 |
| Total | <u>\$64,142</u> | <u>\$70,054</u> | <u>\$76,334</u> | <u>\$78,468</u> | <u>\$79,178</u> | <u>\$78,178</u> |

NOTE: Details may not add up to totals due to rounding. Totals do not include the value of certain property eligible for the veterans' real property tax exemption.

SOURCES: The City of New York, Department of Finance, Bureau of Real Property Assessment.

ASSESSED VALUATION OF TOTAL TAXABLE REAL ESTATE BY COMPONENTS FOR NEW YORK CITY

| Type of Property | Fiscal Year 1989 | | Fiscal Year 1990 | | Fiscal Year 1991 | | Fiscal Year 1992 | | Fiscal Year 1993 | | Fiscal Year 1994 | |
|---|---------------------------------|-----------------------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------------------|---------------------------------|-----------------------------------|
| | Assessed Value (In Millions) | Percentage Of Taxable Real Estate | Assessed Value (In Millions) | Percentage Of Taxable Real Estate | Assessed Value (In Millions) | Percentage Of Taxable Real Estate | Assessed Value (In Millions) | Percentage Of Taxable Real Estate | Assessed Value (In Millions) | Percentage Of Taxable Real Estate | Assessed Value (In Millions) | Percentage Of Taxable Real Estate |
| One-Family Dwellings | \$ 3,722.2 | 5.8% | \$ 3,911.4 | 5.6% | \$ 4,054.6 | 5.3% | \$ 4,100.5 | 5.2% | \$ 4,092.4 | 5.2% | \$ 3,918.7 | 5.0% |
| Two-Family Dwellings | 2,921.2 | 4.6 | 3,051.9 | 4.4 | 3,146.6 | 4.1 | 3,156.4 | 4.0 | 3,100.2 | 3.9 | 3,046.8 | 3.9 |
| Walk-Up Apartments | 4,487.8 | 7.0 | 5,019.8 | 7.2 | 5,597.6 | 7.3 | 6,209.4 | 7.9 | 6,576.8 | 8.3 | 6,720.1 | 8.6 |
| Elevator Apartments | 12,094.6 | 18.9 | 13,176.9 | 18.8 | 14,622.4 | 19.2 | 15,152.8 | 19.3 | 15,517.8 | 19.6 | 14,914.0 | 19.1 |
| Warehouses | 668.2 | 1.0 | 767.1 | 1.1 | 895.5 | 1.2 | 926.8 | 1.2 | 989.8 | 1.3 | 1,031.5 | 1.3 |
| Factory and Industrial Buildings | 1,263.4 | 2.0 | 1,429.1 | 2.0 | 1,629.5 | 2.1 | 1,688.7 | 2.2 | 1,702.9 | 2.2 | 1,633.7 | 2.1 |
| Garages and Gasoline Stations | 779.2 | 1.2 | 883.5 | 1.3 | 1,028.6 | 1.3 | 1,107.3 | 1.4 | 1,191.3 | 1.5 | 1,248.2 | 1.6 |
| Hotels | 1,219.7 | 1.9 | 1,429.7 | 2.0 | 1,610.7 | 2.1 | 1,775.4 | 2.3 | 1,821.7 | 2.3 | 1,742.8 | 2.2 |
| Hospitals and Health | 400.9 | 0.6 | 374.6 | 0.5 | 391.6 | 0.5 | 402.6 | 0.5 | 425.2 | 0.5 | 481.0 | 0.6 |
| Theatres | 151.5 | 0.2 | 165.5 | 0.2 | 186.4 | 0.2 | 177.4 | 0.2 | 186.9 | 0.2 | 189.1 | 0.2 |
| Store Buildings | 3,897.9 | 6.1 | 4,479.3 | 6.4 | 5,289.0 | 6.9 | 4,221.1 | 5.4 | 4,416.4 | 5.6 | 4,360.2 | 5.6 |
| Loft Buildings | 2,135.4 | 3.3 | 2,467.1 | 3.5 | 2,524.1 | 3.3 | 2,398.1 | 3.1 | 2,317.8 | 2.9 | 2,100.3 | 2.7 |
| Churches, Synagogues, etc. | 30.9 | 0 | 30.5 | 0 | 54.3 | 0.1 | 41.1 | 0.1 | 53.8 | 0.1 | 68.1 | 0.1 |
| Asylums and Homes | 47.9 | 0.1 | 53.4 | 0.1 | 70.8 | 0.1 | 78.8 | 0.1 | 94.5 | 0.1 | 101.2 | 0.1 |
| Office Buildings | 18,494.9 | 28.8 | 20,980.8 | 29.9 | 23,410.5 | 30.7 | 24,134.5 | 30.8 | 23,907.6 | 30.2 | 21,817.1 | 27.9 |
| Places of Public Assembly | 99.6 | 0.2 | 107.9 | 0.2 | 123.1 | 0.2 | 135.3 | 0.2 | 138.3 | 0.2 | 145.2 | 0.2 |
| Outdoor Recreation Facilities | 75.0 | 0.1 | 85.4 | 0.1 | 80.6 | 0.1 | 82.7 | 0.1 | 84.5 | 0.1 | 108.3 | 0.1 |
| Condominiums | 2,144.4 | 3.3 | 2,812.9 | 4.0 | 3,345.2 | 4.4 | 3,963.1 | 5.1 | 4,322.8 | 5.5 | 4,195.9 | 5.4 |
| Residence Multi-Use | 228.7 | 0.4 | 267.5 | 0.4 | 318.1 | 0.4 | 1,004.5 | 1.3 | 1,034.6 | 1.3 | 1,111.1 | 1.4 |
| Transportation Facilities | 24.4 | 0 | 26.5 | 0 | 32.5 | 0 | 32.2 | 0 | 35.4 | 0 | 44.2 | 0.1 |
| Utility Bureau Properties | 0.1 | 0 | 0.1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Vacant Land | 613.4 | 1.0 | 758.8 | 1.1 | 811.7 | 1.1 | 839.1 | 1.1 | 906.8 | 1.1 | 916.2 | 1.2 |
| Educational Structures | 106.4 | 0.2 | 119.4 | 0.2 | 138.6 | 0.2 | 142.9 | 0.2 | 170.1 | 0.2 | 175.1 | 0.2 |
| Selected Government Installations .. | 2.5 | 0 | 2.4 | 0 | 3.8 | 0 | 4.4 | 0 | 8.1 | 0 | 17.4 | 0 |
| Miscellaneous | 219.6 | 0.3 | 227.9 | 0.3 | 285.7 | 0.4 | 303.0 | 0.4 | 275.7 | 0.3 | 264.1 | 0.3 |
| Real Estate of Utility Corporations and Special Franchises | 8,311.9 | 13.0 | 7,424.6 | 10.6 | 6,682.1 | 8.8 | 6,389.4 | 8.1 | 5,807.8 | 7.3 | 7,827.2 | 10.0 |
| Total | \$64,141.7 | 100.0% | \$70,053.9 | 100.0% | \$76,333.6 | 100.0% | \$78,467.6 | 100.0% | \$79,179.1 | 100.0% | \$78,177.5 | 100.0% |

NOTE: Details may not add up to totals due to rounding. Totals do not include the value of certain property eligible for the veterans' real property tax exemption.

SOURCE: The City of New York, Department of Finance, Bureau of Real Property Assessment.

No single taxpayer accounts for 10% or more of the City's real property tax. For the 1994 fiscal year, the assessed valuation of real estate of utility corporations is \$6.3 billion. The following table presents the 40 non-utility, non-residential properties having the greatest assessed valuation in the 1994 fiscal year as indicated in the tax rolls.

Largest Real Estate Taxpayers (1)

| <u>Property</u> | <u>1994 Fiscal Year Assessed Valuation</u> | <u>Property</u> | <u>1994 Fiscal Year Assessed Valuation</u> |
|--------------------------------|--|--|--|
| Met Life Building | \$252,007,335 | The Chase Manhattan Building | \$115,000,000 |
| Empire State Building | 192,609,270 | Burlington House | 112,500,000 |
| Exxon Building | 191,250,000 | Carpet Center | 112,500,000 |
| Sperry Rand Building | 181,280,000 | Simon & Schuster Building | 112,050,000 |
| American Brands | 177,750,000 | Manufacturers Hanover Plaza | 110,000,000 |
| 55 Water Street Building | 175,502,745 | 666 Fifth Avenue | 110,000,000 |
| General Motors Building | 166,509,990 | One New York Plaza | 109,803,780 |
| International Building | 158,850,000 | Shearson Lehman Operation Center | 107,550,000 |
| McGraw-Hill Building | 153,000,000 | Kalikow Building | 105,750,000 |
| Equitable Life Center | 148,500,000 | Park Avenue Plaza | 103,500,000 |
| Bristol-Myers | 148,414,000 | 595 Lexington Avenue | 101,250,000 |
| Equitable Tower | 146,250,000 | Continental Illinois Center | 99,500,000 |
| Time Life Building | 144,000,000 | Citicorp Center Condos | 99,000,000 |
| One Liberty Plaza | 137,701,080 | W.R. Grace Building | 97,202,160 |
| Morgan Guaranty Trust | 137,000,000 | American Express Plaza | 93,604,860 |
| Solow Building | 132,750,000 | Waldorf Astoria | 92,795,500 |
| Paramount Plaza | 128,700,000 | 1411 Broadway | 91,750,410 |
| Celanese Building | 126,000,000 | Park Avenue Atrium | 91,408,500 |
| J.C. Penney Building | 123,750,000 | One Bankers Trust Plaza | 89,000,000 |
| One Penn Plaza | 122,400,000 | Bank of America Plaza | 88,650,000 |

(1) Excludes real estate of public utilities.

SOURCES: The City of New York, Department of Finance, Bureau of Real Property Assessment.

GLOSSARY AND SUMMARY OF CERTAIN DOCUMENTS

GLOSSARY

The following are definitions of certain terms contained in the Agreement, the Lease and the Resolution and not otherwise defined in this Official Statement:

Adjusted Aggregate Debt Service: For any Fiscal Year and as of any date of calculation is the sum of the Adjusted Debt Service for all Series of Bonds Outstanding during such Fiscal Year.

Adjusted Debt Service: For any Fiscal Year, as of any date of calculation and with respect to any Series of Bonds, is the Debt Service for such Fiscal Year for such Series except that, if any Refundable Principal Installment of such Series of Bonds is included in Debt Service for such Fiscal Year, Adjusted Debt Service shall mean Debt Service determined as if each such Refundable Principal Installment had been payable over a period extending from the due date of such Refundable Principal Installment through the last date on which such Series of Bonds could have been stated to mature under the Act as in effect on the date of issuance of such Series, in installments which would have required equal annual payments of Principal Installments and interest over such period. Interest deemed payable in any Fiscal Year after the actual due date of any Refundable Principal Installment of any Series of Bonds shall be calculated at the actual interest cost payable on the Bonds of such Series (using the actuarial method of calculation).

Aggregate Debt Service: For any Fiscal Year, as of any date of calculation, the sum of the Debt Service for all Bonds Outstanding during such Fiscal Year.

Authority Expenses: All reasonable or necessary current expenses of the Authority, including all salaries, administrative, general, commercial, engineering, advertising, public notice, auditing and legal expenses, insurance and surety bond premiums, fees paid to banks, insurance companies or other financial institutions for the issuance of Credit Facilities, consultants' fees and charges, payment to pension, retirement, health and hospitalization funds, costs of public hearings, ordinary and current rentals of equipment and other property, lease payments for real property or interests therein, expenses, liabilities and compensation of any Fiduciary and all other expenses necessary, incidental or convenient for the efficient operation of the Authority.

Authorized Denominations: With respect to any Series C Bonds subject to a Flexible Interest Rate Period of one year or more, \$5,000 and any integral multiple thereof and, with respect to any Series C Bonds subject to an Interest Rate Period other than a Flexible Interest Rate Period of one year or more, \$100,000 and any integral multiple thereof.

Authorized Newspaper: The Bond Buyer or any other newspaper of general circulation printed in the English language and customarily published at least once a day for at least five days (other than legal holidays) in each calendar week in the Borough of Manhattan, City and State of New York, designated by the Authority.

Authorized Representative: In the case of both the Authority and the Board, their respective Chairman or Executive Director, or such other person or persons so designated by resolution of the Authority or the Board, as the case may be, and in the case of the City, the Mayor, unless a different City official is designated to perform the act or sign the document in question.

Bond or Bonds: For purposes of the Agreement and the Resolution, the bonds, notes or other evidences of indebtedness issued by the Authority under and pursuant to the Act and the Resolution, including Parity Bond Anticipation Notes and Parity Reimbursement Obligations; but shall not mean Subordinated Indebtedness or other Bond Anticipation Notes or Reimbursement Obligations; and for purposes of the Lease, means any bonds, notes or other evidences of indebtedness for borrowed money issued by the Authority.

Bond Counsel's Opinion: An opinion signed by an attorney or firm of attorneys of nationally recognized standing in the field of law relating to revenue bonds of municipalities and public agencies, selected by the Authority and satisfactory to the Trustee.

Bond Payment Date: (i) With respect to Series B Bonds, June 15, 1994 and each December 15 and June 15 thereafter, and with respect to the Series D Bonds and Series E Bonds, December 15, 1993 and each June 15 and December 15 thereafter, (ii) with respect to Series C Bonds in the Daily Interest Rate Period, the Weekly Interest Rate Period or a Flexible Interest Rate Period of less than one year, January 15, 1994 and thereafter on the 15th day of each calendar month and (iii) with respect to Series C Bonds in a Flexible Interest Rate Period of one year or longer, June 15 and December 15 of each year; provided, however, that if any such day is not a Business Day, then the Bond Payment Date shall be the next succeeding Business Day.

Business Day: Any day which is not a Saturday, Sunday or a day on which the New York Stock Exchange, banking institutions chartered by the State or the United States of America or the Note Trustee are legally authorized to close in the City.

Cash Flow Requirement: For each Fiscal Year and as of any date of certification, the amount, certified by the Authority to the Trustee and the Board equal to the difference between (A) the sum of (i) the estimated Aggregate Debt Service for such Fiscal Year, (ii) the Projected Debt Service for such Fiscal Year, (iii) the estimated Authority Expenses for such Fiscal Year, and (iv) the other Required Deposits estimated for such Fiscal Year and (B) (i) if the certification is made prior to the commencement of the Fiscal Year, the amount anticipated by the Authority as of such date of certification to be held by the Trustee, as of the first day of such Fiscal Year, in the Revenue Fund and (ii) if the certification is made after the commencement of such Fiscal Year, the amount which had been anticipated pursuant to (B) (i) above.

Consulting Engineer: Metcalf & Eddy of New York, Inc. or such other independent engineer or engineering firm of recognized standing selected by the Authority and satisfactory to the Board.

Corporation: The New York State Environmental Facilities Corporation and any successor entity which may succeed to its rights and duties respecting the State Revolving Fund.

Cost or Costs of a Water Project: The cost of construction, as such term is defined in the Act, including, without limiting the generality of the foregoing, the erection, alteration, improvement, increase, enlargement or rehabilitation of the System or a Water Project, the inspection and supervision thereof, the engineering, architectural, legal, fiscal, economic and environmental investigations and studies, designs, surveys, plans, specifications, procedures and other actions incidental thereto; the cost of the acquisition of all Property; the cost of demolishing, removing or relocating any buildings or structures on lands so acquired (including the cost of acquiring any lands to which such buildings or structures may be moved or relocated); the cost of all systems, facilities, machinery, appurtenances, equipment, financing charges and interest prior to, during and after construction (if not paid or provided for from revenues or other sources); the cost of engineering and architectural surveys, plans and specifications; the cost of consultants' and legal services; the cost of lease guarantee or bond insurance; other expenses necessary, reasonably related or incidental to the construction of such Water Project and the financing of the construction thereof, including the cost of Credit Facilities, the amounts authorized in the Resolution to be paid into any reserve or other special fund from the proceeds of Bonds and the financing or the placing of any Water Project in operation, including reimbursement to any governmental entity or any other person for expenditures that would be Costs of such Water Project and all claims arising from any of the foregoing.

UPON THE EFFECTIVE DATE OF THE TWENTY-SECOND SUPPLEMENTAL RESOLUTION, THE FOLLOWING DEFINITION WILL BE ADDED TO THE GENERAL RESOLUTION

Counterparty shall mean an entity whose senior long term debt obligations, or whose obligations under an Interest Rate Exchange Agreement are guaranteed by a financial institution whose senior long term debt obligations, have a rating (at the time the subject Interest Rate Exchange Agreement is entered into) of Aa or better by Moody's Investors Service and AA or better by Standard & Poor's Ratings Group.

Credit Facility: A letter of credit, revolving credit agreement, standby purchase agreement, surety bond, insurance policy or similar obligation, arrangement or instrument issued by a bank, insurance company or other financial institution which provides for payment of all or a portion of the Principal Installments or interest due on any Series of Bonds or provides funds for the purchase of such Bonds or portions thereof.

Daily Interest Rate: A variable interest rate established on each Business Day in accordance with the Twenty-first Supplemental Resolution.

Daily Interest Rate Period: With respect to any Series C Bond, the period during which Daily Interest Rates are in effect for such Series C Bond.

Debt Service: For any Fiscal Year or part thereof, as of any date of calculation and with respect to any Series, means an amount equal to the sum of (a) interest payable during such Fiscal Year or part thereof on Bonds of such Series, except to the extent that such interest is to be paid from amounts representing Capitalized Interest and (b) the Principal Installments of the Bonds of such Series payable during such Fiscal Year or part thereof. Such interest and Principal Installments for such Series shall be calculated on the assumption that (x) no Bonds of such Series Outstanding at the date of calculation will cease to be Outstanding except by reason of the payment thereof upon stated maturity or upon mandatory redemption by application of Sinking Fund Installments and (y) Variable Rate Bonds will bear interest at the greater of (A) the rate or rates which were assumed by the Authority in the Authority Budget for such Fiscal Year to be borne by Variable Rate Bonds during such Fiscal Year or (B) the actual rate or rates borne by such Variable Rate Bonds on such date of calculation.

UPON THE EFFECTIVE DATE OF THE TWENTY-SECOND SUPPLEMENTAL RESOLUTION, SUBPARAGRAPH (A) OF THE DEFINITION OF DEBT SERVICE WILL BE AMENDED TO READ AS FOLLOWS: (A) THE AVERAGE RATE OR RATES BORNE DURING SUCH FISCAL YEAR ON VARIABLE RATE BONDS OUTSTANDING DURING THE 12 CALENDAR MONTHS PRECEDING THE DATE OF CALCULATION.

Debt Service Reserve Requirement: As of any date of calculation, and for any Fiscal Year, the amount equal to the maximum Adjusted Aggregate Debt Service in the current or any future Fiscal Year on all Bonds Outstanding provided, however, that, with respect to any Bonds secured by a Special Credit Facility, the Supplemental Resolution authorizing such Bonds may provide that the Debt Service Reserve Requirement for such Bonds be an amount not in excess of the maximum Adjusted Debt Service payable on such Bonds in the current or any future Fiscal Year.

UPON THE EFFECTIVE DATE OF THE TWENTY-SECOND SUPPLEMENTAL RESOLUTION, THE DEFINITION OF DEBT SERVICE RESERVE REQUIREMENT WILL BE AMENDED TO READ AS FOLLOWS:

Debt Service Reserve Requirement shall mean, as of any date of calculation, and for any Fiscal Year, the amount equal to the maximum Adjusted Aggregate Debt Service in the current or any future Fiscal Year on all Bonds Outstanding; provided, however, that, if (i) the payment of the Principal Installments of or interest on any Series of Bonds or portion thereof is secured by a Special Credit Facility, (ii) the payment of the Tender Option Price of any Option Bond of a Series is secured by a Special Credit Facility or (iii) the Authority has determined in a Supplemental Resolution authorizing the issuance of a Series of Bonds that such Series of Bonds will not be secured by the Common Account in the Debt Service Reserve Fund, the Supplemental Resolution authorizing such Series may specify the Debt Service Reserve Requirement, if any, for the Bonds of such Series.

DEC: The New York State Department of Environmental Conservation and any successor entity which may succeed to its rights and duties respecting the State Revolving Fund.

Defeasance Obligations: The obligations described in clause (ii) of the definition of Investment Securities below.

Financial Guaranties: One or more of the following: (i) irrevocable, unconditional and unexpired letters of credit issued by a banking institution the senior long-term debt obligations of which (or the holding company of such banking institution) have (at the time of issue of such letter of credit) a rating of Aa2 or better by Moody's Investors Service or AA or better by Standard & Poor's Corporation or (ii) an irrevocable and unconditional policy or policies of insurance in full force and effect and issued by a municipal bond insurer the obligations insured by which are eligible for a rating of Aa or better by Moody's Investors Service or AA or better by Standard & Poor's Corporation; in each case providing for the payment of sums for the payment of Principal Installments of and interest on Bonds in the manner provided in Section 508 of the Resolution; and providing further that any such Financial Guaranty must be drawn upon, on a date which is at least thirty days prior to the expiration date of such Financial Guaranty, in an amount equal to the deficiency which would exist if the Financial Guaranty expired, unless a substitute Financial Guaranty is acquired prior to such thirtieth day as provided in a related Supplemental Resolution.

UPON THE EFFECTIVE DATE OF THE TWENTY-SECOND SUPPLEMENTAL RESOLUTION, THE DEFINITION OF FINANCIAL GUARANTIES WILL BE AMENDED TO READ AS FOLLOWS:

Financial Guaranties shall mean one or more of the following: (i) irrevocable, unconditional and unexpired letters of credit issued by banking institutions the senior long-term debt obligations of which (or the holding company of any such banking institution) have (at the time of issue of such letter of credit) a rating of Aa2 or better by Moody's Investors Service and AA or better by Standard & Poor's Ratings Group; or (ii) an irrevocable and unconditional policy or policies of insurance in full force and effect issued by municipal bond insurers the obligations insured by which are eligible for a rating of Aa or better by Moody's Investors Service and AA or better by Standard & Poor's Ratings Group; in each case providing for the payment of sums for the payment of Principal Installments of an interest on Bonds in the manner provided in the General Resolution; and providing further that any Financial Guaranty of the type described in (i) above must be drawn upon, on a date which is at least thirty (30) days prior to the expiration date of such Financial Guaranty, in an amount equal to the deficiency which would exist if the Financial Guaranty expired, unless a substitute Financial Guaranty is acquired prior to such expiration date as provided in a related Supplemental Resolution.

Flexible Interest Rate: With respect to any Series C Bond, a non-variable interest rate established in accordance with the Twenty-first Supplemental Resolution for each Flexible Interest Rate Period.

Flexible Interest Rate Period: With respect to any Series C Bond, each period during which a particular Flexible Interest Rate is in effect for such Series C Bond ranging from one month to the maturity date of the Series C Bonds; provided, however that each period shall commence on the 15th day of a calendar month and extend to the 15th day of any succeeding calendar month to and including June 15, 2023.

Fiscal Year: The twelve-month period commencing on July 1 of each year; provided, however, that the Authority, the Board and the City may agree on a different twelve-month period as the Fiscal Year and in such event the dates set forth in the Agreement, the Lease and the Resolution shall be adjusted accordingly.

Government Obligation: A direct obligation of the United States of America, an obligation the principal of, and interest on which are guaranteed as to full and timely payment by the United States of America, an obligation (other than an obligation subject to variation in principal repayment) to which the full faith and credit of the United States of America are pledged, an obligation of a federal agency guaranteed as to full and timely payment by the United States of America and approved by the Authority, and a certificate or other instrument which evidences the ownership of, or the right to receive all or a portion of the payment of, the principal of or interest on, direct obligations of the United States of America.

Interest Accrual Date: (i) With respect to each Daily Interest Rate Period and each Weekly Interest Rate Period, the first day of the calendar month preceding the calendar month during which interest is payable and (ii) with respect to a Flexible Interest Rate Period, each Bond Payment Date in respect thereof, other than the last Bond Payment Date for the Series C Bonds.

UPON THE EFFECTIVE DATE OF THE TWENTY-SECOND SUPPLEMENTAL RESOLUTION, THE FOLLOWING DEFINITION WILL BE ADDED TO THE GENERAL RESOLUTION:

Interest Rate Exchange Agreement shall mean any financial arrangement (i) that is entered into by the Authority with an entity that is a Counterparty at the time the arrangement is entered into; (ii) which provides that the Authority shall pay to such entity an amount based on the principal amount of a Series of Bonds, and that such entity shall pay to the Authority an amount based on the principal amount of such Series of Bonds, in each case computed in accordance with a formula set forth in such agreement, or that one shall pay to the other any net amount due under such arrangement; (iii) which has been designated in writing to the Trustee by an Authorized Representative of the Authority as an Interest Rate Exchange Agreement with respect to a Series of Bonds and (iv) which, in the opinion of Bond Counsel, will not adversely effect the exclusion of interest on Bonds from gross income for the purposes of federal income taxation.

Interest Rate Period: The Daily Interest Rate Period, the Weekly Interest Rate Period or the Flexible Interest Rate Period.

Investment Securities: Include any of the following securities, if and to the extent the same are at the time legal investments by the Authority of the funds to be invested therein and conform to the policies set forth in any investment guidelines adopted by the Authority and in effect at the time of the making of such investment:

(i) direct obligations of, or obligations guaranteed as to principal and interest by, the State or direct obligations of any agency or public authority thereof provided such obligations are rated, at the time of purchase, in one of the two highest rating categories by a Rating Agency;

(ii) (A) any bonds or other obligations which as to principal and interest constitute direct obligations of, or are guaranteed by, the United States of America, including obligations of any agency thereof or corporation which has been or may hereafter be created pursuant to an Act of Congress as an agency or instrumentality of the United States of America to the extent unconditionally guaranteed by the United States of America or (B) any other receipt, certificate or other evidence of an ownership interest in obligations or in specified portions thereof (which may consist of specified portions of the interest thereon) of the character described in subclause (A) of this clause (ii);

(iii) obligations of any agency, subdivision, department, division or instrumentality of the United States of America; or obligations fully guaranteed as to interest and principal by any agency, subdivision, department, division or instrumentality of the United States of America;

(iv) banker's acceptances or certificates of deposit issued by a commercial bank with its principal place of business within the State and having a capital and surplus of more than \$100,000,000;

(v) corporate securities, including commercial paper and fixed income obligations, which are, at the time of purchase, rated by a Rating Agency designated by the Authority in its highest rating category for comparable types of obligations; and

(vi) any repurchase agreement which is fully collateralized by any one or more of the securities described in clause (ii) (A) above; provided, however, that any such repurchase agreement shall (A) not be for a period in excess of 90 days, (B) provide that the Authority or the Trustee (or the agent thereof, which shall not be the seller) shall take physical possession of such collateral or the Authority or the Trustee shall be named the record owner thereof in the records of the Federal Reserve Bank of New York and (C) be entered into only with (x) a bank or trust company organized under the laws of the State or the United States, which is a member of the Federal Reserve System and the Federal Deposit Insurance Corporation, having capital of not less than \$50,000,000 or (y) a government bond dealer reporting to, trading with and recognized as a primary dealer by, the Federal Reserve Bank of New York.

Obligations of the Trustee or any affiliate thereof may be Investment Securities, provided that they otherwise qualify.

UPON THE EFFECTIVE DATE OF THE TWENTY-SECOND SUPPLEMENTAL RESOLUTION, THE DEFINITION OF INVESTMENT SECURITIES WILL BE AMENDED TO READ AS FOLLOWS:

Investment Securities shall mean and include any of the following securities, if and to the extent the same are at the time legal investments by the Authority of the funds to be invested therein and conform to the policies set forth in any investment guidelines adopted by the Authority and in effect at the time of the making of such investment:

(i) direct obligations of, or obligations guaranteed as to principal and interest by, the State or direct obligations of any agency or public authority thereof, provided such obligations are rated, at the time of purchase, in one of the two highest rating categories by a Rating Agency;

(ii) (A) any bonds or other obligations which as to principal and interest constitute direct obligations of, or are guaranteed by the United States of America, including obligations of any agency thereof or corporation which has been or may hereafter be created pursuant to an Act of Congress as an agency or instrumentality of the United States of America to the extent unconditionally guaranteed by the United States of America or (B) any other receipt, certificate or other evidence of an ownership interest in obligations or in specified portions thereof (which may consist of specified portions of the interest thereon) of the character described in subclause (A) of this clause (ii);

(iii) obligations of any agency, subdivision, department, division or instrumentality of the United States of America; or obligations fully guaranteed as to interest and principal by any agency, subdivision, department, division or instrumentality of the United States of America;

(iv) banker's acceptances or certificates of deposit issued by a commercial bank with its principal place of business within the State and having capital and surplus of more than \$100,000,000;

(v) corporate securities, including commercial paper and fixed income obligations, which are, at the time of purchase, rated by a Rating Agency in its highest rating category for comparable types of obligations;

(vi) Repurchase agreements collateralized by securities described in clauses (ii) or (iii) above with any registered broker/dealer or with any domestic commercial bank whose long-term debt obligations are rated "investment grade" by each Rating Agency then maintaining a rating on the Bonds, provided that (1) a specific written repurchase agreement governs the transaction, (2) the securities are held, free and clear of any lien, by the Trustee or an independent third party acting solely as agent for the Trustee, and such third party is (a) a Federal Reserve Bank, or (b) 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 \$25 million, 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, (3) the repurchase agreement has a term of thirty days or less, or the Trustee will value the collateral securities no less frequently than monthly and will liquidate the collateral securities if any deficiency in the required collateral percentage is not restored within five business days of such valuation, and (4) the fair market value of the collateral securities in relation to the amount of the repurchase obligation, including principal and interest, is equal to at least 102%;

(vii) investment agreements or guaranteed investment contracts with any financial institution whose senior long term debt obligations, or whose obligations under such an investment agreement or guaranteed investment contract, are guaranteed by a financial institution whose senior long term debt obligations, have a rating (at the time such

agreement or contract is entered into) in one of the two highest rating categories for comparable types of obligations by each Rating Agency then maintaining a rating on the Bonds;

(viii) money market funds rated in the highest rating category for comparable types of obligations by each Rating Agency then maintaining a rating on the Bonds; and

(ix) municipal obligations, the payment of principal and redemption price, if any, and interest on which is irrevocably secured by obligations of the type referred to in clauses (i), (ii) or (iii) above and which obligations have been deposited in an escrow arrangement which is irrevocably pledged to the payment of such municipal obligations and which municipal obligations are rated in the highest rating category for comparable types of obligations by each Rating Agency then maintaining a rating on the Bonds.

Leased Property: The real and personal property and other rights therein leased by the City to the Board pursuant to Article II of the Lease.

Liquidity Facility: The Standby Bond Purchase Agreement between the Authority and the Liquidity Provider, dated as of December 2, 1993, as it may be amended or supplemented pursuant thereto, or pursuant to the Twenty-first Supplemental Resolution, and any alternate Liquidity Facility delivered in connection with the Twenty-first Supplemental Resolution.

Liquidity Provider: FGIC Security Purchase Inc., and any provider of an alternate Liquidity Facility delivered in accordance with the Twenty-first Supplemental Resolution.

Local Water Fund: The special trust fund by that name established by the Act in the custody of the Board into which all Revenues are required to be deposited promptly upon receipt thereof by the Board.

Minimum Monthly Balance: For each Series of Bonds Outstanding, the monthly amount calculated in accordance with Section 4.3(a) of the Agreement. See "SUMMARY OF CERTAIN DOCUMENTS — Summary of the Agreement — Minimum Monthly Balance" in this Appendix D.

O&M Reserve Fund Requirement: For each Fiscal Year, the amount equal to one-sixth (1/6) of the Operating Expenses as set forth in the Annual Budget.

Operating Expenses: All reasonable or necessary current expenses of maintaining, repairing, operating and managing the System net of governmental operating aid, including: all salaries; administrative, general, commercial, architectural, engineering, advertising, public notice, auditing, billing, collection, enforcement and legal expenses; insurance and surety bond premiums; consultants' fees; payments to pension, retirement, health and hospitalization funds; taxes; payments in lieu of taxes; costs of public hearings; ordinary and current rentals of equipment or other property; hydrant rentals; lease payments for real property or interests therein (excluding certain amounts paid by the Board to the City pursuant to the Lease); depository expenses; reasonable reserves for maintenance and repair and all other expenses necessary, incidental or convenient for the efficient operation of the System; but only to the extent properly attributable to the Board or the System and payable by the Board to the City pursuant to the Lease and, except for certain administrative expenses of the Board, payable by the Board to the City pursuant to the Lease.

Option Bonds: Bonds which by their terms may be tendered by and at the option of the owner thereof for payment by the Authority prior to the stated maturity thereof, or the maturities of which may be extended by and at the option of the owner thereof.

Outstanding: As of any date, all Bonds theretofore or thereupon being authenticated and delivered under the Resolution except:

(a) any Bonds cancelled by the Trustee at or prior to such date;

(b) any Bond (or portion thereof) for the payment or redemption of which there shall be set aside and held in trust under the Resolution either:

(i) moneys in an amount sufficient to pay when due the Principal Installments or Redemption Price thereof, together with all accrued interest,

(ii) Defeasance Obligations in such principal amounts, of such maturities, bearing such interest and otherwise having such terms and qualifications, as are necessary to provide moneys (whether as principal or interest) in an amount sufficient to pay when due the Principal Installments or Redemption Price thereof, together with all accrued interest, or

(iii) any combination of (i) and (ii) above,

and, if such Bond or portion thereof is to be redeemed, for which notice of redemption has been given as provided in Article VI of the Resolution or provision satisfactory to the Trustee has been made for the giving of such notice;

(c) any Bond in lieu of or in substitution for which other Bonds have been authenticated and delivered; and

(d) any Bond deemed to have been paid as provided in Section 1201(b) of the Resolution.

Parity Bond Anticipation Notes: Bond Anticipation Notes the interest on which is payable from and secured by a pledge of, and a lien on, a parity with all other Bonds.

Permitted Encumbrances: When used with reference to the System, (i) any and all liens, encumbrances, security interests or other defects in or clouds on title existing on the Effective Date, (ii) the Lease, (iii) easements, rights of way and exceptions which do not materially impair the operation or maintenance of the Leased Property or the Revenues therefrom, (iv) mechanics', materialmen's, warehousemen's and other similar liens, as permitted by law and liens for taxes at the time not delinquent or being contested and (v) agreements for the sale and leaseback of elements of the System.

Principal Installment: As of any date of calculation and with respect to any Series, so long as any Bonds thereof are Outstanding, (i) the principal amount of Bonds (including (x) any amount designated in, or determined pursuant to, the applicable Supplemental Resolution, as the "principal amount" with respect to any Bonds which do not pay full current interest for all or any part of their term) (y) the Tender Option Price of any Option Bonds which may be tendered for purchase or payment prior to the stated maturity thereof in accordance with the terms of the Supplemental Resolution authorizing such Option Bonds, unless such amount is secured by a Credit Facility which is not in default and (z) the principal amount of any Parity Reimbursement Obligations of such Series due (or so tendered for payment) on a certain future date for which no Sinking Fund Installments have been established, or (ii) the unsatisfied balance of any Sinking Fund Installments due on a certain future date for Bonds of such Series, or (iii) if such future dates coincide as to different Bonds of such Series, the sum of such principal amount of Bonds and of such unsatisfied balance of Sinking Fund Installments due on such future date. "Principal Installment" does not include the principal of Parity Bond Anticipation Notes.

Project Financing Agreement: Any Project Financing Agreement to be entered into among the Authority, the City, DEC and the Corporation pursuant to the State Revolving Fund Act.

Projected Debt Service: For any Fiscal Year or part thereof means, as of any date of calculation and with respect to any Projected Series of Bonds, an amount, certified by the Authority to the Trustee and the Board, as provided in the Agreement, equal to the Debt Service estimated by the Authority to be payable during such Fiscal Year on such Projected Series.

Projected Series of Bonds: Any Series of Bonds described in an Authority Budget as anticipated to be issued in the Fiscal Year to which such Authority Budget relates.

Rate Consultant: The independent accountant or firm of independent accountants, or a management consultant or firm of management consultants, or independent engineer or firm of independent engineers, having, in any case, a recognized standing in the field of water and sewer system consulting selected by the

Authority and satisfactory to the Board. The Rate Consultant may be the same firm as the Consulting Engineer.

Rating Agencies: Moody's Investors Service and Standard & Poor's Ratings Group and their respective successors and assigns.

Redemption Price: When used with respect to a Bond or portion thereof, the principal amount thereof plus the applicable premium, if any, payable upon either optional or mandatory redemption thereof pursuant to the Resolution.

Refundable Principal Installment: Any Principal Installment for any Series of Bonds which the Authority intends to pay with moneys which are not Revenues, provided that such intent shall have been expressed in the Supplemental Resolution authorizing such Series of Bonds and provided further that such Principal Installment shall be a Refundable Principal Installment only through the date of the Authority Budget adopted during the Fiscal Year immediately preceding the Fiscal Year in which such Principal Installment comes due unless the Authority has delivered to the Trustee a certificate of an Authorized Representative that it has made provision for the payment of such Principal Installment from a source other than Revenues.

Refunding Bond: Any Bond authenticated and delivered on original issuance pursuant to Section 206 or Section 207 of the Resolution for the purpose of refunding any Outstanding Bonds or thereafter authenticated and delivered in lieu of or substitution for such Bond pursuant to the Resolution.

Reimbursement Obligation: The obligation of the Authority described in the Resolution to directly reimburse the issuer of a Credit Facility for amounts paid by such issuer thereunder, whether or not such obligation to so reimburse is evidenced by a promissory note or other similar instrument.

Required Deposits: For any Fiscal Year, amounts, if any, payable into the Authority Expense Fund, the Debt Service Reserve Fund and the Subordinated Indebtedness Fund but only to the extent such payments are required to be made from Revenues pursuant to the Resolution.

Revenues: (a) All the rents, fees, charges, payments and other income and receipts derived by the Board from users of the System, and (b) investment proceeds and proceeds of insurance received by the Board (other than the proceeds of insurance with respect to the damage or destruction of all or any portion of the System), together with all operating aid therefor from any governmental entity, Federal, State or local, to the Board, but shall not include (w) amounts required to be refunded because of billing or payment errors, (x) any amount attributable to any of the foregoing sources described in clause (a) which (i) is expressly excluded by the Agreement or the Lease, or (ii) is derived from a use of the System not directly related to the supply, treatment and distribution of water to the consumers thereof or the collection, disposal or treatment of sewage, (y) any amount from any governmental entity, Federal, State or local, in aid of or for or with respect to the Costs of Water Projects or (z) (i) fines (excluding interest on late payments which shall constitute Revenues), (ii) amounts from the use of water to generate electricity, (iii) amounts from the State as a result of mandatory water discharges from reservoirs or (iv) amounts from the granting of easements, licenses, rights-of-way or other interests in the real property constituting a part of the System.

UPON THE EFFECTIVE DATE OF THE TWENTY-SECOND SUPPLEMENTAL RESOLUTION, THE DEFINITION OF REVENUES WILL BE AMENDED TO READ AS FOLLOWS:

Revenues shall mean (a) all the rents, fees, charges, payments and other income and receipts derived by the Board from users of the System, together with all operating aid therefor from any governmental entity, Federal, State or local, to the Board, (b) investment proceeds and proceeds of insurance received by the Board (other than the proceeds of insurance with respect to the damage or destruction of all or any portion of the System), (c) Subsidy Payments derived by the Authority, (d) amounts derived by the Authority from a Counterparty pursuant to an Interest Rate Exchange Agreement, and (e) investment proceeds derived from amounts on deposit in the Funds and Accounts established hereunder that are deposited or retained in the Revenue Fund or the Local

Water Fund, and but shall not include (w) amounts required to be refunded because of billing or payment errors, (x) any amount attributable to any of the foregoing sources described in clause (a) which (i) is expressly excluded by the Agreement or the Lease, or (ii) is derived from a use of the System not directly related to the supply, treatment and distribution of water to the consumers thereof or the collection, disposal or treatment of sewage, (y) any amount from any governmental entity, Federal, State or local, in aid of or for or with respect to the Costs of Water Projects, other than Subsidy Payments, or (z) (i) fines (excluding interest on late payments which shall constitute Revenues), (ii) amounts from the use of water to generate electricity, (iii) amounts from the State as a result of mandatory water discharges from reservoirs or (iv) amounts from the granting of easements, licenses, rights-of-way or other interests in the real property constituting a part of the System.

Special Credit Facility: With respect to any Series of Bonds or portion thereof, a Credit Facility (a) which provides funds for (i) the direct payment of the Principal Installments of and interest on such Bonds when due or (ii) the payment of the Principal Installments of and interest on such Bonds in the event amounts otherwise pledged to the payment thereof are not available when due or (iii) the payment of the Tender Option Price of any Option Bond which may be tendered to the Authority for purchase or payment in accordance with the Supplemental Resolution authorizing such Option Bond (in any case, regardless of whether such Credit Facility provides funds for any other purpose) and (b) which (i) requires the Authority to directly reimburse the issuer of such Credit Facility for amounts paid thereunder and (ii) provides that such obligation is a Parity Reimbursement Obligation.

State: The State of New York.

State Revolving Fund: The New York State Water Pollution Control Revolving Fund established pursuant to the State Revolving Fund Act.

State Revolving Fund Act: Chapter 565 of the laws of New York of 1989, as amended.

Subordinated Indebtedness: Any bond, note or other evidence issued by the Authority in furtherance of its corporate purposes under the Act and payable from the Subordinated Indebtedness Fund.

UPON THE EFFECTIVE DATE OF THE TWENTY-SECOND SUPPLEMENTAL RESOLUTION, THE FOLLOWING DEFINITION WILL BE ADDED TO THE GENERAL RESOLUTION:

Subsidy Payments shall mean amounts payable to the Authority from any governmental entity, Federal, State or local, in connection with Bonds of the Authority.

Supplemental Resolution: A resolution of the Authority authorizing the issuance of a Series of Bonds or otherwise amending or supplementing the Resolution.

System: The Water System and the Sewerage System, collectively, as such terms are defined in the Act.

Remarketing Agent: Smith Barney Shearson Inc., or any successor appointed pursuant to the Twenty-first Supplemental Resolution.

Tender Agent: United States Trust Company of New York or any commercial bank or trust company organized under the laws of any state of the United States or any national banking association designated as a tender agent for the Series C Bonds, and its successor or successors hereafter appointed in the manner provided in the Twenty-first Supplemental Resolution.

Tender Option Price: With respect to Series C Bonds subject to a Daily Interest Rate Period or a Weekly Interest Rate Period, an amount equal to the principal amount of such Series C Bond plus interest accrued and unpaid thereon from the immediately preceding Record Date, and with respect to the Series C Bonds subject to a Flexible Interest Rate Period, an amount equal to the principal amount of such Series C Bonds plus interest accrued and unpaid thereon from the immediately preceding Bond Payment Date.

Trustee: The trustee appointed by the Authority pursuant to the General Resolution, and any successors thereto.

Variable Rate Bond: As of any date of determination, any Bond on which the interest rate borne thereby may vary during any part of its remaining term.

Water Project: Any sewerage facility, water facility or water and sewerage facility, as the case may be, including the planning, development, financing or construction thereof.

Weekly Interest Rate: A variable interest rate established weekly in accordance with the Twenty-first Supplemental Resolution.

Weekly Interest Rate Period: The period during which Weekly Interest Rates are in effect for the Series C Bonds.

SUMMARY OF CERTAIN DOCUMENTS

The following are brief summaries of certain provisions of the Agreement, the Lease and the Resolution. These summaries do not purport to be complete and are subject in all respects to the provisions of, and are qualified in their entirety by, reference to the respective documents to which they relate.

Summary of the Agreement

Financing of Water Projects. The Authority agrees to use its best efforts to finance all or a part of the Cost of all Water Projects described in Appendix A to the Agreement. In consideration for the Authority's issuance of the Bonds, the Board gives, grants, conveys and transfers to the Authority all of its right, title and interest in the Revenues, including without limitation, all of its rights to collect and receive said Revenues subject only to provisions of the Act, the Agreement and the Resolution permitting the application of said Revenues to the purposes therein set forth. The Board itself incurs no indebtedness under the terms of the Agreement, Lease, Resolution or any other document executed in connection therewith. (*Sections 2.1, 2.2 and 2.4*)

Transfer of Funds. The Authority shall deposit the proceeds of each Series of Bonds with the Trustee in accordance with the provisions of the Resolution and the Supplemental Resolution authorizing such Series; provided, however, that the portion of the proceeds designated to pay the Costs of any Water Project shall be held only in the Construction Fund established pursuant to the Resolution.

The Authority shall authorize payment of such Costs in the manner set forth in the Resolution once evidence thereof is provided in a Certificate signed by an Authorized Representative of the Board or City, as the case may be. Neither the Authority nor the Trustee shall be required to provide funds to pay the Costs of Water Projects from any source other than the Construction Fund, and neither the Authority nor the Trustee shall pay to the City from such Fund any amount in excess of that set aside for the purposes thereof, or for the Projects listed in Appendix A to the Agreement. (*Sections 3.1 and 3.2*)

Local Water Fund. The Board shall deposit all Revenues, as promptly as practicable after receipt, into the Local Water Fund. There shall also be deposited in the Local Water Fund all amounts received by the Board from the Trustee pursuant to the Resolution. (*Section 4.1*)

Establishment of Certain Funds and Application of Revenues in Local Water Fund. The Board shall establish two special funds (in addition to the Local Water Fund) to be held by the Board at a Depositary: the Board Expense Fund and the Operation and Maintenance Reserve Fund, with the General Account therein. The Board shall hold such funds as trust funds and the amounts on deposit shall only be applied for the purposes provided in the Agreement.

Beginning on the first day of each month in each Fiscal Year, the Board is required to apply the Revenues in the Local Water Fund, *first*, to the Trustee for deposit in the Revenue Fund until the amount on deposit in the Revenue Fund equals the Minimum Monthly Balance for such month and the Trustee shall have received the amounts, if any, required to be deposited in the Authority Expense Fund, the Debt Service Reserve Fund and the Subordinated Indebtedness Fund for such month. Thereafter, in such month from the balance remaining in the Local Water Fund, the Board is required, after making provision for Board Expenses, to pay to the City $\frac{1}{12}$ th of the operating expenses for such Fiscal Year. After making such payments, any amounts remaining in the Local Water Fund in each month are applied daily (i) to satisfy the Cash Flow Requirement

(if the required payments to the City for Operating Expenses have been made), (ii) to satisfy required payments to the City for Operating Expenses (if the Cash Flow Requirement has been satisfied) or (iii) proportionately, to the Trustee for deposit in the Revenue Fund and to the City for the payment of Operating Expenses, until the total of all amounts deposited in the Revenue Fund during such Fiscal Year equals the Cash Flow Requirement and all Operating Expenses required to be paid shall have been paid. Thereafter, as long as the amount on deposit in the Revenue Fund in each month is equal to the Minimum Monthly Balance and the Cash Flow Requirement continues to be met, all such amounts in the Local Water Fund shall be paid as follows: *first*, to the Authority until the total of the amounts so paid equals the principal of and interest on any bonds, notes or other obligations of the Authority (other than Bonds, Bond Anticipation Notes, and Subordinated Indebtedness) payable within the then current Fiscal Year, together with all other amounts necessary to make the required deposits to the reserve and other funds and amounts established for such bonds, notes or other obligations; *second*, to the City until the amounts so paid are equal to the rental payment for such Fiscal Year and the unsatisfied balance, if any, of the rental payment for any prior Fiscal Year; and, *third*, to the Operation and Maintenance Reserve Fund, until the amount therein on deposit is equal to the O&M Reserve Requirement for such Fiscal Year. Any amounts remaining in the Local Water Fund on the last day of each Fiscal Year shall be paid to the General Account in the Operation and Maintenance Reserve Fund. (Section 4.2)

Minimum Monthly Balance. The Minimum Monthly Balance shall be calculated as of the first day of the month and shall be equal to the sum of:

(i) For each Series of Bonds which is Outstanding during the current Fiscal Year, an amount equal to the product obtained by multiplying (a) the difference between (1) the amount of interest due or projected to be due on the next succeeding Bond Payment Date for such and (2) the amount, if any, held in the applicable subaccount for such Series in the Capitalized Interest Account in the Debt Service Fund by (b) a fraction, the numerator of which is the number of full months since the end of the month preceding the last Bond Payment Date for such Series (or, with respect to the first Bond Payment Date for such Series, the number of full months since the last day of the month preceding the date of issuance of such Series) and the denominator of which is the number of months between Bond Payment Dates minus one (or, with respect to the first Bond Payment Date for a Series, the number of months between the last day of the month preceding the date of issuance of such Series and the first Bond Payment Date minus one); provided, however, that if this formula would produce (A) a fraction greater than one, then the fraction shall be equal to one, or (B) a denominator less than one, then the fraction shall be equal to one; plus

(ii) For each Series of Bonds which is Outstanding during the current Fiscal Year, an amount equal to the Principal Installment due or projected to be due on the next succeeding Bond Payment Date for such Series which falls within twelve months or less on which a Principal Installment is due, multiplied by a fraction, the numerator of which is the number of full months since the last day of the month preceding the last Bond Payment Date on which a Principal Installment was due (or, with respect to the first such Bond Payment Date, twelve minus the number of full months to the first Bond Payment Date on which a Principal Installment is due), and the denominator of which is eleven; provided, however, that if this formula would produce a fraction greater than one, then the fraction shall be equal to one. (Section 4.3)

Deposits to Operation and Maintenance Reserve Fund. There shall be deposited to the Operation and Maintenance Reserve Fund in each Fiscal Year from the sources described below the amount required, if any, so that the amounts on deposit therein satisfy the O&M Reserve Fund Requirement for the ensuing Fiscal Year.

Deposits to the Operation and Maintenance Reserve Fund may be made from the proceeds of the sale of Bonds of the Authority, from the Local Water Fund, or from any other moneys lawfully available therefor, subject to the following limitations:

(i) The maximum deposit to the Operation and Maintenance Reserve Fund from the proceeds of Bonds of the Authority, as of any time of calculation, may not exceed the O&M Reserve Fund Requirement then in effect, reduced by the cumulative sum of prior deposits thereto from proceeds of Bonds of the Authority.

(ii) Deposits to the Operation and Maintenance Reserve Fund from the Local Water Fund shall be subject to the priorities established in Section 4.2 of the Agreement.

(iii) If there shall be a deficit in the Operation and Maintenance Reserve Fund on May 1 of any Fiscal Year, and if as of such May 1 the Board does not project that available Revenues will at least equal the O&M Reserve Requirement for such Fiscal Year by June 30 of such Fiscal Year, then the Board shall include in its Annual Budget for the ensuing Fiscal Year an amount sufficient, together with other amounts available therefor, to at least equal the O&M Reserve Fund Requirement for the ensuing Fiscal Year.

If on July 1 of any Fiscal Year the amount on deposit in the Operation and Maintenance Reserve Fund is less than the O&M Reserve Fund Requirement, such deficit shall (subject to paragraph (i) above) be made up from the proceeds of the sale of Bonds issued during such Fiscal Year; provided, however, if, prior to May 1 of such Fiscal Year such deficit has not been made up from Bond proceeds, the Board shall include the amount of such deficit in its Annual Budget for the ensuing Fiscal Year and the amounts necessary to restore such deficit shall be deposited in the Operation and Maintenance Reserve Fund.

Amounts required to be deposited in the General Account shall be held separate and apart from other amounts held in the Operation and Maintenance Reserve Fund and applied as described below. (*Section 4.4*)

Application of Moneys in the Operation and Maintenance Reserve Fund. If on the first day of any month the Board has not paid to the City an amount equal to the product of (i) the amount required to be paid for Operating Expenses pursuant to Section 8.1 of the Lease, multiplied by (ii) a fraction the numerator of which is the number of months which have commenced during such Fiscal Year, and the denominator of which is 12, the Board shall withdraw from the Operation and Maintenance Reserve Fund and pay to the City, on demand, an amount equal to $\frac{1}{12}$ of the amount so required to be paid pursuant to Section 8.1 of the Lease, or the entire balance in such Fund if less than sufficient. Amounts on deposit in the General Account may be applied to purposes provided for in Section 4.2 or to the Costs of Water Projects, but shall be retained therein to the extent required by the Annual Budget. (*Section 4.5*)

UPON THE EFFECTIVE DATE OF THE AMENDMENT TO THE FINANCING AGREEMENT, AMOUNTS ON DEPOSIT IN THE GENERAL ACCOUNT ALSO MAY BE APPLIED TO THE PAYMENT OF BONDS IN ACCORDANCE WITH ARTICLE XII OF THE RESOLUTION.

Application of Moneys in Board Expense Fund. Amounts on deposit in the Board Expense Fund shall be applied by the Board solely for the purposes of paying expenses of the Board, in accordance with the Annual Budget. (*Section 4.6*)

Application of Revenues After Default. The Board has covenanted that if an "event of default" (as defined in the Resolution) shall occur, the Board shall pay or cause to be paid to the Trustee, upon its request, all moneys and securities then held by the Board in the Local Water Fund and thereafter the Revenues as promptly as practicable after receipt. (*Section 4.7*)

Amounts Remaining. Any amounts received or held by the Authority or the Trustee pursuant to the Resolution, any similar document or the Agreement after all Bonds and other evidences of indebtedness have been paid in full or are no longer Outstanding and after payment of all other obligations and expenses of the Authority, or provision for payment thereof has been made, shall be paid to the City.

Any payments by the City to the Water Board pursuant to Section 1045-h(3) of the Act shall be confined to consideration for the sale of goods or the rendering of services by the Water Board to the City pursuant to the Lease or the Agreement as contemplated by the Act. (*Section 4.8*)

Rate Covenant. The Board has covenanted and agreed to establish, fix and revise fees, rates or other charges for the use of or services furnished by the System which, together with any other available funds, are adequate to provide for (i) the timely payment of the Principal Installments of and interest on all Bonds and the principal of and interest on any other indebtedness of the Authority payable from Revenues, (ii) the proper operation and maintenance of the System, (iii) all other payments required for the System not otherwise provided for and (iv) all other payments required pursuant to the Agreement and the Lease, without intending to limit the generality of the foregoing, the Board has also covenanted to establish and collect rates, fees and charges sufficient in each Fiscal Year so that Revenues collected in such Fiscal Year will be at least equal to the sum of (i) 115% of estimated Aggregate Debt Service and Projected Debt Service payable in such Fiscal Year (excluding any Refundable Principal Installment if payable from funds held in trust therefor and assuming with respect to Variable Rate Bonds that the effective rate of interest is that which the Authority determines so long as such rate is not less than the rate such Bonds bear at the time Aggregate Debt Service is determined), (ii) 100% of the Operating Expenses and Authority Expenses payable in such Fiscal Year and (iii) 100% of the amount necessary to pay the other Required Deposits for such Fiscal Year. However, a failure to generate such Revenues does not constitute an "event of default" if the Board takes timely action to correct any such deficit. The Board shall review, at least annually, such rates, fees and charges to determine whether such rates, fees and charges are, or will be, sufficient to meet the requirements thereof and shall promptly take action to cure or avoid any deficiency. Except to the extent required by Section 1045-j of the Act, as in effect on July 24, 1984, with regard to the requirement that tax exempt organizations be charged for service provided by the System or by existing agreements (including any successor agreements with Jamaica), the Board will not furnish or supply any product, use or service of the System free of charge or at a nominal charge. (*Section 6.1*)

Consulting Engineer and Rate Consultant. The Authority shall employ a Consulting Engineer and a Rate Consultant whose duties, respectively, shall be to make any certificates and perform any other acts required or permitted of the Consulting Engineer and the Rate Consultant under the Agreement and the Resolution. If so determined by the Authority, the same person or firm may perform the duties and functions of the Consulting Engineer and Rate Consultant.

In each Fiscal Year, the Consulting Engineer and the Rate Consultant shall make an examination of, and shall report to the Authority, the Board, the City and the Trustee, on the properties and operations of the System. The report of the Rate Consultant shall set forth among other findings, the Rate Consultant's recommendation as to any necessary or advisable revisions of rates, fees and charges for the ensuing Fiscal Year and such other advice and recommendation as it may deem desirable. The Consulting Engineer's report shall set forth its findings as to whether the System has been maintained in good repair and sound operating condition, and its estimate of the amount, if any, required to be expended to place such properties in such condition and the details of such expenditures and the approximate time required therefor. The City covenants that if any such report of the Consulting Engineer shall set forth that the properties of the System have not been maintained in good repair and sound operating condition, it will promptly restore the properties to good repair and sound operating condition with all expedition practicable. (*Section 6.2*)

Covenant to Operate and Maintain System. The City has covenanted that it shall, at all times:

(a) in accordance with the advice and recommendations of the Consulting Engineer, operate the System properly and in a sound and economical manner and maintain, preserve, and keep the same preserved and kept with the appurtenances and every part and parcel thereof, in good repair, working order and condition, and from time to time make, or cause to be made, all necessary and proper repairs, replacements and renewals so that at all times the operation of the System may be properly and advantageously conducted, regardless of any failure on the part of the Board to make the payments to the City required by Section 8.1 of the Lease; provided, however, that nothing contained in the Agreement shall require the City to operate, maintain, preserve, repair, replace, renew or reconstruct any part of the System if there shall be filed with the Board, the Authority and the Trustee (i) a certificate of the Commissioner acting as the Authorized Representative of the City stating that in the opinion of the City abandonment of operation of such part of the System will not adversely affect the operation of the System or the amount of Revenues derived therefrom and is not prejudicial to the interests of the Board, the

Authority or the Bondholders and (ii) a Certificate of the Consulting Engineer concurring with such statement;

(b) enforce the rules and regulations governing the operation, use and services of the System established from time to time by the Board or the City;

(c) observe and perform all of the terms and conditions contained in the Act, and comply with all valid acts, rules, regulations, orders and directions of any legislative, executive, administrative or judicial body having competent jurisdiction of the City or the System; provided, however, that the failure of the City to comply with the covenant contained in this subsection (c) for any period shall not constitute a default on its part so long as the City (i) is taking reasonable and timely steps to permit compliance and (ii) the City shall have delivered to the Board and to the Authority a Certificate of the Consulting Engineer which (1) sets forth in reasonable detail the facts and circumstances attendant to such non-compliance, (2) sets forth the steps being taken by the City to permit compliance, (3) sets forth the estimated date on which the City will be in compliance and (4) states that in the opinion of the Consulting Engineer such non-compliance during the period described will not adversely affect the operation of the System or the amount of Revenues to be derived therefrom; and

(d) not create or suffer to be created any lien or charge upon the System or any part thereof except for Permitted Encumbrances. *(Section 6.3)*

Annual Budget. On May 1 of each year (or on such later date as the Authority, the Board and the City may agree) the Authority shall deliver to the Board a certified copy of the Authority Budget for the ensuing Fiscal Year showing the Cash Flow Requirement for such Fiscal Year. Based upon the information contained in (a) the Authority Budget, (b) the City's certification pursuant to Section 8.3 of the Lease and (c) the Certificate of the Consulting Engineer delivered to the Board pursuant to Section 8.3 of the Lease (collectively, the "Budget Documents"), the Board shall prepare the Annual Budget for the ensuing Fiscal Year. In addition to the information contained in the Budget Documents the Board shall also make provision in the Annual Budget for Board Expenses for the ensuing Fiscal Year, for the amount, if any, required to be deposited in the Operation and Maintenance Reserve Fund in accordance with Section 4.4 of the Agreement, and for the application of the amounts in the General Account therein. Thereafter, but in no event later than 15 days after the date of publication of the Executive Budget of the City, the Board shall adopt such Annual Budget. Promptly after adoption of the Annual Budget, and in no event later than June 10 (or such other date as the Authority, the Board and the City may agree) of each year, the Board shall establish the rates, fees and charges for the use of the System for the ensuing Fiscal Year. The Board may from time to time, either before or after commencement of the Fiscal Year to which it relates, amend the Annual Budget, but (except for its own expenses) only in accordance with and after receipt of amended Budget Documents. If as of the first day of any Fiscal Year an Annual Budget has not been adopted, the Annual Budget for the immediately preceding Fiscal Year shall be the Annual Budget for such Fiscal Year until a new Annual Budget is adopted. *(Section 6.4)*

Tax Exemption. The City, the Authority and the Board have covenanted that so long as any Bonds shall be Outstanding, none will take any action, nor fail to take any action, which, if taken or not taken, as the case may be, would adversely affect the tax-exempt status of the interest payable on the Bonds then Outstanding. *(Section 6.5(b))*

UPON THE EFFECTIVE DATE OF THE AMENDMENT TO THE FINANCING AGREEMENT, THE AUTHORITY WILL BE ABLE TO ISSUE BONDS, THE INTEREST ON WHICH IS INCLUDABLE IN GROSS INCOME FOR FEDERAL INCOME TAX PURPOSES.

Discontinuance of Service. The Board has covenanted to enforce or cause the City to enforce the rules and regulations providing for discontinuance of, or disconnection from, the supply of water or the provision of sewer service, or both, as the case may be, for non-payment of fees, rents, rates or other charges imposed by the Board, provided that such discontinuance or disconnection shall not be carried out except in the manner and upon the notice as is required of a waterworks corporation pursuant to Sections 89(b)(3)(a)-(c) and 116 of the Public Service Law of the State. *(Section 6.7)*

Covenant of City as to Rates and Charges. The City has covenanted that, upon the issuance of the Bonds by the Authority, the City will not thereafter levy user fees, rents and other charges with respect to the System until all Bonds are paid or are no longer Outstanding pursuant to the terms of the Resolution; provided, however, that the City may levy *ad valorem* taxes to pay the costs and expenses of the System or to pay the principal of and interest on general obligation bonds of the City heretofore or hereafter issued to finance the System or any part thereof. (Section 6.9)

Books and Records. Each of the Authority and the Board shall keep or cause to be kept proper books of record and account in which complete and correct entries shall be made of all transactions relating to their corporate purposes under the Act. In accordance with Section 1045-y of the Act, the Authority and the Board shall annually submit to the Mayor, the Comptroller and the Director of Management and Budget of the City a detailed report concerning their activities for the Fiscal Year. In addition, the Authority and the Board shall submit to the Mayor, the Comptroller and the Director of Management and Budget of the City audited annual financial statements of the Authority and the Board together with a report thereon of an accountant satisfactory to the Board. (Section 6.11)

Liens. Until the Bonds or other evidences of indebtedness issued by the Authority for its purposes under the Act have been paid in full or provision has been made therefor in accordance with the Resolution or similar document, the Agreement provides that the Board shall not create, and, to the extent it has the power to do so, shall not permit to be created, any lien upon or pledge of the Revenues except the lien and pledge thereon created by the Act. (Section 6.12)

Security Interests. Except to the extent provided in the Act, neither the Board nor the Authority may grant any Bondholder any security interest in any of the assets or Properties of the Board. (Section 6.13)

Financing through State Revolving Fund. In connection with the financing of Water Projects by the Authority with funds provided from the State Revolving Fund, the City may enter into a Project Financing Agreement or Agreements among DEC, the Corporation and the Authority and make in any such agreement certain representations, warranties, covenants and agreements. (Section 6.16)

Agreement of the State. Under the provisions of the Agreement, the parties pledge and agree, for and on behalf of the State as provided in the Act, that the State will not alter or limit the rights vested by the Act in the Authority or the Board to fulfill the terms of any agreement made with or for the benefit of the Bondholders, or in any way impair the rights and remedies of Bondholders, until the Bonds, together with the interest thereon, interest on any unpaid installment of interest, and all costs and expenses incurred in any action or proceeding by or on behalf of such holders, are fully met and discharged. (Section 7.1)

Events of Default and Remedies. An "event of default" or a "default" means any one of the following events: (i) failure by the Board to pay the Authority those amounts required under the Agreement; (ii) failure of the City or the Board to observe any covenant, term or condition of the Agreement (other than the payments the Board shall make to the Authority) and such failure shall have continued for a period of sixty (60) days after written notice, specifying such failure and requesting that it be remedied, is given to the City or the Board, or both, by the Authority unless the Authority shall agree in writing to extend such time prior to its expiration, provided such extension shall not be unreasonably withheld if the City or the Board has instituted and is diligently pursuing corrective action which cannot be completed within the applicable period; (iii) the Authority shall file a petition, or otherwise seek relief, under any federal or State bankruptcy or similar law; and (iv) the terms, conditions and security provided under the Agreement and the Resolution or the respective provisions of the Act pursuant to which the Resolution has been adopted or the Bonds have been issued or entered into (including, without limitation, the provisions under which the lien upon the Revenues has been created pursuant to the Agreement and the Resolution and the provisions establishing the powers and obligations of the Board and the relationship of the Authority to the Board and the City) shall be materially and adversely limited, altered or impaired by any legislative action or any final judgment. (Section 8.1)

Whenever an event of default shall have occurred and be continuing, the Authority and the Trustee may take whatever legal action may appear necessary or desirable to: (i) collect the payments then due and as they

thereafter become due and (ii) so long as any Bonds are Outstanding, enforce performance and observance of any obligation or covenant of the City or the Board under the Agreement. In addition, if the Board defaults in making the payments to the Authority required under the Agreement as a result of its failure to impose sufficient fees, rates, rents or other charges, the Authority may petition for the appointment of a receiver to administer the affairs of the Board in order to achieve Revenues sufficient to make such payments by establishing fees, rates, rents or other charges at least sufficient therefor. The remedies conferred upon or reserved to the Authority in respect of any event of default are not exclusive of other available remedies, but shall be in addition to every other remedy given under the Agreement or existing at law or in equity or by statute. *(Sections 8.2 and 8.3)*

Termination. The Agreement shall terminate and the covenants and other obligations contained therein shall be discharged and satisfied, when (i) payment of all indebtedness of the Authority has been made or provided for in accordance with the Resolution or similar document securing such indebtedness and (ii) either all payments required thereunder have been made in full, or provision for such payments satisfactory to the Authority has been made, or the City pays or assumes all liabilities, obligations, duties, rights and powers of the Authority under the Agreement. *(Section 9.1)*

Amendments. The parties to the Agreement may enter into any amendment, change or modification of the Agreement (if in writing, signed by each of the parties and consented to in writing by the Trustee if required by the Resolution) including, without limitation, amendments to Appendix A to the Agreement; provided that the parties shall enter into no such change or modification which materially adversely affects the rights of the holders of any Bonds by modifying or revoking certain enumerated provisions of the Agreement without first complying with the applicable provisions of the Resolution. *(Section 10.1)*

Conflicts. The Agreement provides that its provisions shall not change or in any manner alter the terms of the Resolution, or the security, rights or remedies of the Trustee or the Bondholders. In the event any provision of the Agreement conflicts at any time, or in any manner, with the provisions of the Resolution or any Bond, the provisions of the Resolution or Bond shall be controlling and conflicting provisions of the Agreement shall be disregarded. *(Section 12.1)*

Summary of the Lease

Term of Lease and Demise of Leased Property. The City has leased the Leased Property to the Board for the term of the Lease (the "Lease Term"). The Lease Term commenced on the Effective Date (July 1, 1985) and continues until the later of the 40th anniversary of the Effective Date or the date on which all bonds, notes or other obligations of the Authority are paid in full or provision for such payment is made pursuant to the resolution, trust indenture or other instrument under which such bonds, notes or other obligations are issued. During the Lease Term the Board may use the Leased Property only for its corporate purposes and upon the terms and conditions contained in the Lease.

The Leased Property includes (whether now in use or hereafter acquired, and whether or not located within the boundaries of the City) all of the City's right, title and interest in: (i) the City's sewerage system, including but not limited to all plants, structures, equipment and other real and personal property or rights therein acquired, rehabilitated or constructed (including all work in progress as soon as commenced) and used for the purpose of collecting, treating, pumping, neutralizing, storing and disposing of sewage, including, but not limited to, main, collecting, outlet or other sewers, pumping stations, groundwater recharge basins, backflow prevention devices, sludge dewatering facilities, vessels, barges, clarifiers, filters and phosphorous removal equipment, vehicles and other property used in connection with the sewer system; (ii) the City's water system, including but not limited to all plants, structures and other real and personal property or rights therein, acquired, rehabilitated or constructed (including all work in progress as soon as commenced) and used or to be used for the purpose of supplying, distributing, accumulating or treating water, including, but not limited to, reservoirs, basins, dams, canals, aqueducts, pipelines, mains, pumping stations, water distribution systems, intake systems, water-works, sources of water supply, purification or filtration plants, water meters and rights of flowage or diversion, vehicles and other property used in connection with the water system; and (iii) any other materials, supplies, plans and property contained in the above-mentioned plants and structures incidental to, or necessary or useful and convenient for, the operation of such facilities; provided, however, that

the Leased Property shall not include the City's right, title and interest in the following: (i) any property or rights of the City the conveyance of which pursuant to the Lease would cause a reversion to or in favor of, or permit a reentry by or in favor of, any third party; (ii) all mines and minerals whatsoever (but not including surface or subsurface waters) now or hereafter found and discovered, crops and timber, on or under the lands to be conveyed pursuant to the Lease; with power and authority for the City to perform certain mineral extraction and agricultural/timber activities; provided, however, that the City shall not undertake any such activities which interfere with the operation, maintenance or collection of Revenues of the System. *(Section 2.1)*

Right of City to Enter Leased Property. The City retains the right to enter upon any portion of the Leased Property, to use any property not constituting a part thereof which is located in, across or upon the Leased Property or for any purpose unless, in the reasonable judgment of the Board, such entry or use would adversely affect the collection of Revenues. *(Section 2.2)*

Substitution of Board for City. Where necessary or desirable and to the extent permitted by law, the City and the Board agree to use their best efforts to substitute the Board for the City with respect to any application or proceedings filed or commenced in relation to the Leased Property with the various State and Federal regulatory bodies having jurisdiction. *(Section 2.5)*

Indemnification. The City agrees, to the extent permitted by law and subject to certain conditions, to hold the Board harmless from any and all liability, loss or damage from or in connection with any act the Board does or omits in the exercise of its powers if taken or omitted in good faith and in pursuance of its corporate purposes. *(Sections 3.1, 3.2 and 7.2)*

Operation and Maintenance of the Leased Property. The City shall administer and operate the Leased Property, maintain the Leased Property in good and safe order and condition and make all repairs therein. The City's duty to "maintain" and "repair" shall include all necessary repairs, replacements, renewals, alterations and additions, whether structural, non-structural, ordinary or extraordinary and its duty to "administer" shall include, without limitation, the enforcement of regulations of the Board and the City relating to the use of the System. However, the Lease shall not impose any obligation or liability upon the City for the administration, operation, maintenance and repair of the System not previously imposed upon it in connection with its prior operation and maintenance of the System. Both the Board and the City shall use all reasonable care to prevent the occurrence of waste, damage or injury to the Leased Property. The System shall be used and operated and maintained in accordance with all applicable laws, rules and regulations. *(Sections 4.1, 4.2 and 4.3)*

Construction and Acquisition. The Board authorizes the City to perform the construction and effectuation of any Water Project specified in the Agreement and the City may incur Costs in connection therewith. The City may acquire all real and personal property, or any interest therein, necessary or useful for the construction or effectuation of a Water Project; provided that all such property or interest acquired by the City through the exercise of the power of eminent domain shall be taken in the name of the City. *(Sections 5.1, 5.2 and 5.3)*

Billing and the Levy of Water and Sewer Charges. The City has agreed to provide billing services to the Board. Such services include but are not limited to: (i) notification to users of the System of the water and sewer charges levied by the Board, (ii) collection of such charges (including the City's use of its power of enforcement and collection of unpaid taxes under the laws of the State to enforce and collect any delinquent water and sewer charges from the persons and property liable therefor) and (iii) maintenance of the books, records and accounts of the billing systems. *(Sections 6.1 and 6.2)*

Late Payments. All late payments of water and sewer charges are the property of the Board and shall be collected by the City on behalf of the Board. Notwithstanding the foregoing, the Board has assigned to the City all of its rights and interest in and to all outstanding charges levied and uncollected on all properties at the time title thereto is vested in the City pursuant to *in rem* proceedings in consideration for the City's payment to the Board, in each Fiscal Year after the Effective Date, of an amount equal to 2% of such outstanding charges (unless, during the Lease Term, the City and the Board mutually agree on a different procedure for allocating such outstanding charges). *(Section 6.3)*

Discontinuance of Billing Services. If either the City or the Board no longer desires that the City provide the Board with billing services, the party desiring termination shall give written notice of such fact to the other party at least two years prior to the termination. Notwithstanding such termination of billing services, Section 6.2 of the Lease shall remain in full force and effect. *(Section 6.4)*

Legal Services. The Board has hired the City's Law Department to provide it with legal services. However, the Board may hire a different attorney or firm of attorneys to provide it with legal services. If the Board retains counsel to defend a claim against it without the prior approval of the Corporation Counsel of the City (which approval shall not be unreasonably withheld), the Board shall not be entitled to the indemnification from the City provided in Article III of the Lease with respect to such claim, unless the City elects in writing to provide such indemnification. *(Sections 7.1 and 7.2)*

Payments of Costs by the Board. The Board has agreed to pay to the City amounts sufficient to: (i) pay the cost of administration, maintenance, repair and operation of the Leased Property, including overhead costs incurred by the City attributable to the Leased Property (but less the amount of any governmental operating aid received or receivable within the current Fiscal Year with respect to the System), the cost of materials and supplies, and the amount of any judgment or settlement paid by the City arising out of a tort claim (but only if the costs of such claim are not otherwise reimbursed, the City's liability for such claim is related to Construction of a Water Project or operation or maintenance of the System and the costs of such claims do not exceed for any Fiscal Year 5% of the aggregate revenues shown on the Board's last year-end audited financial statements); (ii) reimburse the City for capital Costs incurred by the City in the Construction of Water Projects (if requested by the City and not otherwise reimbursed) including, without limitation, the payment of any judgment or settlement arising out of a contract claim related to the Construction of any Water Project; (iii) pay the cost of billing and collection services provided by the City; (iv) pay the cost of legal services provided by the City; and (v) reimburse the City for the compensation, or the costs of the services, of any City officers and employees provided on a full-time or part-time basis to the Board. *(Section 8.1)*

Base Rental Payments. In addition, the Board shall pay the City a rental payment for the System, but only to the extent requested by the City, and not to exceed the greater of (i) the principal and interest payable on general obligation bonds issued by the City for water and sewer purposes and certified by the City to be paid within such Fiscal Year, or (ii) 15% of the amount of principal and interest payable on the Bonds of the Authority and certified by the Authority to be paid within such Fiscal Year. *(Section 8.2)*

Method of Payment. The City shall certify within five business days after publication of the City's Executive Budget for the ensuing Fiscal Year the (i) amount which the City reasonably anticipates it will expend in connection with the costs described in Section 8.1 of the Lease and (ii) the amount of the payments described in Section 8.2 of the Lease; provided that, prior to the Board's payment to the City the Board shall have received, in addition to such certification by the City, a certificate of the Consulting Engineer to the effect that such amounts certified by the City for such payments and costs are reasonable and appropriate. Upon the Board's payment of all such amounts so certified or requested and any other payments required under the Act, or, after provisions for their payment have been made, the Board shall pay to the City, as Additional Rent in each Fiscal Year, any surplus of funds received. *(Section 8.3)*

Disposition of Property. The Board agrees that it will not sell, lease, sublease, assign, transfer, encumber (other than Permitted Encumbrances) or otherwise dispose of any part of the Leased Property, or any other real property or personal property which may be acquired by the Board, or its interest in the Lease, without the prior written approval of the City.

The City will not sell, transfer or otherwise dispose of real property or personal property included in the Leased Property without the Board's written consent. In the case of personal property, the value of which is less than \$1 million per unit (or of greater value if the Board designates), the Board will adopt rules and procedures for the expedited disposition thereof. Upon the City's request to dispose of any real property or personal property valued in excess of \$1 million, the Board will give such consent only upon receipt of a

certificate signed by the Consulting Engineer to the effect that such real or personal property may be disposed of without materially adversely affecting the Revenues of the System or impairing the ability of the Board to make any payments required by the Lease or the Agreement or any other agreement to which it may be a party or be bound. The City may also, with the prior written consent of the Board, grant interests in the Leased Property which, in the reasonable judgment of the Board, do not interfere with the operation and maintenance of the System and the collection of the Revenues from the System. (*Section 11.1*)

Encumbrances. The Board may not encumber the Leased Property without the prior written approval of the City. The City may grant temporary licenses for use of the Leased Property which do not interfere with the operation and maintenance of the System or the collection of Revenues therefrom. (*Section 11.3*)

Summary of the Resolution

Pledge of Revenues and Funds. The Authority pledges for the payment of the Principal Installments or Redemption Price of and any interest on the Bonds, in accordance with their terms and the provisions of the Resolution: (i) all Revenues, (ii) all moneys or securities in any of the Funds and Accounts created under the Resolution, except that moneys or securities on deposit in a Special Account are pledged only to the Series of Bonds to which such Account relates and moneys or securities on deposit in the Common Account are pledged only to the Bonds for which a Special Account has not been established pursuant to the General Resolution, and (iii) all other moneys and securities to be received, held or set aside by the Authority or by any Fiduciary pursuant to the Resolution; subject only to the provisions of the Resolution and the Agreement permitting the application of such amounts for or to the purposes and on the terms and conditions therein set forth. It is the intention of the Authority that, to the fullest extent permitted by law, such pledge shall be valid and binding from the time when it is made; that the Revenues, moneys, securities and other funds so pledged, and then or thereafter received by the Authority, shall immediately be subject to the lien of such pledge; and that the obligation to perform the contractual provisions therein contained shall have priority over any or all other obligations and liabilities of the Authority and shall be valid and binding as against all parties having claims of any kind in tort, contract or otherwise against the Authority, irrespective of whether such parties have notice thereof.

As further security for the payment of the Bonds, the Authority, under the Resolution, assigns, transfers and pledges to the Trustee all of its rights and interests under and pursuant to the Agreement (excluding rights to notice and other procedural rights, its right to indemnification and rights and interests not material to Bondholders), including, without limiting the generality of the foregoing, the present and continuing right: (i) to claim, collect or receive from the Board, all Revenues thereunder, (ii) to bring actions and proceedings thereunder for enforcement of such right of collection, and (iii) to do any and all things which the Authority is or may become entitled to do under the Agreement; provided that such assignment shall not impair or diminish any obligation of the Authority under the Agreement.

The Bonds are special obligations of the Authority payable solely from the Revenues and other amounts described in the Resolution and do not and will not constitute an indebtedness of the State, the City or the Board and neither the State, the City nor the Board shall be in any way liable thereon. (*Sections 203 and 501*)

Establishment of Funds and Accounts. The Resolution establishes the following Funds:

- (1) Construction Fund;
- (2) Revenue Fund;
- (3) Debt Service Fund;
- (4) Authority Expense Fund;
- (5) Debt Service Reserve Fund;
- (6) Subordinated Indebtedness Fund;
- (7) Surplus Fund; and
- (8) Arbitrage Rebate Fund.

The Resolution establishes in the Debt Service Reserve Fund a separate account known as the "Common Account", and provides that any Supplemental Resolution which authorizes a Special Credit Facility may

establish one or more "Special Accounts" in the Debt Service Reserve Fund. The Resolution also establishes in the Debt Service Fund a separate account to be known as the "Capitalized Interest Account".

UPON THE EFFECTIVE DATE OF THE TWENTY-SECOND SUPPLEMENTAL RESOLUTION, THE GENERAL RESOLUTION WILL PERMIT THE AUTHORITY TO ESTABLISH A SPECIAL ACCOUNT IN CONNECTION WITH THE ISSUANCE OF ANY SERIES OF BONDS.

The Trustee shall hold all of the Funds and Accounts, except the Authority Expense Fund, which shall be held by the Authority.

The Trustee is directed to make withdrawals and transfers from the Funds and Accounts established by the Resolution in order to comply with any agreement entered into upon or after the date of issuance of the Authority's Fiscal 1987 Series C Bonds providing for the rebate of certain arbitrage earnings to the United States. (*Section 502*)

Construction Fund. The Authority shall deposit from time to time in the Construction Fund the net proceeds from the sale of each Series of Bonds and make the deposits in the Funds and Accounts required by the applicable Supplemental Resolutions. The Authority shall also deposit from time to time in the Construction Fund any other amounts required to be deposited therein pursuant to the Resolution or the Agreement, including amounts received by the Authority for or in connection with the System and determined by the Authority to be deposited therein. Any proceeds of insurance maintained by the Board or the City against physical loss of or damage to the System, or of contractors' performance bonds pertaining to the construction of the System, shall also be paid into the Construction Fund.

Except as otherwise provided, amounts in the Construction Fund may only be expended to pay Costs of Water Projects (including Costs of Issuance). The Trustee shall make payments from the Construction Fund, except as otherwise provided, only upon receipt of a Disbursement Request signed by an Authorized Representative of the Authority.

To the extent that other moneys are not available therefor in any other Fund or Account, amounts in the Construction Fund shall be applied to the payment of principal of and interest on Bonds when due. (*Section 503*)

Allocation of Revenues — Revenue Fund. The Authority shall cause all Revenues received from the Board pursuant to the Agreement to be paid to the Trustee and deposited promptly upon receipt in the Revenue Fund. There shall also be deposited in the Revenue Fund all other amounts required by the Resolution or the Agreement to be so deposited. (*Section 504*)

UPON THE EFFECTIVE DATE OF THE TWENTY-SECOND SUPPLEMENTAL RESOLUTION, THE GENERAL RESOLUTION WILL REQUIRE THE AUTHORITY TO DEPOSIT ALL REVENUES INTO THE REVENUE FUND.

Payments Into Certain Funds. From the Revenues in the Revenue Fund, the Trustee shall make, as soon as practicable in each month, the following deposits in the following order:

(i) to the Debt Service Fund all such amounts until the amount therein on deposit in such month equals the Minimum Monthly Balance for such month for all Series of Bonds Outstanding;

(ii) from the balance, if any, remaining in such month after making the deposits required in (i) above, to the Authority Expense Fund the entire balance until the total on deposit therein in such month is equal to the product obtained by multiplying (A) the sum of the Authority Expenses for the then current Fiscal Year plus (if included in the Authority Budget for the then current Fiscal Year) an amount (the "Reserve for Expenses") equal to one-sixth ($\frac{1}{6}$ th) of such Authority Expenses by (B) a fraction, the numerator of which is 12 minus the number of full months, excluding the month of calculation, remaining in the Fiscal Year, and the denominator of which is 12;

(iii) from the balance, if any, remaining after making the deposits required in (i) and (ii) above, *first*, to the Common Account in the Debt Service Reserve Fund, the amount, if any, necessary to make the total on deposit in the Common Account equal to the Debt Service Reserve Requirement for the

Bonds to which such Common Account relates or, if less than sufficient, the entire balance and, *second*, to each Special Account until the amount therein on deposit equals the Debt Service Reserve Requirement for the Bonds to which each Special Account relates; provided, however, if the balance remaining is less than sufficient to credit in full each Special Account, credit shall be made pro rata among all Special Accounts in the same ratio as the Debt Service Reserve Requirement related to such Special Account bears to the sum of the Debt Service Reserve Requirements for all of the Bonds related to the Special Accounts; and

(iv) from the balance, if any, remaining after making the deposits required in (i), (ii) and (iii) above, to the Subordinated Indebtedness Fund the amount required to be deposited in accordance with the Authority Budget, or the entire balance, if less than sufficient.

Beginning with the first day of each Fiscal Year, the Trustee shall calculate the amounts deposited in the Revenue Fund on a daily basis until the total of all amounts deposited therein during such Fiscal Year is at least equal to the Cash Flow Requirement. On such date, if any, the Trustee is directed to give the notice to the Authority and the Board provided in Section 4.3(b) of the Agreement. Thereafter, during each Fiscal Year, no further Revenues shall be paid to the Trustee pursuant to paragraph Fourth of Section 4.2(c) of the Agreement so long as the Cash Flow Requirement, as the same may be revised from time to time, continues to be met. (*Section 505*)

Debt Service Fund. The Trustee shall, for each Series of Bonds Outstanding, pay from the Debt Service Fund the amounts due on each Bond Payment Date for the payment of the Principal Installments, if any, and from the moneys in the Debt Service Fund, including moneys in the Capitalized Interest Account in such Fund, interest on the Outstanding Bonds and on the redemption date or date of purchase, the amounts required for the payment of accrued interest on Bonds to be redeemed or purchased on such date unless the payment of such accrued interest shall be otherwise provided.

The Trustee may, and if so directed by an Authorized Representative of the Authority shall, prior to the forty-fifth day preceding the due date of each Sinking Fund Installment, apply the amounts accumulated in the Debt Service Fund for such Sinking Fund Installment, together with any interest on the Bonds for which such Sinking Fund Installment was established: (i) to the purchase of Bonds of like Series and maturity at prices (including any brokerage and other charges) not exceeding the Redemption Price payable for such Bonds when such Bonds are redeemable with such Sinking Fund Installment plus unpaid interest accrued or (ii) to the redemption of such Bonds, if redeemable by their terms, at or below said Redemption Price. Upon such purchase or redemption of any Bond, the Trustee shall then credit an amount equal to the principal of the Bond so purchased or redeemed toward the next Sinking Fund Installments thereafter to become due and the amount of any excess over the amount of such Sinking Fund Installment shall be credited against future Sinking Fund Installments in direct chronological order.

In any event, the Trustee shall, as soon as practicable after the forty-fifth day preceding the due date of any such Sinking Fund Installment, call for redemption a sufficient amount of Bonds of like Series and maturity to complete the retirement of the principal amount specified for such Sinking Fund Installment of such Bonds whether or not it then has moneys in the Debt Service Fund to pay the applicable Redemption Price thereof on the redemption date. The Trustee shall apply to the redemption of the Bonds on each such redemption date the amount required for the redemption of such Bonds. (*Sections 506 and 514*)

Authority Expense Fund. The Authority shall apply amounts credited to the Authority Expense Fund to the payment of Authority Expenses. Any moneys in the Authority Expense Fund which the Authority determines are in excess of that needed to meet the sum of the unpaid Authority Expenses for such Fiscal Year plus (if such amount was included in the Authority Budget for such Fiscal Year) the Reserve for Expenses, shall be applied toward any deficiencies in the following Funds and Accounts in the order stated: the Debt Service Fund, Debt Service Reserve Fund and Subordinated Indebtedness Fund. Any remaining amounts shall be credited to the Revenue Fund. (*Section 507*)

Debt Service Reserve Fund. The Resolution establishes a Debt Service Reserve Fund and a Common Account therein. In addition, the Resolution provides that any Supplemental Resolution which provides for a

Special Credit Facility to secure the principal, interest or Tender Option Price of any Bonds may establish one or more "Special Accounts" in the Debt Service Reserve Fund. From the proceeds of each Series of Bonds there shall be deposited in the Debt Service Reserve Fund the amount, if any, necessary to make the amount on deposit therein equal to the Debt Service Reserve Requirement, after giving effect to the issuance of such Bonds; and all such amounts will be credited to the Common Account, unless a Supplemental Resolution requires a deposit in a Special Account. Amounts on deposit in the Common Account will be applied, to the extent necessary, to pay the Principal Installments of and interest on the Bonds; provided, however, that the amounts in the Common Account may not be applied to pay the Principal Installments or Tender Option Price of or interest on Bonds for which such payments are secured by a Special Credit Facility, if the Supplemental Resolution authorizing such Bonds has established a Special Account. Likewise, amounts in any Special Account may not be applied to pay the Principal Installments of or interest on any Bond for which such payments may be made from the Common Account. Amounts on deposit in each of the Accounts in the Debt Service Reserve Fund shall be applied, to the extent other funds are not available in the Surplus Fund, the Subordinated Indebtedness Fund and the Authority Expense Fund, to pay the Principal Installments of, and interest on the Bonds to which such Account relates when due. Amounts so applied shall be derived first from cash or Investment Securities on deposit, and second from draws and demands on Financial Guaranties.

If, as of June 30 of each year, the amount in any Account in the Debt Service Reserve Fund exceeds the applicable Debt Service Reserve Requirement after giving effect to any Financial Guaranty deposited in such Fund, the Trustee shall withdraw from such Account the amount of any excess therein over the applicable Debt Service Reserve Requirement as of the date of such withdrawal and deposit the moneys so withdrawn into (i) the Arbitrage Rebate Fund, the amount established by the Authority to be required by the Code to be rebated to the Department of the Treasury and (ii) the Surplus Fund, the amount of any excess then remaining in the Debt Service Reserve Fund over the applicable Debt Service Reserve Requirement. If, as of February 1 of each year, the amount in any Account in the Debt Service Reserve Fund is less than the applicable Debt Service Reserve Requirement and, to the extent that such deficiency has not been made up by May 1 of such year by either (i) deposits pursuant to Section 505, Section 510 or Section 510-a of the Resolution or (ii) an increase in the market value of the Investment Securities therein, or (iii) a combination of (i) and (ii), the Authority shall, in its Authority Budget for the ensuing Fiscal Year, include the amount necessary to make up such deficiency as a Required Deposit.

UPON THE EFFECTIVE DATE OF THE TWENTY-SECOND SUPPLEMENTAL RESOLUTION, THE FIRST SENTENCE OF THE PROVISION OF THE GENERAL RESOLUTION SUMMARIZED IN THE PRECEDING PARAGRAPH WILL READ AS FOLLOWS:

If, as of June 30 of each year, the amount in any Account in the Debt Service Reserve Fund exceeds the applicable Debt Service Reserve Requirement after giving effect to any Financial Guaranty deposited in such Fund, the Trustee shall, on the first business day of the following Fiscal Year, withdraw from such Account the amount of any excess therein over the applicable Debt Service Reserve Requirement as of the date of such withdrawal for deposit into (i) the Arbitrage Rebate Fund, the amount estimated by the Authority to be required by the Code to be rebated to the Department of the Treasury, (ii) the Surplus Fund, the amount required to be deposited therein in accordance with the Authority Budget, and (iii) the Revenue Fund, the amount of any excess then remaining in the Debt Service Reserve Fund over the applicable Debt Service Reserve Fund Requirement.

Whenever the amount (exclusive of Financial Guaranties) in all of the Accounts in the Debt Service Reserve Fund, together with the amount in the Debt Service Fund, is sufficient to pay all Outstanding Bonds in accordance with their respective terms, the funds on deposit in the Debt Service Reserve Fund shall be transferred to the Debt Service Fund and applied to the redemption or payment at maturity of all Bonds Outstanding.

In lieu of the required deposits and transfers to the Debt Service Reserve Fund, the Authority may cause to be deposited into the Debt Service Reserve Fund Financial Guaranties in an amount equal to the difference between the Debt Service Reserve Requirement and the sums, if any, then on deposit in the Debt Service

Reserve Fund or being deposited in the Debt Service Reserve Fund concurrently with such Financial Guaranties. The Financial Guaranties shall be payable (upon the giving of notice as required thereunder) on any date on which moneys will be required to be withdrawn from the Debt Service Reserve Account and applied to the payment of a Principal Installment of or interest on any Bonds and such withdrawal cannot be met by amounts on deposit in the Debt Service Reserve Fund. If a disbursement is made pursuant to Financial Guaranties, the Authority shall be obligated either (i) to reinstate the maximum limits of such Financial Guaranties or (ii) to deposit into the Debt Service Reserve Fund, funds in the amount of the disbursement made under such Financial Guaranties, or a combination of such alternatives, as shall provide that the amount in the Debt Service Reserve Fund equals the Debt Service Reserve Requirement.

In the event of the refunding of any Bonds, the Trustee shall, upon the written direction of the Authority, withdraw from the Debt Service Reserve Fund all or any portion of amounts accumulated therein with respect to the Bonds being refunded and deposit such amounts as provided in such written direction; provided that such withdrawal shall not be made unless (a) immediately thereafter the Bonds being refunded shall be deemed to have been paid pursuant to Section 1201 of the Resolution, and (b) the amount remaining in the Debt Service Reserve Fund after such withdrawal shall not be less than the Debt Service Reserve Requirement. *(Section 508)*

Subordinated Indebtedness Fund. The Trustee shall apply amounts on deposit in the Subordinated Indebtedness Fund solely to the maintenance of reserves for, or the payment of, Subordinated Indebtedness (or as otherwise provided by the resolution of the Authority authorizing each issue of Subordinated Indebtedness). The Trustee shall withdraw from the Subordinated Indebtedness Fund any amount necessary to render the balances in the Debt Service Fund or Debt Service Reserve Fund sufficient to meet the requirements of such Funds. *(Section 509)*

Surplus Fund. The Trustee shall, on each Bond Payment Date, apply moneys credited to the Surplus Fund in the following amounts: (i) to the Debt Service Fund the amount, if any, necessary (or all the moneys in the Surplus Fund if less than the amount necessary) to make up any deficiency in the amount required to be on deposit in such Fund and (ii) to the Debt Service Reserve Fund the amount, if any, necessary (or all the moneys in the Surplus Fund if less than the amount necessary) to make up any deficiency in the amount required to be on deposit in any Account in such Fund. Such transfer shall be made notwithstanding any other provisions of this Resolution requiring deposits in such Funds. Amounts on deposit in the Surplus Fund on the last day of a Fiscal Year shall be withdrawn from such Fund and transferred to the Board for deposit in the Local Water Fund. *(Section 510)*

Arbitrage Rebate Fund. Amounts on deposit in the Arbitrage Rebate Fund shall be applied by the Trustee to make payments to the Department of the Treasury of the United States of America. Notwithstanding the foregoing, the Trustee shall apply moneys credited to the Arbitrage Rebate Fund in the following amounts: (i) to the Debt Service Fund the amount, if any, necessary (or all the moneys in the Arbitrage Rebate Fund if less than the amount necessary) to make up any deficiency in the amount required to be on deposit in the Debt Service Fund and (ii) to the Debt Service Reserve Fund the amount, if any, necessary (or all the moneys in the Arbitrage Rebate Fund if less than the amount necessary) to make up any deficiency in the amount required to be on deposit in any Account in the Debt Service Reserve Fund.

Amounts on deposit in the Arbitrage Rebate Fund in excess of the amount required to be maintained therein for the purposes of such Fund may be transferred and paid by the Trustee to the Surplus Fund. *(Section 510-a)*

Subordinated Indebtedness. The Authority may issue Subordinated Indebtedness payable out of and secured by a pledge of and lien on amounts in the Subordinated Indebtedness Fund available for such payment. Such Subordinated Indebtedness, however, shall be issued only for the purposes set forth in the Resolution and shall be secured by a pledge subordinate in all respects to the pledge created by the Resolution as security for the Bonds. *(Section 511)*

Depositories. All moneys or securities held by the Trustee shall constitute trust funds and the Trustee may and shall, if directed by the Authority, deposit such moneys or securities with one or more Depositories.

All moneys or securities held by the Authority in the Authority Expense Fund shall be deposited with one or more Depositories. All moneys or securities deposited under the provisions of the Resolution with the Trustee or any Depository shall be held in trust and applied only in accordance with the provisions of the Resolution, and each of the Funds established by the Resolution shall be a trust fund for the purposes thereof.

Each Depository holding moneys or securities in trust for the Trustee shall be a bank or trust company organized under the laws of the State or a national banking association (having its principal office within the State), having capital stock, surplus and undivided earnings aggregating at least \$100,000,000 and willing and able to accept the office on reasonable and customary terms and authorized by law to act in accordance with the provisions of the Resolution. (*Section 512*)

Investment of Certain Funds. Moneys held in the Debt Service Fund, the Debt Service Reserve Fund and the Subordinated Indebtedness Fund (subject to the terms of any resolutions or other instruments securing any issue of Subordinated Indebtedness) shall be invested and reinvested to the fullest practicable extent in Investment Securities which mature not later than such times as shall be necessary to provide moneys when needed to make payments required from such Funds; provided that in the case of the Debt Service Reserve Fund maturation may not occur later than fifteen years from the date of such investment, and in the case of the Debt Service Fund, investments shall be of the type described in clauses (ii), (iii) and (vi), and in the case of the Debt Service Reserve Fund, clauses (ii) and (iii), of the definition of "Investment Securities" (in either case, to the fullest extent practicable). Moneys in the Authority Expense Fund, the Revenue Fund, the Construction Fund, the Arbitrage Rebate Fund and the Surplus Fund may be invested in Investment Securities which mature no later than such times as shall be necessary to provide moneys when needed to make payments from such Funds. The Trustee shall make all investments in accordance with written instructions from any Authorized Representative of the Authority. Moneys in any Fund or Account may be combined with moneys in any other Fund or Account for the purpose of making such investments in Investment Securities.

Interest (net of that which represents a return of accrued interest paid in connection with the purchase of any investment) earned on any moneys or investments in such Funds and Accounts, other than the Construction Fund, the Arbitrage Rebate Fund and the Debt Service Reserve Fund, shall be paid into the Revenue Fund as and when received. Interest (net of that which represents a return of accrued interest paid in connection with the purchase of any investment) earned on any moneys or investments in (i) the Debt Service Reserve Fund shall be paid into the Arbitrage Rebate Fund or the Surplus Fund, (ii) the Construction Fund shall be paid to the Board for deposit in the Local Water Fund quarterly, on the 15th day of each July, October, January and April of each Fiscal Year upon receipt of a written request and a certificate of the Authority relating to the satisfaction of the Cash Flow Requirement and (iii) the Arbitrage Rebate Fund shall remain in such fund.

All Investment Securities acquired with moneys in any Fund or Account, including any Fund or Account held by the Authority, shall be held by the Trustee in pledge or by a Depository as agent in pledge in favor of the Trustee. (*Section 514*)

Additional Bonds. The Authority may issue Bonds from time to time without limitation as to amount except as provided in the Resolution or as specified by law to generate funds sufficient to meet the Costs of Water Projects, to make deposits in the Funds and Accounts or to refund Outstanding Bonds, Bond Anticipation Notes, Subordinated Indebtedness or outstanding bonds of the City issued to pay the capital costs of the System. All Bonds shall be issued subject to the terms, conditions and limitations established in the Resolution and in one or more Series as therein provided.

Bonds shall be authenticated and delivered only upon the Trustee's receipt of, among other items:

- (a) a certified copy of the Supplemental Resolution authorizing such Series;

(b) (i) in the case of the initial Series of Bonds, an executed copy of the Agreement and the Lease; and (ii) in the case of any subsequent Series of Bonds, an executed copy of any amendment or supplement to the Agreement or the Lease not theretofore delivered to the Trustee;

(c) except in the case of Series of Bonds issued prior to July 1, 1986 and any Series of Refunding Bonds issued pursuant to Section 207 of the Resolution, a certificate of an Authorized Representative of the Authority setting forth (i) the Revenues for either of the last two full Fiscal Years immediately preceding the Fiscal Year in which such Bonds are to be issued and (ii) the Aggregate Debt Service during such Fiscal Year for which Revenues are set forth pursuant to clause (i) above (excluding from Aggregate Debt Service any Principal Installment or portion thereof which was paid from sources other than Revenues) and (iii) the sum of the Operating Expenses and the Required Deposits for such period, and showing that the amount set forth in (i) is at least equal to the sum of (x) an amount equal to 115% of the amount set forth in (ii) and (y) an amount equal to 100% of the amount set forth in (iii);

(d) except in the case of the initial Series of Bonds under the Resolution and any Series of Refunding Bonds issued pursuant to Section 207 of the Resolution, a certificate of the Consulting Engineer setting forth the projected Operating Expenses for each of the five Fiscal Years following the Issuance of such Series of Bonds (plus the Fiscal Year in which such Bonds are issued);

(e) except in the case of the initial Series of Bonds under the Resolution and any Series of Refunding Bonds issued pursuant to Section 207, a certificate, signed by an Authorized Representative of the Authority setting forth the estimated Required Deposits for each of the five Fiscal Years following the issuance of such Series of Bonds (plus the Fiscal Year in which such Bonds are issued); and

(f) except in the case of the initial Series of Bonds under the Resolution and any Series of Refunding Bonds issued pursuant to Section 207, a certificate of the Rate Consultant (i) setting forth the estimated Revenues for each of the five Fiscal Years following the issuance of such Series of Bonds (plus the Fiscal Year in which such Bonds are issued) after giving effect to any increases or decreases in rates, fees and charges projected for such Fiscal Years and (ii) showing for each such Fiscal Year that the estimated Revenues for such Fiscal Year will be at least equal to the sum of (A) 115% of the maximum estimated Adjusted Aggregate Debt Service on all Bonds then Outstanding including the Bonds to be issued, and (B) 100% of the sum of the projected Operating Expenses and Required Deposits, as shown on the Certificate of the Consulting Engineer delivered pursuant to paragraph (e) above and the Certificate of the Authority delivered pursuant to paragraph (f) above, respectively. (*Sections 204 and 206*)

Refunding Bonds. One or more Series of Refunding Bonds may be issued pursuant to Section 207 of the Resolution at any time to refund any Outstanding Bonds provided that (i) estimated average annual Debt Service on such Series of Refunding Bonds shall not exceed the average annual Debt Service on the Bonds to be refunded and (ii) the maximum Debt Service in any Fiscal Year on such Series of Refunding Bonds shall not exceed the maximum Debt Service in any Fiscal Year on the Bonds to be refunded, all as shown in a Certificate signed by an Authorized Representative of the Authority and delivered to the Trustee prior to the authentication and delivery of such Series of Refunding Bonds. Refunding Bonds shall be issued in a principal amount sufficient, together with other moneys available therefor, to accomplish such refunding and to make the deposits in the Funds and Accounts required by the provisions of the Supplemental Resolution authorizing such Bonds. (*Section 207*)

Bond Anticipation Notes. Whenever the Authority shall authorize the issuance of a Series of Bonds, the Authority may, by resolution, authorize the issuance of notes (and renewals thereof) in anticipation of such Series of Bonds. The principal of and interest on such notes and renewals thereof shall be payable from the proceeds of such notes or from the proceeds of the sale of the Series of Bonds in anticipation of which such notes are issued. The proceeds of such Bonds may be pledged for the payment of the principal of and interest on such notes and any such pledge shall have a priority over any other pledge of such proceeds created by the Resolution. The Authority may also pledge the Revenues to the payment of the interest on, and subject to Section 707 of the Resolution, the principal of such notes. A copy of the Resolution of the Authority

authorizing such notes, certified by an Authorized Representative of the Authority, shall be delivered to the Trustee following its adoption, together with such other information concerning such notes as the Trustee may reasonably request. (*Section 208*)

Credit Facilities. In connection with the issuance of any Series of Bonds, the Authority may obtain or cause to be obtained one or more Credit Facilities providing for payment of all or a portion of the Principal Installments, or Redemption Price or interest due or to become due on such Bonds, providing for the purchase of such Bonds by the issuer of such Credit Facility or providing funds for the purchase of such Bonds by the Authority.

The Authority may secure such Credit Facility by an agreement providing for the purchase of the Series of Bonds secured thereby with such adjustments to the rate of interest, method of determining interest, maturity or redemption provisions as specified by the Authority in the applicable Supplemental Resolution. The Authority may also in an agreement with the issuer of such Credit Facility agree to directly reimburse such issuer for amounts paid under the terms of such Credit Facility, together with interest thereon (the "Reimbursement Obligation"); provided, however, that no Reimbursement Obligation shall be created until amounts are paid under such Credit Facility. Any such Reimbursement Obligation (a "Parity Reimbursement Obligation") may be secured by a pledge of, and a lien on Revenues on a parity with the lien created by Section 501 of the Resolution. Upon the payment of amounts under the Credit Facility which payment results in the Parity Reimbursement Obligation becoming due and payable, such Parity Reimbursement Obligation shall be deemed to be part of the Series of Bonds to which the Credit Facility which gave rise to such Parity Reimbursement Obligation relates.

Any such Credit Facility shall be for the benefit of and secure such Series of Bonds or portion thereof, as specified in the applicable Supplemental Resolution. (*Section 209*)

Indebtedness and Liens. The Resolution provides that the Authority shall not issue any bonds, or other evidences of indebtedness, other than the Bonds, Bond Anticipation Notes, Subordinated Indebtedness and Parity Reimbursement Obligations, secured by a pledge of or other lien on the Revenues and shall not create or cause to be created any lien on such Revenues or on any amounts held by any Fiduciary, under the Resolution; however, the Authority may: (i) issue notes payable from the proceeds of Bonds or other obligations for the corporate purposes of the Authority payable or secured by Revenues derived on and after such date as the pledge of the Revenues provided in the Resolution is discharged and satisfied and (ii) issue bonds or other obligations for the corporate purposes of the Authority payable out of or secured by the pledge of amounts in the Local Water Fund after satisfaction of the Cash Flow Requirement for the then current Fiscal Year, and which recite on their face that such pledge of said amounts is and shall be in all respects subordinate to the provisions of the lien and pledge created by the Resolution. (*Section 707*)

Agreement of the State. In accordance with Section 1045-1 of the Act, the Authority agrees, for and on behalf of the State, that the State will not alter or limit the rights vested by the Act in the Authority or the Board to fulfill the terms of any agreement made with or for the benefit of the Bondholders, or in any way impair the rights and remedies of Bondholders, until the Bonds, together with the interest thereon, with interest on any unpaid installment of interest, and all costs and expenses in connection with any action or proceeding by or on behalf of such holders, are fully met and discharged. (*Section 711*)

Authority Budget. The Authority shall, on or before May 1, in each Fiscal Year, adopt and file with the Trustee, the Board and the City, a certified copy of the Authority Budget showing the estimated Cash Flow Requirement and the components thereof (on a monthly basis) for the ensuing Fiscal Year, together with any other information required to be set forth therein by the Resolution or the Agreement. Such Authority Budget may set forth such additional information as the Authority may determine or as the Board or the City may request. If for any reason the Authority shall not have adopted the Authority Budget before such May 1, the Authority Budget for the then current Fiscal Year shall be deemed to be the Authority Budget for the ensuing Fiscal Year until a new Authority Budget is adopted. The Authority may at any time adopt an amended Authority Budget for the then current or ensuing Fiscal Year, but no such amended Authority Budget shall supersede any prior Budget until the Authority shall have filed with the Trustee, the Board and the City a copy

of such amended Authority Budget. Each month the Authority shall recalculate the Cash Flow Requirement. (Sections 712 and 713)

Supplemental Resolutions. The Resolution permits the modification or amendment of the rights and obligations of the Authority and of the holders of the Bonds thereunder by a Supplemental Resolution, with the written consent of the holders of two-thirds of the principal amount of: (i) the Bonds then Outstanding and (ii) in case less than all of the several Series of Bonds then Outstanding are affected by the modification or amendment, of the Bonds of the Series so affected and then Outstanding; however, if such modification or amendment will, by its terms, not take effect so long as any Bonds of any specified like Series and maturity remain Outstanding, the consent of the holders of such Bonds shall not be required and such Bonds shall not be deemed to be Outstanding for the purpose of modification; provided no such modification or amendment shall change the terms of redemption, maturity of principal, installment of interest, or reduce the principal amount, Redemption Price, or rate of interest without the consent of the holder of the affected Bond, or reduce the percentages of consents required to effect any future modification or amendment.

The Authority may adopt (without the consent of any holders of the Bonds) supplemental resolutions to authorize additional Bonds; to add to the restrictions contained in the Resolution upon the issuance of additional indebtedness; to add to the covenants of the Authority contained in, or surrender any rights reserved to or conferred upon it by, the Resolution; to confirm any pledge under the Resolution of Revenues or other moneys; to preserve the Federal tax exemption of interest on the Bonds; or otherwise to modify any of the provisions of the Resolution (but no such other modification may be effective while any of the Bonds of any Series theretofore issued are Outstanding); or to cure any ambiguity, supply any omission or to correct any defect in the Resolution or to insert such provisions clarifying matters or questions arising under the Resolution as are necessary or desirable, and are not contrary to or inconsistent with the Resolution as theretofore in effect or to provide for additional duties of the Trustee (provided that the Trustee shall consent thereto). (*Arts. VIII and IX*)

Defaults and Remedies. The Resolution provides that if one or more of the following Events of Default shall occur, namely: (i) a default in the payment of the principal or Redemption Price of any Bond; (ii) a default in payment of any installment of interest on any Bond; (iii) a default by the Authority in the performance or observance of any other of its covenants, agreements or conditions in the Resolution for a period of 45 days after written notice thereof; (iv) a default under the Agreement or the Lease by the Board or the City for a period of 45 days after written notice thereof; or (v) a filing of a petition for relief under any Federal or State bankruptcy or similar law by the Authority; then, upon the happening and continuance of any Event of Default, the Trustee may, and upon the written request of the holders of not less than a majority in principal amount of the Bonds Outstanding the Trustee shall, declare the principal and accrued interest on all the Bonds then Outstanding, due and payable immediately subject, however, to rescission of such declaration and annulment of the default upon the remedying thereof.

The Authority covenants that upon the occurrence of an Event of Default, the books of record and account of the Authority shall at all times be subject to the inspection and use of the Trustee and of its agents and attorneys and that, upon demand of the Trustee, the Authority will account, as if it were the trustee of an express trust, for all Revenues and other moneys, securities and funds pledged or held under the Resolution for such period as shall be stated in such demand.

Upon default, the Trustee may proceed to protect and enforce its rights and the rights of the holders of the Bonds under the Resolution forthwith by a suit or suits in equity or at law, whether for the specific performance of any covenant therein contained, or in aid of the execution of any power therein granted, or for an accounting against the Authority as if the Authority were the trustee of an express trust, or in the enforcement of any other legal or equitable right as the Trustee, being advised by counsel, shall deem most effectual to enforce any of its rights or to perform any of its duties under the Resolution. During the continuance of an Event of Default, Revenues shall be applied first, to the reasonable and proper charges and expenses of the Trustee; then (unless the principal of all of the Bonds shall have been declared payable) to the payment of all unpaid interest ratably, and then to unpaid principal or Redemption Price, ratably; and if all of the principal of the Bonds shall be due and payable, to the payment of unpaid principal and interest, without

preference or priority of interest over principal, principal over interest or of any Bond or installment over any other Bond or installment, without any discrimination or preference. No Bondholder has any right to institute suit to enforce any provision of the Resolution or the execution of any trust thereunder or for any remedy thereunder, unless the Trustee has been requested by the holders of at least a majority in principal amount of the Bonds to take such action and has been offered adequate security and indemnity and has failed to commence such suit in the manner provided in the Resolution. The right to appoint a statutory trustee under Section 1045-p of the Act is expressly abrogated. (*Art. X*)

Defeasance of Bonds Other than Variable Rate or Option Bonds. Any Outstanding Bond shall prior to the maturity or redemption date thereof be deemed to have been paid and shall cease to be entitled to any lien, benefit or security under the Resolution if (i) in the case of any Bonds to be redeemed prior to their maturity, the Authority shall have given to the Trustee irrevocable instructions accepted in writing by the Trustee to publish on such date the notice of redemption therefor (other than Bonds purchased by the Trustee prior to the publication of the notice of redemption), (ii) there shall have been deposited with the Trustee either moneys in an amount sufficient, or Defeasance Obligations the principal of and the interest on which, when due, without reinvestment, will provide moneys which, together with the moneys deposited shall be sufficient, to pay when due the principal or Redemption Price (if applicable) and interest due and to become due on said Bonds and (iii) in the event said Bonds are not by their terms subject to redemption within the next succeeding 60 days, the Authority shall have given the Trustee irrevocable instructions to publish, as soon as practicable, a notice to the holders of such Bonds that the deposit required above has been made with the Trustee and that said Bonds are deemed paid in accordance with the Resolution and stating such maturity or redemption date upon which moneys are to be available to pay the principal or Redemption Price, if applicable, on such Bonds (other than Bonds purchased by the Trustee prior to the publication of the notice of redemption); provided that any notice published for Bonds constituting less than all of the Outstanding Bonds of any maturity within a Series shall specify the letter and number or other distinguishing mark of each such Bond. The Trustee shall, to the extent necessary, apply moneys to the retirement of said Bonds in amounts equal to the unsatisfied balances of any Sinking Fund Installments thereto.

The Trustee shall, if so directed by the Authority prior to the maturity date of Bonds deemed to have been paid which are not to be redeemed prior to their maturity date or prior to the publication of the above notice of redemption for Bonds deemed paid and to be redeemed, apply moneys deposited with the Trustee in respect of such Bonds and redeem or sell Defeasance Obligations so deposited with the Trustee and purchase such Bonds and the Trustee shall immediately thereafter cancel all such Bonds so purchased; provided, however, that the moneys and Defeasance Obligations remaining on deposit with the Trustee after the purchase and cancellation of such Bonds shall be sufficient to pay when due the Principal Installment or Redemption Price, if applicable, and interest due or to become due on all Bonds.

Defeasance of Variable Rate Bonds. The Resolution provides that for the purposes of determining whether Variable Rate Bonds shall be deemed to have been paid prior to the maturity or redemption date thereof, by the deposit of moneys, or Defeasance Obligations and moneys (if any), the interest due on such Bonds shall be calculated at the maximum rate permitted; provided, however, that if, as a result of such Bonds having borne interest at less than the maximum rate for any period, the total amount of moneys and Investment Securities on deposit with the Trustee for the payment of interest on such Bonds exceeds the total amount required to be deposited with the Trustee, the Trustee shall, if requested by the Authority, pay the amount in excess to the Authority free and clear of any lien or pledge securing the Bonds or otherwise existing under the Resolution.

Defeasance of Option Bonds. Under the Resolution, Option Bonds shall be deemed paid in accordance with the Resolution only if, in addition to satisfying several of the requirements applicable to other than Variable Rate or Option Bonds, there shall have been deposited with the Trustee moneys in an amount which shall be sufficient to pay the maximum amount of principal of and premium due, if any, and interest on such Bonds which could become payable to the holders of such Bonds upon the exercise of any options provided to the holders of such Bonds; provided, however, that if the options originally exercisable by the holder of an Option Bond are no longer exercisable, such Bond shall not be considered an Option Bond. (*Section 1201*)

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FORM OF OPINION OF BOND COUNSEL

, 1993

New York City Municipal
Water Finance Authority
75 Park Place, 6th Floor
New York, New York 10007

Ladies and Gentlemen:

We have examined a record of proceedings relating to the issuance of \$659,025,000 aggregate principal amount of Water and Sewer System Revenue Bonds, Fiscal 1994 Series B (the "1994 Series B Bonds"), \$83,500,000 aggregate principal amount of Water and Sewer System Revenue Bonds, Fiscal 1994 Series D (the "1994 Series D Bonds") and \$83,500,000 aggregate principal amount of Water and Sewer System Revenue Bonds, Fiscal 1994 Series E (the "1994 Series E Bonds") by the New York City Municipal Water Finance Authority (the "Authority"), a body corporate and politic constituting a public benefit corporation of the State of New York (the "State"), created and existing under and pursuant to the Constitution and statutes of the State, including the New York City Municipal Water Finance Authority Act, being Title 2-A of Article 5 of the Public Authorities Law of the State, as amended (which, together with Section 1046 of the Public Authorities Law of the State, is herein referred to as the "Act").

The 1994 Series B Bonds are issued under and pursuant to the Act and a resolution of the Authority adopted November 14, 1985 entitled "Water and Sewer System General Revenue Bond Resolution," as supplemented by a resolution adopted November 10, 1993 entitled "Twenty-first Supplemental Resolution Authorizing the Issuance of \$659,025,000 Water and Sewer System Revenue Bonds, Fiscal 1994 Series B and \$200,000,000 Water and Sewer System Revenue Bonds, Fiscal 1994 Series C" (the "Twenty-first Supplemental Resolution") authorizing the 1994 Series B Bonds. The 1994 Series D Bonds and the 1994 Series E Bonds are issued under and pursuant to the Act and a resolution adopted November 10, 1993 entitled "Twenty-third Supplemental Resolution Authorizing the Issuance of \$83,500,000 Water and Sewer System Revenue Bonds Fiscal 1994 Series D and \$83,500,000 Water and Sewer System Revenue Bonds Fiscal 1994 Series E" (the "Twenty-third Supplemental Resolution"; such Water and Sewer System General Revenue Bond Resolution as supplemented and amended through the Twenty-first Supplemental Resolution and the Twenty-third Supplemental Resolution being herein called the "Resolution"). Capitalized terms used herein and not otherwise defined shall have the respective meanings ascribed thereto in the Resolution.

Pursuant to the Act, the New York City Water Board (the "Board"), a public benefit corporation of the State, created and existing under the laws of the State, and The City of New York (the "City"), a municipal corporation of the State, have entered into a lease agreement, dated as of July 1, 1985, as amended (the "Lease"), whereby the Board has leased the New York City Water and Sewer System from the City for a term ending on the later of (a) the fortieth anniversary of the effective date of the Lease or (b) the date on which all bonds, notes or other obligations of the Authority have been paid in full or provision for such payment shall have been made in accordance with the instruments under which they were issued. Pursuant to the Act, the Authority, the Board and the City have entered into a financing agreement, dated as of July 15, 1985, as amended (the "Financing Agreement"), relating to, among other things, the financing of Water Projects.

The 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds are each part of an issue of bonds of the Authority (the "Bonds") which the Authority has created under the terms of the Resolution and is authorized to issue from time to time for the purposes authorized by the Act and the Resolution, as then in effect, and without limitation as to amount except as provided in the Resolution or as may be limited by law.

The 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds are being issued for the purposes set forth in the Resolution.

The Authority is authorized to issue Bonds, in addition to the 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds, only upon the terms and conditions set forth in the Resolution, and such Bonds, when issued, shall, with the 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds with all other such Bonds theretofore issued, be entitled to the equal benefit, protection and security of the provisions, covenants and agreements of the Resolution.

The 1994 Series B Bonds are dated November , 1993 and will mature on June 15 in the years and in the respective principal amounts, and will bear interest at the respective rates, set forth below:

| <u>Year</u> | <u>Principal Amount</u> | <u>Interest Rate</u> | <u>Year</u> | <u>Principal Amount</u> | <u>Interest Rate</u> |
|-------------|-------------------------|----------------------|-------------|-------------------------|----------------------|
| 2000 | \$ 8,815,000 | 4% % | 2007 | \$ 65,290,000 | 5% % |
| 2001 | 30,875,000 | 4% | 2008 | 3,260,000 | 5.40 |
| 2002 | 43,240,000 | 4% | 2011 | 55,000,000 | 5% |
| 2003 | 48,770,000 | 5 | 2019 | 33,000,000 | 5% |
| 2004 | 51,835,000 | 5% | 2019 | 50,000,000 | 5% |
| 2005 | 54,485,000 | 5.20 | 2019 | 152,450,000 | 5 1/2 |
| 2006 | 62,005,000 | 5.30 | | | |

The 1994 Series D Bonds are dated November , 1993, will bear interest at the variable rates determined in accordance with the Resolution and will mature on June 15 in the years and in the respective principal amounts:

| <u>Year</u> | <u>Principal Amount</u> | <u>Year</u> | <u>Principal Amount</u> |
|-------------|-------------------------|-------------|-------------------------|
| 2008 | \$ 25,000,000 | 2012 | \$ 16,000,000 |
| 2009 | 17,500,000 | 2013 | 25,000,000 |

The 1994 Series E Bonds are dated November , 1993, will bear interest at the variable rates determined in accordance with the Resolution and will mature on June 15 in the years and in the respective principal amounts:

| <u>Year</u> | <u>Principal Amount</u> | <u>Year</u> | <u>Principal Amount</u> |
|-------------|-------------------------|-------------|-------------------------|
| 2008 | \$ 25,000,000 | 2012 | \$ 16,000,000 |
| 2009 | 17,500,000 | 2013 | 25,000,000 |

The 1994 Series B Bonds are subject to redemption in the manner and upon the terms and conditions set forth in the Resolution. The 1994 Series B Bonds are issuable in the form of fully registered bonds in the denomination of \$5,000 or integral multiples thereof. Interest on the 1994 Series B Bonds is payable on June 15, 1994 and semiannually thereafter on December 15 and June 15 in each year.

The 1994 Series D Bonds and the 1994 Series E Bonds are subject to redemption and the 1994 Series D Bonds are subject to mandatory tender in the manner and upon the terms and conditions set forth in the Resolution. The 1994 Series D Bonds and the 1994 Series E Bonds are issuable in the form of fully registered bonds in the denominations of \$50,000 and integral multiples thereof. Interest on the 1994 Series D Bonds and the 1994 Series E Bonds is payable on December 15, 1993 and semiannually thereafter on June 15 and December 15 of each year.

We are of the opinion that:

1. The Authority is a body corporate and politic constituting a public benefit corporation of the State, duly created and existing under the laws of the State with the right and lawful authority and power to enter into the Financing Agreement, to adopt the Resolution and to issue the 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds.

2. The Resolution has been duly and lawfully adopted by the Authority, is in full force and effect and is the legal, valid and binding agreement of the Authority enforceable in accordance with its terms. The Resolution creates the valid pledge it purports to create of the Revenues and any moneys or securities on deposit in the Funds and Accounts created thereby, subject only to the provisions of the Resolution and the Financing Agreement permitting the application thereof for or to the purposes and on the terms and conditions permitted thereby, including the making of any required payments to the United States with respect to arbitrage earnings.

3. The 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds have been duly and validly authorized and issued. The 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds are valid and binding special obligations of the Authority payable as provided in the Resolution, are enforceable in accordance with their terms and the terms of the Resolution and are entitled, together with all other Bonds issued under the Resolution, to the benefits of the Resolution and the Act.

4. The 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds are payable solely from the Revenues and other amounts pledged to such payment under the Resolution. The 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds are not a debt of the State, the City or the Board and neither the State, the City, the Board nor any other political subdivision of the State is liable thereon.

5. The Lease and the Financing Agreement have been duly authorized, executed and delivered by the respective parties thereto and constitute valid and binding obligations of such parties, enforceable in accordance with their terms.

6. The Revenues derived from the operation of the System are the property of the Board. The Financing Agreement validly transfers the right, title and interest of the Board in the Revenues to the Authority to the extent and as provided in the Financing Agreement, subject only to the provisions of the Act, the Financing Agreement and the Resolution permitting the application thereof for or to the purposes, and on the terms and conditions, therein set forth.

7. The Internal Revenue Code of 1986, as amended (the "Code"), sets forth certain requirements which must be met subsequent to the issuance and delivery of the 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds for interest thereon to be and remain excluded from gross income for Federal income tax purposes. Noncompliance with such requirements could cause the interest on the 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds to be included in gross income for Federal income tax purposes retroactive to the date of issue of the 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds. The Authority has covenanted in the Resolution that it shall not permit the purchase of securities or obligations the acquisition of which would cause any 1994 Series B Bond, 1994 Series D Bond or 1994 Series E Bond to be an "arbitrage bond" as defined in Section 148 of the Code, that it shall not permit the use of the proceeds of the 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds in a manner which would result in the loss of the exclusion of the interest on the 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds from gross income for Federal income tax purposes and that it shall provide for any required rebate to the United States.

In our opinion, under existing law, and assuming compliance with the aforementioned covenant, interest on the 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds is excluded from gross income for Federal income tax purposes. The 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds are not "specified private activity bonds" within the meaning of Section 57(a)(5) of the Code and, therefore, the interest on the 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds will not be treated as a preference item for purposes of computing the federal alternative minimum tax imposed by Section 55 of the Code. However, we note that a portion of the interest on 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds owned by

corporations may be subject to the federal alternative minimum tax, which is based in part on adjusted current earnings.

We are further of the opinion that the difference between the principal amount of the 1994 Series B Bonds and the initial offering price to the public (excluding bond houses, brokers, or similar persons or organizations acting in the capacity of underwriters or wholesalers) at which price a substantial amount of the 1994 Series B Bonds was sold constitutes original issue discount which is excluded from gross income for Federal income tax purposes to the same extent as interest on the 1994 Series B Bonds. Further, such original issue discount accrues actuarially on a constant interest rate basis over the term of each 1994 Series B Bond and the basis of a 1994 Series B Bond acquired at such initial offering price by an initial purchaser of such 1994 Series B Bond will be increased by the amount of such accrued original issue discount.

8. Interest on the 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds is exempt, under existing law, from personal income taxes of the State of New York and its political subdivisions, including The City of New York.

We have examined an executed 1994 Series B Bond, an executed 1994 Series D Bond and an executed 1994 Series E Bond and, in our opinion, the form of said bond and its execution are regular and proper. However, we have not verified, and express no opinion as to the accuracy of, any "CUSIP" identification number which may be printed on any of the 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds.

The above opinions are qualified to the extent that the enforceability of rights and remedies may be limited by bankruptcy, insolvency, or other laws affecting creditors' rights and the unavailability of equitable remedies.

Except as stated in paragraphs 7 and 8 above, we express no opinion as to any other Federal or state tax consequences of the ownership or disposition of the 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds. Certain requirements and procedures contained or referred to in the Resolution and other relevant documents may be changed and certain actions may be taken subsequent to the date hereof under the circumstances and subject to the terms and conditions set forth in such document, upon the advice or with the approving opinion of bond counsel. We express no opinion at this time as to the 1994 Series B Bonds, the 1994 Series D Bonds and the 1994 Series E Bonds or the interest thereon if any such change occurs or any such action is taken.

In rendering the opinions set forth in paragraphs 5 and 6 above, we wish to advise you that we have, with your consent, relied upon the opinion of the Corporation Counsel of The City of New York dated the date hereof and addressed to you as to the validity, binding effect and enforceability of the Financing Agreement and the Lease with respect to the Board and the City.

Very truly yours,

, 1993

New York City Municipal
Water Finance Authority
75 Park Place, 6th Floor
New York, New York 10007

Ladies and Gentlemen:

We have examined a record of proceedings relating to the issuance of \$200,000,000 aggregate principal amount of Water and Sewer System Revenue Bonds, Fiscal 1994 Series C (the "1994 Series C Bonds"), by the New York City Municipal Water Finance Authority (the "Authority"), a body corporate and politic constituting a public benefit corporation of the State of New York (the "State"), created and existing under and pursuant to the Constitution and statutes of the State, including the New York City Municipal Water Finance Authority Act, being Title 2-A of Article 5 of the Public Authorities Law of the State, as amended (which, together with Section 1046 of the Public Authorities Law of the State, is herein referred to as the "Act").

The 1994 Series C Bonds are issued under and pursuant to the Act and a resolution of the Authority adopted November 14, 1985 entitled "Water and Sewer System General Revenue Bond Resolution," as supplemented by a resolution adopted November 10, 1993 entitled "Twenty-first Supplemental Resolution Authorizing the Issuance of \$659,025,000 Water and Sewer System Revenue Bonds, Fiscal 1994 Series B and \$200,000,000 Water and Sewer System Revenue Bonds, Fiscal 1994 Series C" (the "Twenty-first Supplemental Resolution"; such Water and Sewer System General Revenue Bond Resolution as supplemented and amended through the Twenty-first Supplemental Resolution being herein called the "Resolution"). Capitalized terms used herein and not otherwise defined shall have the respective meanings ascribed thereto in the Resolution.

Pursuant to the Act, the New York City Water Board (the "Board"), a public benefit corporation of the State, created and existing under the laws of the State, and The City of New York (the "City"), a municipal corporation of the State, have entered into a lease agreement, dated as of July 1, 1985, as amended (the "Lease"), whereby the Board has leased the New York City Water and Sewer System from the City for a term ending on the later of (a) the fortieth anniversary of the effective date of the Lease or (b) the date on which all bonds, notes or other obligations of the Authority have been paid in full or provision for such payment shall have been made in accordance with the instruments under which they were issued. Pursuant to the Act, the Authority, the Board and the City have entered into a financing agreement, dated as of July 15, 1985, as amended (the "Financing Agreement"), relating to, among other things, the financing of Water Projects.

The 1994 Series C Bonds are part of an issue of bonds of the Authority (the "Bonds") which the Authority has created under the terms of the Resolution and is authorized to issue from time to time for the purposes authorized by the Act and the Resolution, as then in effect, and without limitation as to amount except as provided in the Resolution or as may be limited by law. The 1994 Series C Bonds are being issued for the purposes set forth in the Resolution.

The Authority is authorized to issue Bonds, in addition to the 1994 Series C Bonds only upon the terms and conditions set forth in the Resolution, and such Bonds, when issued, shall, with 1994 Series C Bonds, with all other such Bonds theretofore issued, be entitled to the equal benefit, protection and security of the provisions, covenants and agreements of the Resolution.

The 1994 Series C Bonds are dated _____, 1993 and will mature on June 15, 2023 in the principal amount of \$200,000,000. The 1994 Series C Bonds will bear interest at a Daily Interest Rate from their date

of issuance until converted to an alternate Interest Rate Period in the manner and upon the terms and conditions set forth in the Resolution. Interest on the 1994 Series C Bonds may be converted at the option of the Authority to or from a Weekly Interest Rate, a Daily Interest Rate or a Flexible Interest Rate in the manner and upon the terms and conditions set forth in the Resolution. Interest payable during a Daily Interest Rate Period, a Weekly Interest Rate Period or a Flexible Interest Rate Period of less than one year is payable on the 15th day of each calendar month and interest payable during a Flexible Interest Rate Period of one year or more is payable on June 15 and on December 15 of each year.

The 1994 Series C Bonds bearing interest at a Daily Interest Rate and a Weekly Interest Rate may be tendered for the periods at the option of the Owner from and in the manner and upon the terms and conditions set forth in the Resolution. The 1994 Series C Bonds are also subject to mandatory tender and optional redemption in the manner and upon the terms and conditions set forth in the Resolution. The 1994 Series C Bonds are issuable in the form of fully registered bonds in denominations of \$100,000 and integral multiples thereof when the interest rate period is a Daily Interest Rate Period, a Weekly Interest Rate Period or a Flexible Interest Rate period of less than one year and in denominations of \$5,000 and integral multiples thereof when the interest rate period is a Flexible Interest Rate Period of one year or more.

We are of the opinion that:

1. The Authority is a body corporate and politic constituting a public benefit corporation of the State, duly created and existing under the laws of the State with the right and lawful authority and power to enter into the Financing Agreement, to adopt the Resolution and to issue the 1994 Series C Bonds.
2. The Resolution has been duly and lawfully adopted by the Authority, is in full force and effect and is the legal, valid and binding agreement of the Authority enforceable in accordance with its terms. The Resolution creates the valid pledge it purports to create of the Revenues and any moneys or securities on deposit in the Funds and Accounts created thereby, subject only to the provisions of the Resolution and the Financing Agreement permitting the application thereof for or to the purposes and on the terms and conditions permitted thereby, including the making of any required payments to the United States with respect to arbitrage earnings.
3. The 1994 Series C Bonds have been duly and validly authorized and issued. The 1994 Series C Bonds are valid and binding special obligations of the Authority payable as provided in the Resolution, are enforceable in accordance with their terms and the terms of the Resolution and are entitled, together with all other Bonds issued under the Resolution, to the benefits of the Resolution and the Act.
4. The 1994 Series C Bonds are payable solely from the Revenues and other amounts pledged to such payment under the Resolution. The 1994 Series C Bonds are not a debt of the State, the City or the Board and neither the State, the City, the Board nor any other political subdivision of the State is liable thereon.
5. The Lease and the Financing Agreement have been duly authorized, executed and delivered by the respective parties thereto and constitute valid and binding obligations of such parties, enforceable in accordance with their terms.
6. The Revenues derived from the operation of the System are the property of the Board. The Financing Agreement validly transfers the right, title and interest of the Board in the Revenues to the Authority to the extent and as provided in the Financing Agreement, subject only to the provisions of the Act, the Financing Agreement and the Resolution permitting the application thereof for or to the purposes, and on the terms and conditions, therein set forth.
7. The Internal Revenue Code of 1986, as amended (the "Code"), sets forth certain requirements which must be met subsequent to the issuance and delivery of the 1994 Series C Bonds for interest thereon to be and remain excluded from gross income for Federal income tax purposes. Noncompliance with such requirements could cause the interest on the 1994 Series C Bonds to be included in gross

income for Federal income tax purposes retroactive to the date of issue of the 1994 Series C Bonds. The Authority has covenanted in the Resolution that it shall not permit the purchase of securities or obligations the acquisition of which would cause any 1994 Series C Bond to be an "arbitrage bond" as defined in Section 148 of the Code, that it shall not permit the use of the proceeds of the 1994 Series C Bonds in a manner which would result in the loss of the exclusion of the interest on the 1994 Series C Bonds from gross income for Federal income tax purposes and that it shall provide for any required rebate to the United States.

In our opinion, under existing law, and assuming compliance with the aforementioned covenant, interest on the 1994 Series C Bonds is excluded from gross income for Federal income tax purposes. The 1994 Series C Bonds are not "specified private activity bonds" within the meaning of Section 57(a)(5) of the Code and, therefore, the interest on the 1994 Series C Bonds will not be treated as a preference item for purposes of computing the federal alternative minimum tax imposed by Section 55 of the Code. However, we note that a portion of the interest on the 1994 Series C Bonds owned by corporations may be subject to the federal alternative minimum tax, which is based in part on adjusted current earnings.

8. Interest on the 1994 Series C Bonds is exempt, under existing law, from personal income taxes of the State of New York and its political subdivisions, including The City of New York.

We have examined an executed 1994 Series C Bond and, in our opinion, the form of said bond and its execution are regular and proper. However, we have not verified, and express no opinion as to the accuracy of, any "CUSIP" identification number which may be printed on any of the 1994 Series C Bonds.

The above opinions are qualified to the extent that the enforceability of rights and remedies may be limited by bankruptcy, insolvency, or other laws affecting creditors' rights and the unavailability of equitable remedies.

Except as stated in paragraphs 7 and 8 above, we express no opinion as to any other Federal or state tax consequences of the ownership or disposition of the 1994 Series C Bonds. Certain requirements and procedures contained or referred to in the Resolution and other relevant documents may be changed and certain actions may be taken subsequent to the date hereof under the circumstances and subject to the terms and conditions set forth in such document, upon the advice or with the approving opinion of bond counsel. We express no opinion at this time as to the 1994 Series C Bonds or the interest thereon if any such change occurs or any such action is taken.

In rendering the opinions set forth in paragraphs 5 and 6 above, we wish to advise you that we have, with your consent, relied upon the opinion of the Corporation Counsel of The City of New York dated the date hereof and addressed to you as to the validity, binding effect and enforceability of the Financing Agreement and the Lease with respect to the Board and the City.

Very truly yours,

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**FINANCIAL STATEMENTS
OF
NEW YORK CITY WATER AND
SEWER SYSTEM**

INDEX

| | <u>Page</u> |
|---|-------------|
| Report of Independent Certified Public Accountants | F-2 |
| Combined Balance Sheets — June 30, 1992 and 1991 | F-3 |
| Combined Statements of Revenues, Expenses and Changes in Retained Earnings for the Years Ended June 30, 1992 and 1991 | F-4 |
| Combined Statements of Cash Flows for the Years Ended June 30, 1992 and 1991 | F-5 |
| Notes to Combined Financial Statements — June 30, 1992 and 1991 | F-6 |
| Schedule I — Combined Schedules of Cash Receipts and Disbursements for the Years Ended June 30, 1992 and 1991 | F-17 |
| Schedule II — Combining Balance Sheet Schedule — June 30, 1992 | F-18 |
| Schedule III — Combining Balance Sheet Schedule — June 30, 1991 | F-19 |
| Schedule IV — Combining Schedule of Revenues, Expenses and Changes in Retained Earnings for the Year Ended June 30, 1992 | F-20 |
| Schedule V — Combining Schedule of Revenues, Expenses and Changes in Retained Earnings for the Year Ended June 30, 1991 | F-21 |
| Schedule VI — Combining Statement of Cash Flow Schedule for the Year Ended June 30, 1992 .. | F-22 |
| Schedule VII — Combining Statement of Cash Flow Schedule for the Year Ended June 30, 1991 | F-23 |
| Schedule VIII — Combining Schedule of Cash Receipts and Disbursements for the Year Ended June 30, 1992 | F-24 |
| Schedule IX — Combining Schedule of Cash Receipts and Disbursements for the Year Ended June 30, 1991 | F-25 |



Certified Public Accountants

345 Park Avenue
New York, NY 10154

Independent Auditors' Report

To the Members of the Boards of the New York City
Municipal Water Finance Authority and
New York City Water Board:

We have audited the accompanying combined balance sheets of the New York City Water and Sewer System as of June 30, 1992 and 1991, and the related combined statements of revenues, expenses and changes in retained earnings, and cash flows for the years then ended. These combined financial statements are the responsibility of the New York City Water and Sewer System's management. Our responsibility is to express an opinion on these combined financial statements based on our audits.

We conducted our audits 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 significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audits provide a reasonable basis for our opinion.

In our opinion, the combined financial statements referred to above present fairly, in all material respects, the financial position of the New York City Water and Sewer System at June 30, 1992 and 1991, and the results of its revenues, expenses, and changes in retained earnings, and its cash flows for the years then ended in conformity with generally accepted accounting principles.

Our audits were made for the purpose of forming an opinion on the basic financial statements taken as a whole. The supplementary information included in Schedules I through IX is presented for purposes of additional analysis and is not a required part of the combined financial statements. Such information has been subjected to the auditing procedures applied in the audits of the combined financial statements and, in our opinion, is fairly presented in all material respects in relation to the combined financial statements taken as a whole.

October 30, 1992



Member Firm of
KPMG Peat Marwick & Gordon LLP

NEW YORK CITY WATER AND SEWER SYSTEM

Combined Balance Sheets

June 30, 1992 and 1991

(in thousands)

| | 1992 | 1991 | Liabilities and Equity | 1992 | 1991 |
|---|--------------|-----------|---|--------------|-----------|
| Assets | | | | | |
| Utility plant in service, less accumulated depreciation of \$2,493,419 in 1992 and \$2,349,032 in 1991 (notes 3, 4 and 6) | \$ 4,060,519 | 3,659,478 | Long-term liabilities: | \$ 4,201,496 | 3,400,639 |
| Construction work-in-progress | 4,381,897 | 4,051,151 | Bonds and notes payable, less current portion (notes 3 and 8) | (352,725) | (345,567) |
| | 8,442,416 | 7,710,629 | Payable to The City (note 7) | 200,650 | 116,171 |
| | | | Total long-term liabilities | 4,049,421 | 3,171,243 |
| Current assets: | | | Current liabilities: | | |
| Unrestricted cash and cash equivalents (note 5) | 11,937 | 17,794 | Accounts payable and accrued expenses | 12,085 | 17,336 |
| Investments (note 5) | 11,239 | 7,397 | Revenues received in advance | 87,475 | 71,275 |
| Accounts receivable: | | | Current portion of bonds and notes payable (notes 3 and 8) | 66,979 | 45,730 |
| Billed, less allowance for uncollectible water and sewer receivables of \$129,469 in 1992 and \$92,207 in 1991 | 273,276 | 185,242 | Refunds payable to customers | 75,244 | 30,400 |
| Unbilled | 49,360 | 72,642 | Total current liabilities | 241,783 | 164,741 |
| Receivable from The City (note 7) | 5,149 | 11,960 | Total liabilities | 4,291,204 | 3,335,984 |
| Accrued interest receivable (note 5) | 157 | 81 | | | |
| Other receivables | 62 | 15 | Equity: | | |
| Prepaid expenses | 208,819 | 74,513 | Contributed capital, net of allocated depreciation | 5,239,175 | 5,251,968 |
| Total current assets | 559,999 | 369,644 | Retained earnings | 363,846 | 282,579 |
| | | | Total equity | 5,603,021 | 5,534,547 |
| Restricted assets (notes 5 and 9): | | | | | |
| Cash and cash equivalents | 442,037 | 377,621 | Commitments and contingencies (notes 6 and 10) | | |
| Investments | 380,379 | 355,618 | | | |
| Accrued interest receivable | 6,647 | 6,203 | | | |
| | 829,063 | 739,442 | | | |
| Deferred bond and financing expenses | 62,747 | 50,816 | | | |
| Total assets | \$ 9,894,225 | 8,870,531 | Total liabilities and equity | \$ 9,894,225 | 8,870,531 |

See accompanying notes to combined financial statements.

NEW YORK CITY WATER AND SEWER SYSTEM

Combined Statements of Revenues, Expenses and Changes in Retained Earnings

Years ended June 30, 1992 and 1991

(in thousands)

| | <u>1992</u> | <u>1991</u> |
|---|-------------------|----------------|
| Operating revenues: | | |
| Water supply and distribution | \$ 455,554 | 402,860 |
| Sewer collection and treatment | 583,696 | 487,895 |
| Other operating revenues | <u>42,816</u> | <u>17,527</u> |
| Total operating revenues | <u>1,082,066</u> | <u>908,282</u> |
| Operating expenses: | | |
| Operation and maintenance (notes 3 and 6) | 711,927 | 656,409 |
| Administration and general (notes 3 and 6) | <u>4,444</u> | <u>1,625</u> |
| | <u>716,371</u> | <u>658,034</u> |
| Excess of operating revenues over operating expenses before depreciation and amortization | 365,695 | 250,248 |
| Depreciation and amortization | <u>153,674</u> | <u>94,036</u> |
| Operating income | <u>212,021</u> | <u>156,212</u> |
| Nonoperating revenues (expenses): | | |
| Interest expense | (256,735) | (199,756) |
| Investment income | <u>53,711</u> | <u>49,912</u> |
| Income before extraordinary item | <u>8,997</u> | <u>6,368</u> |
| Extraordinary item: | | |
| Loss from the early extinguishment of debt (note 8) | <u>(26,034)</u> | <u>-</u> |
| Net income (loss) | <u>(17,037)</u> | <u>6,368</u> |
| Retained earnings, beginning of year | 282,579 | 206,476 |
| Depreciation allocated to contributed capital | <u>98,304</u> | <u>69,735</u> |
| Retained earnings, end of year | \$ <u>363,846</u> | <u>282,579</u> |

See accompanying notes to combined financial statements.

NEW YORK CITY WATER AND SEWER SYSTEM

Combined Statements of Cash Flows

Years ended June 30, 1992 and 1991

(in thousands)

| | 1992 | 1991 |
|---|-------------------|------------------|
| Cash flows from operating activities: | | |
| Operating income | \$ <u>212,021</u> | <u>156,212</u> |
| Adjustments to reconcile operating income to net cash provided by operating activities: | | |
| Depreciation and amortization | 153,674 | 94,036 |
| Extraordinary item-loss on early extinguishment of debt | (26,034) | - |
| Changes in assets and liabilities: | | |
| Increase in accounts and other receivables and accrued interest receivable | (64,875) | (65,868) |
| (Increase) decrease in receivable from The City | 6,811 | (8,345) |
| Increase in prepaid expenses | (134,306) | (59,797) |
| Increase in payable to The City | 84,479 | 43,829 |
| (Decrease) increase in accounts payable and accrued expenses | (5,251) | 9,550 |
| Increase in revenues received in advance | 16,200 | 10,745 |
| Increase in refunds payable to customers | <u>44,844</u> | <u>30,400</u> |
| Total adjustments | <u>75,542</u> | <u>54,550</u> |
| Net cash provided by operating activities | <u>287,563</u> | <u>210,762</u> |
| Cash flows from capital and related financing activities: | | |
| Acquisition and construction of capital assets | (790,899) | (643,325) |
| Proceeds from issuing bonds, notes and other borrowings, net of issue costs | 1,086,835 | 943,728 |
| Repayments of bonds, notes and other borrowings | (293,190) | (65,080) |
| Interest paid on bonds, notes and other borrowings | <u>(256,735)</u> | <u>(199,756)</u> |
| Net cash provided by (used in) capital and related financing activities | <u>(253,989)</u> | <u>35,567</u> |
| Cash flows from investing activities: | | |
| Deficiency of proceeds from sales and maturities of investments, net of purchases | (28,726) | (124,037) |
| Interest on investments | <u>53,711</u> | <u>49,912</u> |
| Net cash provided by (used in) investing activities | <u>24,985</u> | <u>(74,125)</u> |
| Net increase in cash and cash equivalents | 58,559 | 172,204 |
| Cash and cash equivalents, beginning of year | <u>395,415</u> | <u>223,211</u> |
| Cash and cash equivalents, end of year | \$ <u>453,974</u> | <u>395,415</u> |

Reconciliation of Cash and Cash Equivalents Per Statement of Cash Flows to the Balance Sheet

| | Assets | | |
|--|------------------|----------------|----------------|
| | Unrestricted | Restricted | Total |
| Cash and cash equivalents at June 30, 1990 | \$ 24,574 | 198,637 | 223,211 |
| Net increase (decrease) | <u>(6,780)</u> | <u>178,984</u> | <u>172,204</u> |
| Cash and cash equivalents at June 30, 1991 | 17,794 | 377,621 | 395,415 |
| Net increase (decrease) | <u>(5,857)</u> | <u>64,416</u> | <u>58,559</u> |
| Cash and cash equivalents at June 30, 1992 | \$ <u>11,937</u> | <u>442,037</u> | <u>453,974</u> |

See accompanying notes to combined financial statements.

NEW YORK CITY WATER AND SEWER SYSTEM

Notes to Combined Financial Statements

June 30, 1992 and 1991

(1) Organization

The New York City Water and Sewer System (the "System") provides water supply and distribution, and sewage collection, treatment, and disposal for The City of New York ("The City"). The System, as presented in the accompanying combined financial statements, which began operations on July 1, 1985, consists of two legally separate and independent entities, the New York City Municipal Water Finance Authority (the "Authority") and the New York City Water Board (the "Board"). The Authority is a public benefit corporation created in accordance with the New York City Municipal Water Finance Act (the "Act"), duly enacted into law as Chapter 513 of the laws of 1984 of the State of New York, as amended by Chapter 514 of the laws of 1984 of the State of New York. The Board was created by Chapter 515 of the laws of 1984 of the State of New York. The Act empowers the Authority to issue bonds or notes to finance the cost of capital improvements to the System, borrow money and to refund, any and all outstanding bonds and general obligation bonds of the City issued for master and server purposes. The Act empowers the Board to lease the System from The City and to fix and collect rates, fees, rents and other charges for the use of, or for services furnished, rendered, or made available by the System, to produce cash sufficient to pay debt service on the Authority bonds and to place the System on a self-sustaining basis.

The physical operation and capital improvements of the System are performed by The City Department of Environmental Protection subject to contractual agreements with the Authority and Board.

In accordance with Governmental Accounting Standards Board Codification Section 2100, the Board and the Authority are combined for general purpose external reporting purposes since the Board and the Authority are fiscally interdependent. Both are included in The City's financial statements as component units for reporting purposes and are reported as an enterprise fund of The City.

(2) Summary of Significant Accounting Policies

The accompanying combined financial statements of the System have been prepared on the accrual basis of accounting wherein revenues are recognized when earned and expenses recognized when incurred. Other significant accounting policies are:

(a) *Investments and Cash Equivalents*

Investments and cash equivalents consist principally of securities of the United States and its agencies, certificates of deposit, and repurchase agreements, and are carried at cost, which approximates market. For purposes of the combined statements of cash flows, the System generally considers all highly liquid debt instruments purchased with a maturity of three months or less to be cash equivalents.

(Continued)

NEW YORK CITY WATER AND SEWER SYSTEM

Notes to Combined Financial Statements

(2), Continued

(b) *Restricted Assets*

Proceeds from the issuance of debt and monies set aside for the operation and maintenance of the System are classified as restricted by applicable bond indentures.

(c) *Bond Discount and Bond Issuance Costs*

Bond discount and bond issuance costs are amortized over the life of the related bond issue, using the effective yield method of amortization.

(d) *Utility Plant in Service*

Utility plant in service acquired through purchase or internal construction is recorded at cost net of retirements. Contributed utility plant in service is recorded at its estimated historical cost based on appraisals or other methods when historical cost is not available, net of depreciation. Depreciation is computed using the straight-line method based upon estimated useful lives as follows:

| | <u>Years</u> |
|--|--------------|
| Buildings | 40-50 |
| Water supply and waste water treatment systems | 15-50 |
| Water distribution and sewage collection systems | 15-75 |
| Equipment | 5-35 |

Depreciation on contributed utility plant in service is allocated to contributed capital after the determination of net income.

Maintenance and repairs of property are charged to maintenance expense. Replacements and betterments are charged to utility plant in service.

(e) *Operating Revenues*

Revenues are based on billing rates imposed by the Board based upon customers' water and sewer usage. The System records estimated unbilled revenue at its year end.

(f) *Deferred Revenues*

Revenues received in advance of the period to which they relate are deferred and recorded as revenue when earned.

(Continued)

NEW YORK CITY WATER AND SEWER SYSTEM

Notes to Combined Financial Statements

(2), Continued

(g) *Contributed Capital*

In accordance with the lease, The City transferred its water- and sewer-related physical assets at historical cost, net of depreciation, and all work in progress, at cost, to the Board at July 1, 1985. Capital improvements financed by sources other than the proceeds of Authority revenue bonds (e.g., capital grants) are recorded as additions to contributed capital.

Changes in contributed capital for the fiscal years ended June 30, 1992 and 1991 are as follows:

| | <u>1992</u> | <u>1991</u> |
|---|---------------------|------------------|
| | (in thousands) | |
| Contributed capital, beginning of year | \$ 5,251,968 | 5,224,112 |
| Plant and equipment contributed | 85,511 | 97,591 |
| Depreciation allocated to contributed capital | <u>(98,304)</u> | <u>(69,735)</u> |
| Contributed capital, end of year | \$ <u>5,239,175</u> | <u>5,251,968</u> |

(3) **Financing Agreement**

The Financing Agreement (the "Agreement") provides that the Authority will issue bonds to finance the cost of capital investment in the water and sewer system serving The City. It also sets forth the funding of the debt service costs of the Authority, operating costs of the water and sewer system, and the rental payment to The City.

(4) **Utility Plant in Service**

Utility plant in service at June 30, 1992 and 1991 comprised:

| | <u>1992</u> | <u>1991</u> |
|--|---------------------|------------------|
| | (in thousands) | |
| Buildings | \$ 5,677 | 5,543 |
| Water supply and waste water treatment systems | 3,188,933 | 2,768,009 |
| Water distribution and sewage collection systems | 3,300,830 | 3,184,976 |
| Equipment | <u>58,498</u> | <u>49,982</u> |
| | 6,553,938 | 6,008,510 |
| Less accumulated depreciation | <u>2,493,419</u> | <u>2,349,032</u> |
| | \$ <u>4,060,519</u> | <u>3,659,478</u> |

(Continued)

NEW YORK CITY WATER AND SEWER SYSTEM

Notes to Combined Financial Statements

(5) Investments, Cash Equivalents and Cash Deposits

The Water and Sewer General Revenue Bond Resolution (the "Resolution") authorizes the investment of bond proceeds. The guidelines issued by the Office of the New York State Comptroller and the Resolution establish the criteria for permissible investments of the System. The System may invest in Federal government obligations or any subdivision or instrumentality thereof, obligations of the State of New York or any subdivision or instrumentality thereof provided that they are in the two highest rating categories of a rating agency, bankers' acceptances or certificates of deposit issued by a New York State commercial bank with capital or surplus in excess of \$100 million, corporate securities or commercial paper rated highest by a rating agency when compared to similar-type securities, or repurchase agreements that are collateralized by obligations of the Federal government.

Investments and deposits held by the System at June 30, 1992 and 1991 comprised:

| | <u>1992</u> | <u>1991</u> |
|---|-------------------|----------------|
| | (in thousands) | |
| Unrestricted cash, cash equivalents and investments (plus accrued interest) | \$ 23,333 | 25,272 |
| Restricted cash, cash equivalents and investments (plus accrued interest) | <u>829,063</u> | <u>739,442</u> |
| | \$ <u>852,396</u> | <u>764,714</u> |
| This amount is comprised of: | | |
| Carrying amount of deposits (includes CDs) | 38,555 | 75,297 |
| Investments (plus accrued interest) | <u>813,841</u> | <u>689,417</u> |
| | \$ <u>852,396</u> | <u>764,714</u> |

Cash Deposits

The System's bank depositories are designated by the New York City Banking Commission consisting of the comptroller, the mayor, and the finance commissioner. Independent bank rating agencies are used in part to assess the financial soundness of each bank, and the System's banking relationships are under constant operational and credit reviews. Each bank in which the System's cash is deposited is required to have its principal office in New York State and have capital stock, surplus, and undivided earnings aggregating at least \$100 million. Additionally, no amounts can be deposited with any bank in excess of the greater of (i) 2% of its capital or (ii) the amount insured by the Federal Deposit Insurance Corporation (the "FDIC"). The System had \$38.555 million and \$75.297 million on deposit at June 30, 1992 and 1991, respectively. All funds on deposit at June 30, 1992 and 1991 were covered by Federal depository insurance or collateralized with securities held by the pledging financial institution's trust department, which are not in the System's name.

(Continued)

NEW YORK CITY WATER AND SEWER SYSTEM

Notes to Combined Financial Statements

(5), Continued

Investments

The System's investments are categorized to give an indication of the level of risk assumed by the System at year end. Category 1, the lowest risk, includes investments that are insured or registered, or for which the securities are held by the System or its agent in the System's name. Category 2 includes uninsured and unregistered investments for which the securities are held by the broker's or dealer's trust department or agent in the System's name. Category 3, the highest risk, includes uninsured and unregistered investments for which the securities are held by the broker or dealer, or by its trust department or agent but not in the System's name.

Investments held by the System at June 30, 1992 and 1991 were all classified as Category 1 investments, and are comprised of:

| | <u>1992</u> | | <u>1991</u> | |
|--------------------------|-------------------|---------------------------------------|----------------|---------------------|
| | <u>Cost</u> | <u>Market value</u> (in thousands) | <u>Cost</u> | <u>Market value</u> |
| U.S. Treasury securities | \$ 405,753 | 411,761 | 356,142 | 356,409 |
| Federal agency issues | 14,092 | 14,099 | — | — |
| Repurchase agreements | <u>387,128</u> | <u>387,128</u> | <u>327,222</u> | <u>327,222</u> |
| | <u>\$ 806,973</u> | <u>812,988</u> | <u>683,364</u> | <u>683,631</u> |

(6) Lease Agreement

The Board has entered into a long-term lease with The City, which transfers all the water- and sewer-related real and personal property to the Board for the term of the lease. The lease term commenced on July 1, 1985 and continues until the later of the fortieth anniversary of the commencement of the lease or the date on which all bonds, notes or other obligations of the Authority are paid in full or provisions for such payment has been made pursuant to the applicable debt instrument. The lease provides for payments to The City to cover the following:

- an amount sufficient to pay the cost of administration, maintenance, repair and operation of the leased property, which includes overhead costs incurred by The City attributable to the leased property, net of the amount of any Federal, state, or other operating grants received by The City;
- an amount sufficient to reimburse The City for capital costs incurred by The City for the construction of capital improvements to the leased property which are not paid or reimbursed from any other source, to the extent requested by The City;
- an amount sufficient to pay the cost of billing and other services provided by The City;
- an amount sufficient to pay the cost of legal services provided by The City;

(Continued)

NEW YORK CITY WATER AND SEWER SYSTEM

Notes to Combined Financial Statements

(6), Continued

- (e) an amount sufficient to reimburse The City for the costs of the services of any city officer and employee provided on a full-time or part-time basis to the Board; and
- (f) the amount of any reconciliation payments, as defined.

In addition to the payments described above, the Board pays rent to The City to the extent requested by The City in each fiscal year in an amount not to exceed the greater of (a) the principal and interest payable on general obligation bonds issued by The City for water and sewer purposes certified by The City to be paid within such fiscal year or (b) 15% of principal and interest payable on the bonds of the Authority to be paid within such fiscal year. After all amounts certified by The City have been paid and all other required payments have been made, any surplus funds received by the Board in the current fiscal year are to be placed into the Board's O&M reserve account.

A summary of operation and maintenance costs at June 30, 1992 and 1991 is as follows:

| | <u>1992</u> | <u>1991</u> |
|---|------------------------|------------------------|
| Water transmission and distribution | \$ 138,202,197 | 141,923,390 |
| Sewer collection systems | 252,605,752 | 217,837,654 |
| Customer accounting | 8,070,254 | 7,551,813 |
| City agency support cost | 13,955,232 | 13,623,657 |
| Fringe benefits | 48,540,324 | 45,459,945 |
| Judgments and claims | 1,961,752 | 808,244 |
| Provision for uncollectible water and sewer charges | <u>67,661,789</u> | <u>59,869,199</u> |
| | 530,997,300 | 487,073,902 |
| Rental payments to The City | <u>180,929,494</u> | <u>169,335,348</u> |
| | \$ <u>711,926,794</u> | <u>656,409,250</u> |

(7) Payable to and Receivable from The City

As of June 30, 1992 and 1991, all construction work-in-progress recorded by the Board, which has not been reimbursed to The City, has been recorded as a payable to The City of New York, net of the amount of any State or Federal capital grants received by The City. In addition, funds paid to The City for the installation of meters, in accordance with the new metering program, not yet expended by The City at June 30, 1992, were recorded as a receivable from The City.

(8) Bonds Payable

The Authority issues revenue bonds to finance a portion of the costs of the capital improvements program to the System, to fund certain reserves, and to pay costs of issuance.

(Continued)

NEW YORK CITY WATER AND SEWER SYSTEM

Notes to Combined Financial Statements

(8), Continued

Bonds payable comprise the following for the year ended June 30, 1992:

| | Balance at June 30, <u>1991</u> | <u>Issued</u> (in thousands) | <u>Retired</u> | Balance at June 30, <u>1992</u> |
|--|---------------------------------------|---------------------------------|----------------|---------------------------------------|
| 1986 Fiscal Series A - 7.60% to 8.80% Serial Bonds maturing in varying installments through 1999 | \$ 27,285 | — | 2,565 | 24,720 |
| 1986 Fiscal Series B - 6.50% to 7.875% Serial and Term Bonds maturing in varying installments through 2016 | 188,245 | — | 2,780 | 185,465 |
| 1987 Fiscal Series A - 5.0% to 7.00% Serial and Term Bonds maturing in varying installments through 2017 | 375,290 | — | 3,745 | 371,545 |
| 1987 Fiscal Series B - 5.0% to 7.9% Serial, and Capital Appreciation Bonds maturing in varying installments through 2017 | 185,287 | — | 86,880 | 98,407 |
| 1988 Fiscal Series A - 6.75% to 8.9% Serial, Term, and Capital Appreciation Bonds maturing in varying installments through 2007 | 282,477 | — | 169,335 | 113,142 |
| 1988 Fiscal Series B - 5.70% to 7.80% Serial and Capital Appreciation Bonds maturing in varying installments through 2018 | 296,765 | — | 6,090 | 290,675 |
| 1989 Fiscal Series A - 6.30% to 7.70% Serial, Term, and Capital Appreciation Bonds maturing in varying installments through 2018 | 323,310 | — | 5,910 | 317,400 |
| 1989 Fiscal Series B - 7.0% to 7.75% Serial, Term, and Capital Appreciation Bonds maturing in varying installments through 2019 | 321,495 | — | 5,225 | 316,270 |
| 1990 Fiscal Series A - 6.00% to 7.375% Serial, Term, and Capital Appreciation Bonds maturing in varying installments through 2019 | 308,570 | — | 5,240 | 303,330 |
| 1990 Fiscal Series B - 6.60% to 7.60% Serial and Term Bonds maturing in varying installments through 2020 | 173,500 | — | — | 173,500 |

(Continued)

NEW YORK CITY WATER AND SEWER SYSTEM

Notes to Combined Financial Statements

(8), Continued

| | Balance at June 30, <u>1991</u> | <u>Issued</u> (in thousands) | <u>Retired</u> | Balance at June 30, <u>1992</u> |
|--|---------------------------------------|---------------------------------|----------------|---------------------------------------|
| 1991 Fiscal Series A - 6.00% to 7.50% Serial, Term and Capital Appreciation Bonds maturing in varying installments through 2020 | \$ 296,135 | — | 5,420 | 290,715 |
| 1991 Fiscal Series B - 5.80% to 7.25% Serial and Term Bonds maturing in varying installments through 2012 | 313,400 | — | — | 313,400 |
| 1991 Fiscal Series C - 6.20% to 7.75% Serial and Term Bonds maturing in varying installments through 2020 | 354,610 | — | — | 354,610 |
| 1992 Fiscal Series A - 5.10% to 7.10% Serial and Term Bonds maturing in varying installments through 2021 | — | 583,155 | — | 583,155 |
| 1992 Fiscal Series B - 4.90% to 6.875% Serial and Term Bonds maturing in varying installments through 2014 | — | 332,141 | — | 332,141 |
| 1992 Fiscal Series C - 6.20% and 6.50% Term Bonds maturing June 15, 2021 | <u>—</u> | <u>200,000</u> | <u>—</u> | <u>200,000</u> |
| Total debt payable | \$ <u>3,446,369</u> | <u>1,115,296</u> | <u>293,190</u> | <u>4,268,475</u> |

With respect to all series, the Board has agreed to maintain rates and charges to provide revenues at levels sufficient to pay principal and interest requirements. All series are special obligations of the Authority payable solely from and secured by a pledge of and lien on the gross revenue of the System, as defined.

A portion of the 1992 Fiscal Series A revenue bond proceeds was used to advance refund \$82.935 million, \$27.920 million and \$136.605 million of outstanding 1987 Fiscal Series B and 1988 Fiscal Series A Water and Sewer Revenue Term Bonds with interest rates of 8.25%, 8.75% and 9.00%, respectively. Proceeds of \$276.9 million were used to purchase United States Treasury Certificates of Indebtedness and Notes - State and Local Government Series. Those securities were deposited in an irrevocable trust with an escrow agent to provide for all future debt service payments on the refunded 1987 Fiscal Series B and 1988 Fiscal Series A Water and Sewer Revenue Term Bonds. As a result, the advance refunding of these term bonds met the requirements of an in-substance debt defeasance, and liability for those bonds has been removed from the June 30, 1992 combined balance sheet.

(Continued)

NEW YORK CITY WATER AND SEWER SYSTEM

Notes to Combined Financial Statements

(8), Continued

Although the advance refunding resulted in the recognition of an accounting loss of \$26 million for the year ended June 30, 1992, the Authority in effect reduced its aggregate debt service payments by almost \$30 million over the next 25 years and obtained an economic benefit (difference between the present values of the old and new debt service payments) of \$21 million.

In fiscal year 1987, the Authority defeased \$162.2 million of 1986 Fiscal Series A revenue term bonds by placing proceeds of refunding bonds issued in an irrevocable escrow account to provide for all future debt service payments. New debt has been issued and the proceeds have been used to purchase U.S. Government Securities that were placed in the irrevocable escrow account. The investments and fixed earnings from the investments are sufficient to fully service the defeased debt until the debt is called or matured. Accordingly, the escrow account assets and liability for the defeased bonds are not included in the Authority's financial statements. As of June 30, 1992, none of the defeased bonds had been retired from the assets of the escrow account.

Debt service requirements to maturity at June 30, 1992 are as follows:

| Year ending <u>June 30</u> | <u>Principal</u> | <u>Interest</u> (in thousands) | <u>Total</u> |
|------------------------------------|---------------------|-----------------------------------|------------------|
| 1993 | \$ 66,979 | 267,577 | 334,556 |
| 1994 | 72,038 | 263,637 | 335,675 |
| 1995 | 77,800 | 258,927 | 336,727 |
| 1996 | 83,235 | 253,730 | 336,965 |
| 1997 | 88,936 | 248,072 | 337,008 |
| Five years ending June 30, 2002 | 446,412 | 1,238,972 | 1,685,384 |
| Thereafter | <u>3,433,075</u> | <u>2,352,166</u> | <u>5,785,241</u> |
| Total | \$ <u>4,268,475</u> | <u>4,883,081</u> | <u>9,151,556</u> |

(Continued)

NEW YORK CITY WATER AND SEWER SYSTEM

Notes to Combined Financial Statements

(9) Restricted Assets

Certain cash and investments, plus accrued interest, of the System are restricted as follows:

| <u>The Board</u> | <u>1992</u> | <u>1991</u> |
|--|-------------------|----------------|
| | (in thousands) | |
| Operation and maintenance reserve account | \$ 94,778 | 85,814 |
| <u>The Authority</u> | | |
| Debt service account | 5,587 | 41,644 |
| Construction account | 358,462 | 328,041 |
| Debt service reserve account | 339,224 | 283,943 |
| Revenue account | <u>31,012</u> | <u>—</u> |
| | \$ <u>829,063</u> | <u>739,442</u> |

(10) Commitments and Contingencies

Construction

The System has contractual commitments of approximately \$1.5 billion at June 30, 1992 and 1991, respectively, for water and sewer projects.

Contingencies

In accordance with the lease, the Board is required to reimburse The City for any judgment or settlement paid by The City arising out of a tort claim to the extent that The City's liability is related to capital improvements and the operation or maintenance of the System. However, in no event shall the payment made to The City, in any fiscal year, exceed an amount equal to 5% of the aggregate revenues shown on the last year-end audited financial statements of the System. In addition, the System is required to reimburse The City, to the extent requested by The City, for the payment of any judgment or settlement arising out of a contract claim with respect to the construction of capital improvements. In addition, the City has agreed, subject to certain conditions, to indemnify the Authority and the Board against any and all liability in connection with any act done or omitted in the exercise of their powers which is taken or omitted in good faith in pursuance of their purposes under the Act.

(Continued)

NEW YORK CITY WATER AND SEWER SYSTEM

Notes to Combined Financial Statements

(10), Continued

Currently, The City is a defendant in a significant number of lawsuits pertaining to the System. The litigation includes, but is not limited to, actions commenced and claims asserted against The City arising out of alleged torts, alleged breaches of contract, condemnation proceedings and other alleged violations of law. As of June 30, 1992, claims in excess of \$2.7 billion were outstanding against The City for which The City estimated its potential future liability to be \$407 million. This amount is included in The City's General Long-Term Obligations Account Group. The potential future liability is The City's best estimate based on available information. The estimate may be revised as further information is obtained and as pending cases are litigated.

(11) Subsequent Event

On August 13, 1992, the Authority sold \$1,040,704,592 Fiscal 1993 Series A Water and Sewer Revenue Bonds to advance refund a portion of the following outstanding principal amounts of the Authority's Water and Sewer Revenue Bonds and to pay costs of issuance of approximately \$12 million:

| <u>Series</u> | <u>Amount</u> | <u>Maturing on and after</u> |
|----------------------|----------------|----------------------------------|
| Fiscal 1986 Series B | \$ 149,805,000 | June 15, 2002 |
| Fiscal 1988 Series B | 145,030,000 | June 15, 2009 |
| Fiscal 1989 Series A | 111,995,000 | June 15, 2009 |
| Fiscal 1989 Series B | 90,765,000 | June 15, 2007 |
| Fiscal 1991 Series A | 98,630,000 | June 15, 2016 |
| Fiscal 1991 Series C | 297,160,000 | June 15, 2008 |

The Authority will irrevocably deposit defeasance obligations in the amount of \$988,604,114 in trust with an escrow agent. The defeasance obligations will bear interest at such rates and will be scheduled to mature at such times and in such amounts so that, when paid in accordance with their terms, together with any uninvested cash held by the escrow agent, sufficient monies will be available to make full and timely payments of the maturing principal and sinking fund installments of and redemption premium and interest on the refunded bonds to their earliest optional redemption date. Upon such irrevocable deposit, the refunded bonds will no longer be deemed to be outstanding and will no longer be entitled to the benefit of the pledge and lien established by the Water and Sewer System General Revenue Bond resolution, or to payment from revenues of the System.

On October 15, 1992, the Authority sold \$125,000,000 Fiscal 1993 Series B and \$100,000,000 Fiscal 1993 Series C Water and Sewer Revenue Bonds for the purpose of financing a portion of the cost of the capital renovation and improvements program of the System, for funding certain reserves and for paying costs of issuance.

NEW YORK CITY WATER AND SEWER SYSTEM

Combined Schedule of Cash Receipts and Disbursements

Years ended June 30, 1992 and 1991

(in thousands)

| | <u>1992</u> | <u>1991</u> |
|--|------------------|----------------|
| Cash receipts: | | |
| Water supply and distribution | \$ 407,663 | 329,720 |
| Sewer collection and treatment | 480,353 | 397,593 |
| Other operating revenues | 33,212 | 15,244 |
| Revenues received in advance | 86,149 | 70,858 |
| Investment income | <u>62,819</u> | <u>49,478</u> |
| Total cash receipts | <u>1,070,196</u> | <u>862,893</u> |
| Cash disbursements: | | |
| Operation and maintenance | 774,564 | 648,013 |
| Administration and general | 4,452 | 1,029 |
| Interest expense | <u>249,171</u> | <u>178,693</u> |
| Total cash disbursements | <u>1,028,187</u> | <u>827,735</u> |
| Excess of cash receipts over cash disbursements before financing sources | <u>42,009</u> | <u>35,158</u> |
| Financing sources: | | |
| Proceeds from bond and note sales, net of issuance costs | <u>1,073,413</u> | <u>931,420</u> |
| Total financing sources | <u>1,073,413</u> | <u>931,420</u> |
| Financing uses: | | |
| Restricted assets | 92,208 | 293,067 |
| Investments | 3,999 | 7,397 |
| Construction payments | 709,387 | 605,913 |
| Repayment of bonds and notes | 293,190 | 65,080 |
| Cost of bond defeasance | 22,495 | - |
| Transfers to The City | <u>-</u> | <u>1,901</u> |
| Total financing uses | <u>1,121,279</u> | <u>973,358</u> |
| Deficit of cash receipts over cash disbursements | (5,857) | (6,780) |
| Unrestricted cash and cash equivalents, beginning of year | <u>17,794</u> | <u>24,574</u> |
| Unrestricted cash and cash equivalents, end of year | \$ <u>11,937</u> | <u>17,794</u> |

See accompanying independent auditors' report.

NEW YORK CITY WATER AND SEWER SYSTEM

Combining Balance Sheet Schedule

June 30, 1992

(in thousands)

| | <u>New York City</u> | | | |
|---|----------------------|------------------|--------------------|------------------|
| | <u>Water</u> | <u>Municipal</u> | | |
| | <u>Board</u> | <u>Water</u> | <u>Elimi-</u> | <u>Total</u> |
| | | <u>Finance</u> | <u>nations</u> | |
| | | <u>Authority</u> | | |
| Assets: | | | | |
| Utility plant in service, less accumulated depreciation of \$2,493,419 | \$ 4,060,519 | - | - | 4,060,519 |
| Construction work-in-progress | <u>4,381,897</u> | - | - | <u>4,381,897</u> |
| | <u>8,442,416</u> | - | - | <u>8,442,416</u> |
| Current assets: | | | | |
| Unrestricted cash and cash equivalents | 11,886 | 51 | - | 11,937 |
| Investments | 11,239 | - | - | 11,239 |
| Accounts receivable: | | | | |
| Billed, less allowance for uncollectible water and sewer receivables of \$129,469 | 273,276 | - | - | 273,276 |
| Unbilled | 49,360 | - | - | 49,360 |
| Receivable from The City | 5,149 | - | - | 5,149 |
| Accrued interest receivable | 157 | - | - | 157 |
| Other receivables | 60 | 2 | - | 62 |
| Prepaid expenses | <u>208,819</u> | - | - | <u>208,819</u> |
| Total current assets | <u>559,946</u> | <u>53</u> | - | <u>559,999</u> |
| Restricted assets: | | | | |
| Cash and cash equivalents | 47,161 | 394,876 | - | 442,037 |
| Investments | 46,758 | 333,621 | - | 380,379 |
| Accrued interest receivable | <u>859</u> | <u>5,788</u> | - | <u>6,647</u> |
| | <u>94,778</u> | <u>734,285</u> | - | <u>829,063</u> |
| Revenue requirement to be billed by and received from the Board | - | 2,613,216 | (2,613,216) | - |
| Deferred bond and financing expenses | - | <u>62,747</u> | - | <u>62,747</u> |
| Total assets | <u>\$ 9,097,140</u> | <u>3,410,301</u> | <u>(2,613,216)</u> | <u>9,894,225</u> |
| Liabilities and equity: | | | | |
| Long-term liabilities: | | | | |
| Bonds and notes payable, less current portion | - | 4,201,496 | - | 4,201,496 |
| Discount on bonds and notes payable | - | (352,725) | - | (352,725) |
| Revenue requirements payable to the Authority | 2,613,216 | - | (2,613,216) | - |
| Payable to The City | <u>15,738</u> | <u>184,912</u> | - | <u>200,650</u> |
| Total long-term liabilities | <u>2,628,954</u> | <u>4,033,683</u> | <u>(2,613,216)</u> | <u>4,049,421</u> |
| Current liabilities: | | | | |
| Accounts payable and accrued expenses | 1,199 | 10,886 | - | 12,085 |
| Revenue received in advance | 87,475 | - | - | 87,475 |
| Current portion of bonds and notes payable | - | 66,979 | - | 66,979 |
| Refunds payable to customers | <u>75,244</u> | - | - | <u>75,244</u> |
| Total current liabilities | <u>163,918</u> | <u>77,865</u> | - | <u>241,783</u> |
| Total liabilities | <u>2,792,872</u> | <u>4,111,548</u> | <u>(2,613,216)</u> | <u>4,291,204</u> |
| Equity: | | | | |
| Contributed capital, net of allocated depreciation | 5,239,175 | - | - | 5,239,175 |
| Retained earnings (deficit) | <u>1,065,093</u> | <u>(701,247)</u> | - | <u>363,846</u> |
| Total equity | <u>6,304,268</u> | <u>(701,247)</u> | - | <u>5,603,021</u> |
| Commitments and contingencies | | | | |
| Total liabilities and equity | <u>\$ 9,097,140</u> | <u>3,410,301</u> | <u>(2,613,216)</u> | <u>9,894,225</u> |

See accompanying independent auditors' report.

NEW YORK CITY WATER AND SEWER SYSTEM

Combining Balance Sheet Schedule

June 30, 1991

(in thousands)

| | New York City | | | |
|--|---------------------|-----------------------------------|--------------------|------------------|
| | Water Board | Municipal Water Finance Authority | Eliminations | Total |
| Assets: | | | | |
| Utility plant in service, less accumulated depreciation of \$2,349,032 | \$ 3,659,478 | - | - | 3,659,478 |
| Construction work-in-progress | <u>4,051,151</u> | - | - | <u>4,051,151</u> |
| | <u>7,710,629</u> | - | - | <u>7,710,629</u> |
| Current assets: | | | | |
| Unrestricted cash and cash equivalents | 16,716 | 1,078 | - | 17,794 |
| Investments | 7,397 | - | - | 7,397 |
| Accounts receivable: | | | | |
| Billed, less allowance for uncollectible water and sewer receivables of \$92,207 | 185,242 | - | - | 185,242 |
| Unbilled | 72,642 | - | - | 72,642 |
| Receivable from The City | 11,960 | - | - | 11,960 |
| Accrued interest receivable | 81 | - | - | 81 |
| Other receivables | 13 | 2 | - | 15 |
| Prepaid expenses | <u>74,513</u> | - | - | <u>74,513</u> |
| Total current assets | <u>368,564</u> | <u>1,080</u> | - | <u>369,644</u> |
| Restricted assets: | | | | |
| Cash and cash equivalents | 47,815 | 329,806 | - | 377,621 |
| Investments | 36,821 | 318,797 | - | 355,618 |
| Accrued interest receivable | <u>1,178</u> | <u>5,025</u> | - | <u>6,203</u> |
| | <u>85,814</u> | <u>653,628</u> | - | <u>739,442</u> |
| Revenue requirement to be billed by and received from The Board | - | 2,047,351 | (2,047,351) | - |
| Deferred bond and financing expenses | - | <u>50,816</u> | - | <u>50,816</u> |
| Total assets | <u>\$ 8,165,007</u> | <u>2,752,875</u> | <u>(2,047,351)</u> | <u>8,870,531</u> |
| Liabilities and equity: | | | | |
| Long-term liabilities: | | | | |
| Bonds and notes payable, less current portion | - | 3,400,639 | - | 3,400,639 |
| Discount on bonds and notes payable | - | (345,567) | - | (345,567) |
| Revenue requirements payable to the Authority | 2,047,351 | - | (2,047,351) | - |
| Payable to The City | <u>12,095</u> | <u>104,076</u> | - | <u>116,171</u> |
| Total long-term liabilities | <u>2,059,446</u> | <u>3,159,148</u> | <u>(2,047,351)</u> | <u>3,171,243</u> |
| Current liabilities: | | | | |
| Accounts payable and accrued expenses | 564 | 16,772 | - | 17,336 |
| Revenue received in advance | 71,275 | - | - | 71,275 |
| Current portion of bonds and notes payable | - | 45,730 | - | 45,730 |
| Refunds payable to customers | <u>30,400</u> | - | - | <u>30,400</u> |
| Total current liabilities | <u>102,239</u> | <u>62,502</u> | - | <u>164,741</u> |
| Total liabilities | <u>2,161,685</u> | <u>3,221,650</u> | <u>(2,047,351)</u> | <u>3,335,984</u> |
| Equity: | | | | |
| Contributed capital, net of allocated depreciation | 5,251,968 | - | - | 5,251,968 |
| Retained earnings (deficit) | <u>751,354</u> | <u>(468,775)</u> | - | <u>282,579</u> |
| Total equity | <u>6,003,322</u> | <u>(468,775)</u> | - | <u>5,534,547</u> |
| Commitments and contingencies | | | | |
| Total liabilities and equity | <u>\$ 8,165,007</u> | <u>2,752,875</u> | <u>(2,047,351)</u> | <u>8,870,531</u> |

See accompanying independent auditors' report.

NEW YORK CITY WATER AND SEWER SYSTEM

Combining Schedule of Revenues, Expenses
and Changes in Retained Earnings

Year ended June 30, 1992

(in thousands)

| | <u>New York City</u> | | | |
|--|----------------------|------------------|----------------|------------------|
| | <u>Municipal</u> | | | |
| | <u>Water</u> | <u>Finance</u> | <u>Elimi-</u> | <u>Total</u> |
| | <u>Board</u> | <u>Authority</u> | <u>nations</u> | |
| Operating revenues: | | | | |
| Water supply and distribution | \$ 455,554 | — | — | 455,554 |
| Sewer collection and treatment | 583,696 | — | — | 583,696 |
| Other operating revenues | <u>33,164</u> | <u>9,652</u> | <u>—</u> | <u>42,816</u> |
| Total operating revenues | <u>1,072,414</u> | <u>9,652</u> | <u>—</u> | <u>1,082,066</u> |
| Operating expenses: | | | | |
| Operation and maintenance | 711,927 | — | — | 711,927 |
| Administration and general | <u>3,266</u> | <u>1,178</u> | <u>—</u> | <u>4,444</u> |
| | <u>715,193</u> | <u>1,178</u> | <u>—</u> | <u>716,371</u> |
| Excess of operating revenues over operating expenses before depreciation and amortization | 357,221 | 8,474 | — | 365,695 |
| Depreciation and amortization | <u>144,623</u> | <u>9,051</u> | <u>—</u> | <u>153,674</u> |
| Operating income (loss) | <u>212,598</u> | <u>(577)</u> | <u>—</u> | <u>212,021</u> |
| Nonoperating revenue (expense): | | | | |
| Interest expense | — | (256,735) | — | (256,735) |
| Investment income | <u>2,837</u> | <u>50,874</u> | <u>—</u> | <u>53,711</u> |
| | <u>2,837</u> | <u>(205,861)</u> | <u>—</u> | <u>(203,024)</u> |
| Income (loss) before extraordinary item | 215,435 | (206,438) | — | 8,997 |
| Extraordinary item: | | | | |
| Loss from early extinguishment of debt | <u>—</u> | <u>(26,034)</u> | <u>—</u> | <u>(26,034)</u> |
| Net income (loss) | <u>215,435</u> | <u>(232,472)</u> | <u>—</u> | <u>(17,037)</u> |
| Retained earnings (deficit), beginning of year | 751,354 | (468,775) | — | 282,579 |
| Depreciation allocated to contributed capital | <u>98,304</u> | <u>—</u> | <u>—</u> | <u>98,304</u> |
| Retained earnings (deficit), end of year | \$ <u>1,065,093</u> | <u>(701,247)</u> | <u>—</u> | <u>363,846</u> |

See accompanying independent auditors' report.

NEW YORK CITY WATER AND SEWER SYSTEM

Combining Schedule of Revenues, Expenses
and Changes in Retained Earnings

Year ended June 30, 1991

(in thousands)

| | <u>New York City</u> | | | |
|---|----------------------|------------------|----------------|------------------|
| | <u>Water</u> | <u>Municipal</u> | <u>Elimi-</u> | <u>Total</u> |
| | <u>Board</u> | <u>Water</u> | <u>nations</u> | |
| | | <u>Finance</u> | | |
| | | <u>Authority</u> | | |
| Operating revenues: | | | | |
| Water supply and distribution | \$ 402,860 | - | - | 402,860 |
| Sewer collection and treatment | 487,895 | - | - | 487,895 |
| Other operating revenues | <u>15,420</u> | <u>2,107</u> | <u>-</u> | <u>17,527</u> |
| Total operating revenues | <u>906,175</u> | <u>2,107</u> | <u>-</u> | <u>908,282</u> |
| Operating expenses: | | | | |
| Operation and maintenance | 656,409 | - | - | 656,409 |
| Administration and general | <u>939</u> | <u>686</u> | <u>-</u> | <u>1,625</u> |
| | <u>657,348</u> | <u>686</u> | <u>-</u> | <u>658,034</u> |
| Excess of operating revenues over operating expenses before depreciation and amortization | 248,827 | 1,421 | - | 250,248 |
| Depreciation and amortization | <u>89,328</u> | <u>4,708</u> | <u>-</u> | <u>94,036</u> |
| Operating income (loss) | <u>159,499</u> | <u>(3,287)</u> | <u>-</u> | <u>156,212</u> |
| Nonoperating revenue (expense): | | | | |
| Interest expense | - | (199,756) | - | (199,756) |
| Investment income | <u>2,400</u> | <u>47,512</u> | <u>-</u> | <u>49,912</u> |
| | <u>2,400</u> | <u>(152,244)</u> | <u>-</u> | <u>(149,844)</u> |
| Net income (loss) | 161,899 | (155,531) | - | 6,368 |
| Retained earnings (deficit), beginning of year | 519,720 | (313,244) | - | 206,476 |
| Depreciation allocated to contributed capital | <u>69,735</u> | <u>-</u> | <u>-</u> | <u>69,735</u> |
| Retained earnings (deficit), end of year | \$ <u>751,354</u> | <u>(468,775)</u> | <u>-</u> | <u>282,579</u> |

See accompanying independent auditors' report.

NEW YORK CITY WATER AND SEWER SYSTEM

Combining Cash Flows Schedule

Year ended June 30, 1992

(in thousands)

| | <u>New York City</u> | | |
|--|----------------------|------------------|------------------|
| | <u>Water</u> | <u>Municipal</u> | |
| | <u>Board</u> | <u>Water</u> | |
| | | <u>Finance</u> | <u>Total</u> |
| | | <u>Authority</u> | |
| Cash flows from operating activities: | | | |
| Operating income (loss) | \$ <u>212,598</u> | <u>(577)</u> | <u>212,021</u> |
| Adjustments to reconcile operating income (loss) to net cash provided by (used in) operating activities: | | | |
| Depreciation and amortization | 144,623 | 9,051 | 153,674 |
| Extraordinary item - loss on early extinguishment of debt | - | (26,034) | (26,034) |
| Changes in assets and liabilities: | | | |
| Increase in accounts and other receivables and accrued interest receivable | (64,875) | - | (64,875) |
| Decrease in receivable from The City | 6,811 | - | 6,811 |
| Increase in prepaid expenses | (134,306) | - | (134,306) |
| Increase in payable to The City | 3,643 | 80,836 | 84,479 |
| Increase (decrease) in accounts payable and accrued expenses | 635 | (5,886) | (5,251) |
| Increase in revenues received in advance | 16,200 | - | 16,200 |
| Increase in refunds payable to customers | 44,844 | - | 44,844 |
| Increase in payable to the Authority (receivable from the Board) | <u>565,865</u> | <u>(565,865)</u> | <u>-</u> |
| Total adjustments | <u>583,440</u> | <u>(507,898)</u> | <u>75,542</u> |
| Net cash provided by (used in) operating activities | <u>796,038</u> | <u>(508,475)</u> | <u>287,563</u> |
| Cash flows from capital and related financing activities: | | | |
| Acquisition and construction of capital assets | (790,899) | - | (790,899) |
| Proceeds from issuing bonds, notes and other borrowings, net of issue costs | - | 1,086,835 | 1,086,835 |
| Repayments of bonds, notes and other borrowings | - | (293,190) | (293,190) |
| Interest paid on bonds, notes and other borrowings | - | <u>(256,735)</u> | <u>(256,735)</u> |
| Net cash provided by (used in) capital and related financing activities | <u>(790,899)</u> | <u>536,910</u> | <u>(253,989)</u> |
| Cash flows from investing activities: | | | |
| Deficiency of proceeds from sales and maturities of investments, net of purchases | (13,459) | (15,267) | (28,726) |
| Interest on investments | <u>2,837</u> | <u>50,874</u> | <u>53,711</u> |
| Net cash provided by (used in) investing activities | <u>(10,622)</u> | <u>35,607</u> | <u>24,985</u> |
| Net increase (decrease) in cash and cash equivalents | (5,483) | 64,042 | 58,559 |
| Cash and cash equivalents, beginning of year | <u>64,530</u> | <u>330,885</u> | <u>395,415</u> |
| Cash and cash equivalents, end of year | \$ <u>59,047</u> | <u>394,927</u> | <u>453,974</u> |

Reconciliation of Cash and Cash Equivalents Per Statement of Cash Flows to the Balance Sheet

| | <u>Assets</u> | | |
|---------------------------------------|---------------------|-------------------|----------------|
| | <u>Unrestricted</u> | <u>Restricted</u> | <u>Total</u> |
| Cash and cash equivalents - beginning | \$ 17,794 | 377,621 | 395,415 |
| Net increase (decrease) | <u>(5,857)</u> | <u>64,416</u> | <u>58,559</u> |
| Cash and cash equivalents - ending | \$ <u>11,937</u> | <u>442,037</u> | <u>453,974</u> |

See accompanying independent auditors' report.

NEW YORK CITY WATER AND SEWER SYSTEM

Combining Cash Flows Schedule

Year ended June 30, 1991

(in thousands)

| | <u>New York City</u> | | |
|--|----------------------|------------------|------------------|
| | <u>Water</u> | <u>Municipal</u> | |
| | <u>Board</u> | <u>Water</u> | |
| | | <u>Finance</u> | <u>Total</u> |
| | | <u>Authority</u> | |
| Cash flows from operating activities: | | | |
| Operating income (loss) | \$ <u>159,499</u> | <u>(3,287)</u> | <u>156,212</u> |
| Adjustments to reconcile operating income (loss) to net cash provided by (used in) operating activities: | | | |
| Depreciation and amortization | 89,328 | 4,708 | 94,036 |
| Changes in assets and liabilities: | | | |
| Increase in accounts and other receivables and accrued interest receivable | (65,868) | — | (65,868) |
| Increase in receivable from The City | (8,345) | — | (8,345) |
| Increase in prepaid expenses | (59,797) | — | (59,797) |
| Increase in payable to The City - other payables | 6,417 | 37,412 | 43,829 |
| Increase in accounts payable and accrued expenses | 550 | 9,000 | 9,550 |
| Increase in revenues received in advance | 10,745 | — | 10,745 |
| Increase in refunds payable to customers | 30,400 | — | 30,400 |
| Increase in payable to the Authority (receivable from the Board) | <u>515,925</u> | <u>(515,925)</u> | <u>—</u> |
| Total adjustments | <u>519,355</u> | <u>(464,805)</u> | <u>54,550</u> |
| Net cash provided by (used in) operating activities | <u>678,854</u> | <u>(468,092)</u> | <u>210,762</u> |
| Cash flows from capital and related financing activities: | | | |
| Acquisition and construction of capital assets | (643,325) | — | (643,325) |
| Proceeds from issuing bonds, notes and other borrowings, net of issue costs | — | 943,728 | 943,728 |
| Repayments of bonds, notes and other borrowings | — | (65,080) | (65,080) |
| Interest paid on bonds, notes and other borrowings | <u>—</u> | <u>(199,756)</u> | <u>(199,756)</u> |
| Net cash provided by (used in) capital and related financing activities | <u>(643,325)</u> | <u>678,892</u> | <u>35,567</u> |
| Cash flows from investing activities: | | | |
| Deficiency of proceeds from sales and maturities of investments, net of purchases | (45,477) | (78,560) | (124,037) |
| Interest on investments | <u>2,400</u> | <u>47,512</u> | <u>49,912</u> |
| Net cash used in investing activities | <u>(43,077)</u> | <u>(31,048)</u> | <u>(74,125)</u> |
| Net increase (decrease) in cash and cash equivalents | (7,548) | 179,752 | 172,204 |
| Cash and cash equivalents, beginning of year | <u>72,078</u> | <u>151,133</u> | <u>223,211</u> |
| Cash and cash equivalents, end of year | \$ <u>64,530</u> | <u>330,885</u> | <u>395,415</u> |

Reconciliation of Cash and Cash Equivalents Per Statement of Cash Flows to the Balance Sheet

| | <u>Assets</u> | | |
|---------------------------------------|---------------------|-------------------|----------------|
| | <u>Unrestricted</u> | <u>Restricted</u> | <u>Total</u> |
| Cash and cash equivalents - beginning | \$ 24,574 | 198,637 | 223,211 |
| Net increase (decrease) | <u>(6,780)</u> | <u>178,984</u> | <u>172,204</u> |
| Cash and cash equivalents - ending | \$ <u>17,794</u> | <u>377,621</u> | <u>395,415</u> |

See accompanying independent auditors' report.

NEW YORK CITY WATER AND SEWER SYSTEM
Combining Schedule of Cash Receipts and Disbursements
Year ended June 30, 1992
(in thousands)

| | <u>New York City</u> | | | |
|---|----------------------|------------------|------------------|------------------|
| | <u>Water</u> | <u>Municipal</u> | | |
| | <u>Board</u> | <u>Finance</u> | <u>Elimi-</u> | <u>Total</u> |
| | | <u>Authority</u> | <u>nations</u> | |
| Cash receipts: | | | | |
| Water supply and distribution | \$ 407,663 | — | — | 407,663 |
| Sewer collection and treatment | 480,353 | — | — | 480,353 |
| Other operating revenues | 33,212 | — | — | 33,212 |
| Revenues received in advance | 86,149 | — | — | 86,149 |
| Investment income | <u>3,088</u> | <u>59,731</u> | — | <u>62,819</u> |
| Total cash receipts | <u>1,010,465</u> | <u>59,731</u> | — | <u>1,070,196</u> |
| Cash disbursements: | | | | |
| Operation and maintenance | 774,564 | — | — | 774,564 |
| Administration and general | 2,706 | 1,746 | — | 4,452 |
| Interest expense | <u>—</u> | <u>249,171</u> | — | <u>249,171</u> |
| Total cash disbursements | <u>777,270</u> | <u>250,917</u> | — | <u>1,028,187</u> |
| Excess (deficit) of cash receipts over cash disbursements before financing sources (uses) | <u>233,195</u> | <u>(191,186)</u> | — | <u>42,009</u> |
| Financing sources: | | | | |
| Proceeds from sale of bonds and notes, net of offering costs | — | 1,073,413 | — | 1,073,413 |
| Transfers from the Board, net | <u>—</u> | <u>224,735</u> | <u>(224,735)</u> | <u>—</u> |
| Total financing sources | <u>—</u> | <u>1,298,148</u> | <u>(224,735)</u> | <u>1,073,413</u> |
| Financing uses: | | | | |
| Restricted assets | 9,291 | 82,917 | — | 92,208 |
| Investments | 3,999 | — | — | 3,999 |
| Construction payments | — | 709,387 | — | 709,387 |
| Repayment of bonds and notes | — | 293,190 | — | 293,190 |
| Cost of bond defeasance | — | 22,495 | — | 22,495 |
| Transfers to the Authority, net | <u>224,735</u> | <u>—</u> | <u>(224,735)</u> | <u>—</u> |
| Total financing uses | <u>238,025</u> | <u>1,107,989</u> | <u>(224,735)</u> | <u>1,121,279</u> |
| Deficit of cash receipts over cash disbursements | (4,830) | (1,027) | — | (5,857) |
| Unrestricted cash and cash equiva- lents, beginning of year | <u>16,716</u> | <u>1,078</u> | — | <u>17,794</u> |
| Unrestricted cash and cash equiva- lents, end of year | \$ <u>11,886</u> | <u>51</u> | — | <u>11,937</u> |

See accompanying independent auditors' report.

NEW YORK CITY WATER AND SEWER SYSTEM

Combining Schedule of Cash Receipts and Disbursements

Year ended June 30, 1991

(in thousands)

| | <u>New York City</u> | | | |
|---|----------------------|------------------|------------------|----------------|
| | | Municipal | | |
| | Water | Water | Elimi- | |
| | Board | Finance | nations | Total |
| | | Authority | | |
| Cash receipts: | | | | |
| Water supply and distribution | \$ 329,720 | — | — | 329,720 |
| Sewer collection and treatment | 397,593 | — | — | 397,593 |
| Other operating revenues | 15,244 | — | — | 15,244 |
| Revenues received in advance | 70,858 | — | — | 70,858 |
| Investment income | <u>1,214</u> | <u>48,264</u> | <u>—</u> | <u>49,478</u> |
| Total cash receipts | <u>814,629</u> | <u>48,264</u> | <u>—</u> | <u>862,893</u> |
| Cash disbursements: | | | | |
| Operation and maintenance | 648,013 | — | — | 648,013 |
| Administration and general | 387 | 642 | — | 1,029 |
| Interest expense | <u>—</u> | <u>178,693</u> | <u>—</u> | <u>178,693</u> |
| Total cash disbursements | <u>648,400</u> | <u>179,335</u> | <u>—</u> | <u>827,735</u> |
| Excess (deficit) of cash receipts over cash disbursements before financing sources (uses) | <u>166,229</u> | <u>(131,071)</u> | <u>—</u> | <u>35,158</u> |
| Financing sources: | | | | |
| Proceeds from sale of bonds and notes, net of offering costs | — | 931,420 | — | 931,420 |
| Transfers from the Board, net | <u>—</u> | <u>127,600</u> | <u>(127,600)</u> | <u>—</u> |
| Total financing sources | <u>—</u> | <u>1,059,020</u> | <u>(127,600)</u> | <u>931,420</u> |
| Financing uses: | | | | |
| Restricted assets | 36,467 | 256,600 | — | 293,067 |
| Investments | 7,397 | — | — | 7,397 |
| Construction payments | — | 605,913 | — | 605,913 |
| Repayment of bonds and notes | — | 65,080 | — | 65,080 |
| Transfers to the Authority, net | 127,600 | — | (127,600) | — |
| Transfers The City | <u>1,901</u> | <u>—</u> | <u>—</u> | <u>1,901</u> |
| Total financing uses | <u>173,365</u> | <u>927,593</u> | <u>(127,600)</u> | <u>973,358</u> |
| Excess (deficit) of cash receipts over cash disbursements | (7,136) | 356 | — | (6,780) |
| Unrestricted cash and cash equivalents, beginning of year | <u>23,852</u> | <u>722</u> | <u>—</u> | <u>24,574</u> |
| Unrestricted cash and cash equivalents, end of year | \$ <u>16,716</u> | <u>1,078</u> | <u>—</u> | <u>17,794</u> |

See accompanying independent auditors' report.

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TABLE OF REFUNDED BONDS

Fiscal 1986 Series A

| <u>Due</u> | <u>Amount</u> | <u>Redemption Price</u> | <u>Call Date</u> |
|---------------------|---------------|-------------------------|------------------|
| June 15, 1995 | \$ 3,210,000 | * | N/A |
| June 15, 1996 | 3,475,000 | 102% | June 15, 1995 |
| June 15, 1997 | 3,765,000 | 102 | June 15, 1995 |
| June 15, 1998 | 4,090,000 | 102 | June 15, 1995 |
| June 15, 1999 | 4,445,000 | 102 | June 15, 1995 |

Fiscal 1986 Series B

| <u>Due</u> | <u>Amount</u> | <u>Redemption Price</u> | <u>Call Date</u> |
|---------------------|---------------|-------------------------|------------------|
| June 15, 1997 | \$ 3,880,000 | 102% | June 15, 1996 |
| June 15, 1998 | 4,170,000 | 102 | June 15, 1996 |
| June 15, 1999 | 4,480,000 | 102 | June 15, 1996 |
| June 15, 2000 | 4,820,000 | 102 | June 15, 1996 |
| June 15, 2001 | 5,190,000 | 102 | June 15, 1996 |

Fiscal 1987 Series A

| <u>Due</u> | <u>Amount</u> | <u>Redemption Price</u> | <u>Call Date</u> |
|---------------------|---------------|-------------------------|------------------|
| June 15, 2004 | \$ 51,040,000 | 102% | June 15, 1996 |
| June 15, 2014 | 207,020,000 | 102 | June 15, 1996 |

Fiscal 1987 Series B

| <u>Due</u> | <u>Amount</u> | <u>Redemption Price</u> | <u>Call Date</u> |
|---------------------|----------------|-------------------------|------------------|
| June 15, 2000 | \$4,933,741.20 | 105% | June 15, 1997 |
| June 15, 2001 | 4,551,929.84 | 105 | June 15, 1997 |
| June 15, 2002 | 4,218,739.02 | 105 | June 15, 1997 |
| June 15, 2003 | 3,884,085.63 | 105 | June 15, 1997 |
| June 15, 2004 | 3,595,773.45 | 105 | June 15, 1997 |
| June 15, 2007 | 9,164,070.24 | 105 | June 15, 1997 |

Fiscal 1988 Series A

| <u>Due</u> | <u>Amount</u> | <u>Redemption Price</u> | <u>Call Date</u> |
|---------------------|----------------|-------------------------|------------------|
| June 15, 1999 | \$7,910,000.00 | 102% | June 15, 1997 |
| June 15, 2000 | 6,719,350.78 | 105 | June 15, 1997 |
| June 15, 2001 | 6,180,415.08 | 105 | June 15, 1997 |
| June 15, 2002 | 5,656,178.64 | 105 | June 15, 1997 |
| June 15, 2003 | 5,185,584.52 | 105 | June 15, 1997 |
| June 15, 2004 | 4,733,869.47 | 105 | June 15, 1997 |
| June 15, 2005 | 4,318,385.67 | 105 | June 15, 1997 |
| June 15, 2006 | 3,934,053.48 | 105 | June 15, 1997 |
| June 15, 2007 | 3,572,921.70 | 105 | June 15, 1997 |

* Refunded to maturity.

Fiscal 1988 Series B

| <u>Due</u> | <u>Amount</u> | <u>Redemption Price</u> | <u>Call Date</u> |
|---------------------|----------------|-----------------------------|------------------|
| June 15, 2001 | \$7,585,439.51 | 105% | June 15, 1997 |
| June 15, 2002 | 7,030,069.38 | 105 | June 15, 1997 |
| June 15, 2003 | 6,496,423.66 | 105 | June 15, 1997 |
| June 15, 2004 | 5,997,717.06 | 105 | June 15, 1997 |
| June 15, 2005 | 5,542,471.24 | 105 | June 15, 1997 |
| June 15, 2006 | 5,119,334.47 | 105 | June 15, 1997 |
| June 15, 2007 | 4,726,364.34 | 105 | June 15, 1997 |
| June 15, 2008 | 4,354,992.27 | 105 | June 15, 1997 |

Fiscal 1989 Series A

| <u>Due</u> | <u>Amount</u> | <u>Redemption Price</u> | <u>Call Date</u> |
|---------------------|----------------|-----------------------------|------------------|
| June 15, 2002 | \$7,982,444.75 | 105% | June 15, 1998 |
| June 15, 2003 | 7,387,313.50 | 105 | June 15, 1998 |
| June 15, 2004 | 6,843,059.30 | 105 | June 15, 1998 |
| June 15, 2005 | 6,332,837.00 | 105 | June 15, 1998 |
| June 15, 2006 | 5,855,066.70 | 105 | June 15, 1998 |
| June 15, 2007 | 5,408,168.50 | 105 | June 15, 1998 |
| June 15, 2008 | 5,012,232.50 | 105 | June 15, 1998 |
| June 15, 2018 | 56,220,000.00 | 101.5 | June 15, 1997 |

Fiscal 1989 Series B

| <u>Due</u> | <u>Amount</u> | <u>Redemption Price</u> | <u>Call Date</u> |
|---------------------|---------------|-----------------------------|------------------|
| June 15, 2019 | \$ 43,695,000 | 101.5% | June 15, 1998 |

Fiscal 1990 Series A

| <u>Due</u> | <u>Amount</u> | <u>Redemption Price</u> | <u>Call Date</u> |
|---------------------|---------------|-----------------------------|------------------|
| June 15, 2009 | \$ 39,850,000 | 101.5% | June 15, 1999 |

Fiscal 1991 Series A

| <u>Due</u> | <u>Amount</u> | <u>Redemption Price</u> | <u>Call Date</u> |
|---------------------|---------------|-----------------------------|------------------|
| June 15, 2003 | \$ 3,420,000 | 101.5% | June 15, 2000 |
| June 15, 2004 | 3,670,000 | 101.5 | June 15, 2000 |
| June 15, 2005 | 3,950,000 | 101.5 | June 15, 2000 |
| June 15, 2015 | 76,875,000 | 101.5 | June 15, 2000 |

Fiscal 1991 Series C

| <u>Due</u> | <u>Amount</u> | <u>Redemption Price</u> | <u>Call Date</u> |
|---------------------|---------------|-----------------------------|------------------|
| June 15, 2004 | \$ 625,000 | 101.5% | June 15, 2001 |
| June 15, 2005 | 670,000 | 101.5 | June 15, 2001 |
| June 15, 2006 | 725,000 | 101.5 | June 15, 2001 |
| June 15, 2007 | 780,000 | 101.5 | June 15, 2001 |
| June 15, 2016 | 50,000,000 | 101.5 | June 15, 2001 |

Note: The Refunded Bonds consist of current interest bonds (“CIBs”) and capital appreciation bonds (“CABs”). The CIBs are reflected at the principal amount thereof as of the redemption date and the CABs are reflected at the accreted value as of the redemption date.

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



A GE Capital Company

Municipal Bond New Issue Insurance Policy

Issuer:

Policy Number:

Control Number:

Bonds:

Premium:

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 to Citibank, N.A., or its successor, as its agent (the "Fiscal Agent"), for the benefit of Bondholders, that portion of the principal and interest on the above-described debt obligations (the "Bonds") which shall become Due for Payment but shall be unpaid by reason of Nonpayment by the Issuer.

Financial Guaranty will make such payments to the Fiscal 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. The Fiscal Agent will disburse to the Bondholder the face amount of principal and interest which is then Due for Payment but is unpaid by reason of Nonpayment by the Issuer but only upon receipt by the Fiscal Agent, in form reasonably satisfactory to it, of (i) evidence of the Bondholder's right to receive payment of the principal or interest Due for Payment and (ii) evidence, including any appropriate instruments of assignment, that all of the Bondholder's rights to payment of such principal or interest Due for Payment shall thereupon vest in Financial Guaranty. Upon such disbursement, Financial Guaranty shall become the owner of the Bond, appurtenant coupon or right to payment of principal or interest on such Bond and shall be fully subrogated to all of the Bondholder's rights thereunder, including the Bondholder's right to payment thereof.

This Policy is non-cancellable for any reason. The premium on this Policy is not refundable for any reason, including the payment of the Bonds prior to their maturity. This Policy does not insure against loss of any prepayment premium which may at any time be payable with respect to any Bond.

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

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

A GE Capital Company



Municipal Bond New Issue Insurance Policy

Bond, the stated date for payment of interest. "Nonpayment" in respect of a Bond means the failure of the Issuer to have provided sufficient funds to the paying agent for payment in full of all principal and interest Due for Payment on such Bond. "Notice" means telephonic or telegraphic notice, subsequently confirmed in writing, or written notice by registered or certified mail, from a Bondholder or a paying agent for the Bonds to Financial Guaranty. "Business Day" means any day other than a Saturday, Sunday or a day on which the Fiscal 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 officers in facsimile to become effective and binding upon Financial Guaranty by virtue of the countersignature of its duly authorized representative.

A handwritten signature in black ink, appearing to be "A. L. H.", written over a large, diagonal "SUPPLEMENT" watermark.

President

Effective Date:

Authorized Representative

Citibank, N.A., acknowledges that it has agreed to perform the duties of Fiscal Agent under this Policy.

A handwritten signature in black ink, appearing to be "J. L. H.", written over the "SUPPLEMENT" watermark.

Authorized Officer

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

FGIC

A GE Capital Company

Endorsement To Financial Guaranty Insurance Company Insurance Policy

Policy Number:

Control Number:

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.

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

President

Effective Date:

Authorized Representative

Acknowledged as of the Effective Date written above:

Authorized Officer
Citibank, N.A., as Fiscal Agent

FGIC is a registered service mark used by Financial Guaranty Insurance Company under license from its parent company, FGIC Corporation.

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:

Notwithstanding the terms and provisions contained in this Policy, it is further understood that the term "Bondholder" shall not include the Board (as such term is defined in the bond documentation).

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

President

Managing Director

Effective Date: , 1992 Authorized Representative

Acknowledged as of the Effective
Date written above:

Authorized Officer
Citibank, N.A., as Fiscal Officer

E-0018

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:

It is further understood that the portion of the principal payable on the Bonds covered by this Policy does not include any Tender Option Price (as defined in the bond documentation providing for the issuance of and security for the Bonds).

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

President

Senior Vice President

Effective Date: , 19

Authorized Representative

Acknowledged as the Effective
Date written above:

Authorized Officer
Citibank, N.A., as Fiscal Officer

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



A GE Capital Company

Mandatory New York State Amendatory Endorsement To Financial Guaranty Insurance Company Insurance Policy

Policy Number:

Control Number:

Notwithstanding the terms and conditions in this Policy, it is further understood that the term "Due for Payment" shall not include, when referring to either the principal of a Bond or the interest on a Bond, any acceleration of payment unless such acceleration is at the sole option of Financial Guaranty.

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 officers and agents to become effective and binding upon Financial Guaranty by virtue of the countersignature of its duly authorized representative.

President

Managing Director

Effective Date:

Authorized Representative

Acknowledged as of the Effective Date written above:

Authorized Officer
Citibank, N.A., as Fiscal Officer

SM Service mark used by Financial Guaranty Insurance Company under license from its parent company, FGIC Corporation.

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

A GE Capital Company



**Mandatory New York State
Amendatory Endorsement
To Financial Guaranty Insurance Company
Insurance Policy**

Policy Number:

Control Number:

The insurance provided by this Policy is not covered by the New York Property/Casualty Insurance Security Fund, New York Insurance Code, Article 76.

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 officers in facsimile to become effective and binding upon Financial Guaranty by virtue of the countersignature of its duly authorized representative.

President

Managing Director

Effective Date:

Authorized Representative

Acknowledged as of the Effective Date written above:

Authorized Officer
Citibank, N.A., as Fiscal Officer

SM: Service mark used by Financial Guaranty Insurance Company under license from its parent company, FGIC Corporation.

FINANCIAL GUARANTY INSURANCE POLICY

Municipal Bond Investors Assurance Corporation
Armonk, New York 10504

Policy No. XXXXXX

Municipal Bond Investors Assurance Corporation (the "Insurer"), in consideration of the payment of the premium and subject to the terms of this policy, hereby unconditionally and irrevocably guarantees to any owner, as hereinafter defined, of the following described obligations, the full and complete payment required to be made by or on behalf of the Issuer to [INSERT NAME OF PAYING AGENT] or its successor (the "Paying Agent") of an amount equal to (i) the principal of (either at the stated maturity or by any advancement of maturity pursuant to a mandatory sinking fund payment) and interest on, the Obligations (as that term is defined below) as such payments shall become due but shall not be so paid (except that in the event of any acceleration of the due date of such principal by reason of mandatory or optional redemption or acceleration resulting from default or otherwise, other than any advancement of maturity pursuant to a mandatory sinking fund payment, the payments guaranteed hereby shall be made in such amounts and at such times as such payments of principal would have been due had there not been any such acceleration); and (ii) the reimbursement of any such payment which is subsequently recovered from any owner pursuant to a final judgment by a court of competent jurisdiction that such payment constitutes an avoidable preference to such owner within the meaning of any applicable bankruptcy law. The amounts referred to in clauses (i) and (ii) of the preceding sentence shall be referred to herein collectively as the "Insured Amounts." "Obligations" shall mean:

[PAR AMOUNT]
[LEGAL TITLE OF OBLIGATIONS]

Upon receipt of telephonic or telegraphic notice, such notice subsequently confirmed in writing by registered or certified mail, or upon receipt of written notice by registered or certified mail, by the Insurer from the Paying Agent or any owner of an Obligation the payment of an Insured Amount for which is then due, that such required payment has not been made, the Insurer on the due date of such payment or within one business day after receipt of notice of such nonpayment, whichever is later, will make a deposit of funds, in an account with Citibank, N.A., in New York, New York, or its successor, sufficient for the payment of any such Insured Amounts which are then due. Upon presentment and surrender of such Obligations or presentment of such other proof of ownership of the Obligations, together with any appropriate instruments of assignment to evidence the assignment of the Insured Amounts due on the Obligations as are paid by the Insurer, and appropriate instruments to effect the appointment of the Insurer as agent for such owners of the Obligations in any legal proceeding related to payment of Insured Amounts on the Obligations, such instruments being in a form satisfactory to Citibank, N.A., Citibank, N.A. shall disburse to such owners, or the Paying Agent payment of the Insured Amounts due on such Obligations, less any amount held by the Paying Agent for the payment of such Insured Amounts and legally available therefor. This policy does not insure against loss of any prepayment premium which may at any time be payable with respect to any Obligation.

As used herein, the term "owner" shall mean the registered owner of any Obligation as indicated in the books maintained by the Paying Agent, the Insurer, or any designee of the Issuer for such purpose. The term owner shall not include the Issuer or any party whose agreement with the Issuer constitutes the underlying security for the Obligations.


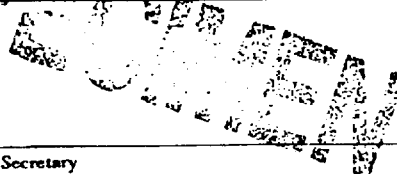
Any service of process on the Insurer may be made to the Insurer at its offices located at 113 King Street, Armonk, New York 10504 and such service of process shall be valid and binding.

This policy is non-cancellable for any reason. The premium on this policy is not refundable for any reason including the payment prior to maturity of the Obligations.

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, the Insurer has caused this policy to be executed in facsimile on its behalf by its duly authorized officers, this [DAY] day of [MONTH, YEAR].

MUNICIPAL BOND INVESTORS
ASSURANCE CORPORATION


President

Assistant Secretary

Attest:

STD-R/NY-4



Municipal Bond Insurance Policy

AMBAC Indemnity Corporation
c/o CT Corporation Systems
44 East Mifflin St., Madison, Wisconsin 53703
Administrative Office:
One State Street Plaza, New York, NY 10004
Telephone: (212) 668-0340

Issuer:

Policy Number:

Bonds:

Premium:

AMBAC Indemnity Corporation (AMBAC) A Wisconsin Stock Insurance Company

in consideration of the payment of the premium and subject to the terms of this Policy, hereby agrees to pay to the United States Trust Company of New York, as trustee, or its successor (the "Insurance Trustee"), for the benefit of Bondholders, that portion of the principal of and interest on the above-described debt obligations (the "Bonds") which shall become Due for Payment but shall be unpaid by reason of Nonpayment by the Issuer.

AMBAC will make such payments to the Insurance Trustee within one (1) business day following notification to AMBAC of Nonpayment. Upon a Bondholder's presentation and surrender to the Insurance Trustee of such unpaid Bonds or coupon coupons, uncanceled and in bearer form and free of any adverse claim, the Insurance Trustee will disburse to the Bondholder the face amount of principal and interest which is then Due for Payment but is unpaid. Upon such disbursement AMBAC shall become the owner of the surrendered Bonds and coupons and shall be fully subrogated to all of the Bondholders' rights to payment.

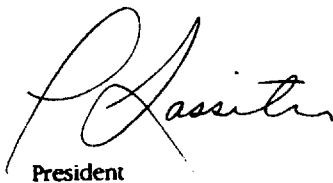
In cases where the Bonds are issuable only in a form whereby principal is payable to registered Bondholders or their assigns, the Insurance Trustee shall disburse principal to a Bondholder as aforesaid only upon presentation and surrender to the Insurance Trustee of the unpaid Bond, uncanceled and free of any adverse claim, together with an instrument of assignment, in form satisfactory to the Insurance Trustee, duly executed by the Bondholder or such Bondholder's duly authorized representative, so as to permit ownership of such Bond to be registered in the name of AMBAC or its nominee. In cases where the Bonds are issuable only in a form whereby interest is payable to registered Bondholders or their assigns, the Insurance Trustee shall disburse interest to a Bondholder as aforesaid only upon presentation to the Insurance Trustee of proof that the claimant is the person entitled to the payment of interest on the Bond and delivery to the Insurance Trustee of an instrument of assignment, in form satisfactory to the Insurance Trustee, duly executed by the claimant Bondholder or such Bondholder's duly authorized representative, transferring to AMBAC all rights under such Bond to receive the interest in respect of which the insurance disbursement was made. AMBAC shall be subrogated to all the Bondholders' rights to payment on registered Bonds to the extent of the insurance disbursements so made.

In the event the trustee or paying agent for the Bonds has notice that any payment of principal of or interest on a Bond which has become Due for Payment and which is made to a Bondholder by or on behalf of the Issuer of the Bonds has been deemed a preferential transfer and therefore recovered from its registered owner pursuant to the United States Bankruptcy Code in accordance with a final, nonappealable order of a court of competent jurisdiction, such registered owner will be entitled to payment from AMBAC to the extent of such recovery if sufficient funds are not otherwise available.

As used herein, the term "Bondholder" means any person other than the Issuer who, at the time of Nonpayment, is the owner of a Bond or of a coupon appertaining to a Bond. As used herein, "Due for Payment", when referring to the principal of Bonds, is when the stated maturity date or a mandatory redemption date for the application of a required sinking fund installment has been reached and does not refer to any earlier date on which payment is due by reason of call for redemption (other than by application of required sinking fund installments), acceleration or other advancement of maturity; and, when referring to interest on the Bonds, is when the stated date for payment of interest has been reached. As used herein, "Nonpayment" means the failure of the Issuer to have provided sufficient funds to the paying agent for payment in full of all principal of and interest on the Bonds which are Due for Payment.

This Policy is noncancelable. The premium on this Policy is not refundable for any reason, including payment of the Bonds prior to maturity. This Policy does not insure against loss of any prepayment or other acceleration payment which at any time may become due in respect of any Bond, other than at the sole option of AMBAC, nor against any risk other than Nonpayment.

In witness whereof, AMBAC has caused this Policy to be affixed with a facsimile of its corporate seal and to be signed by its duly authorized officers in facsimile to become effective as its original seal and signatures and binding upon AMBAC by virtue of the counter-signature of its duly authorized representative.


President




Secretary

Effective Date:

UNITED STATES TRUST COMPANY OF NEW YORK acknowledges that it has agreed to perform the duties of Insurance Trustee under this Policy.

Authorized Representative


Authorized Officer

Endorsement

Policy issued to:

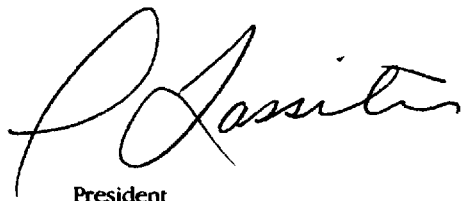

Attached to and forming part of

Effective Date of Endorsement:

The insurance provided by this Policy is not covered by the property/casualty insurance security fund specified by the insurance laws of the State of New York.

Nothing herein contained shall be held to vary, alter, waive or extend any of the terms, conditions, provisions, agreements or limitations of the above mentioned Policy other than as above stated.

In Witness Whereof, the Company has caused its Corporate Seal to be hereto affixed and these presents to be signed by its duly authorized officers in facsimile to become effective as its original seal and signatures and binding on the Company by virtue of countersignature by its duly authorized agent.

AMBAC Indemnity Corporation
President
Secretary

Authorized Representative

THE LIQUIDITY PROVIDER

The information contained in this Appendix relates to and has been obtained from the Liquidity Provider. The Authority makes no representation as to the accuracy or adequacy of such information. The delivery of the Official Statement shall not create any implication that there has been no change in the affairs of the Liquidity Provider since the date hereof, or that the information contained or referred to in this Appendix is correct as of any time subsequent to the date of such information. For information concerning the Liquidity Facility between the Authority and the Liquidity Provider, see "SECTION II: THE BONDS—Series C Bonds—*Liquidity Facility*".

FGIC Securities Purchase, Inc.

FGIC-SPI is the initial Liquidity Provider, and was incorporated in 1990 in the State of Delaware. All outstanding capital stock of FGIC-SPI is owned by FGIC Holdings, Inc., a Delaware corporation, a wholly-owned subsidiary of General Electric Capital Corporation, a New York Corporation ("GE Capital").

The business of FGIC-SPI consists of providing liquidity for certain floating rate municipal securities through a "liquidity facility". Said floating rate municipal securities are typically remarketed by registered broker-dealers at par on a periodic basis to establish the applicable interest rate for the next interest period and to provide a secondary market liquidity mechanism for security holders desiring to sell their securities. Pursuant to a standby bond purchase agreement with the issuer of the securities, FGIC-SPI will be obligated to purchase unremarketed securities from the holders thereof who voluntarily or mandatorily tender their securities for purchase. In order to obtain funds to purchase the securities, FGIC-SPI will enter into one or more standby loan agreements with GE Capital under which GE Capital is irrevocably obligated to lend funds as needed to FGIC-SPI to purchase securities as required. FGIC-SPI's principal executive offices are located at 115 Broadway, New York, New York 10006, Telephone No. (212) 312-3000.

FGIC-SPI is subject to the informational requirements of the Securities Exchange Act of 1934 (the "1934 Act") and in accordance therewith files reports and other information with the Securities and Exchange Commission (the "Commission"). Such reports and other information can be inspected and copied at Room 1024 at the Office of the Commission, 450 Fifth Street N.W., Washington, D.C. 20549, as well as at the Regional Offices of the Commission at 500 W. Madison, 14th Floor, Chicago, Illinois 60611-2511, and 7 World Trade Center, New York, New York 10048 and copies can be obtained by mail from the Public Reference Section of the Commission at 450 Fifth Street, N.W. Washington, D.C. 20549 at prescribed rates. FGIC-SPI does not intend to deliver to holders of the Series C Bonds an annual report or other report containing financial information.

A Prospectus Supplement is required to be delivered with respect to the offering of the obligation of FGIC-SPI under the Liquidity Facility issued by FGIC-SPI in support of the Series C Bonds. A Registration Statement with respect thereto has been filed under the Securities Act of 1933, as amended.

The Standby Loan Agreement; GE Capital. In order to obtain funds to fulfill its obligations under the Liquidity Facility, FGIC-SPI has entered into a Standby Loan Agreement with GE Capital under which GE Capital is irrevocably obligated to lend funds to FGIC-SPI as needed to purchase Series C Bonds. Each loan under the Standby Loan Agreement will be in an amount not exceeding the purchase price for tendered Series C Bonds which represents the outstanding principal amount of such tendered Series C Bonds together with accrued interest thereon to but excluding the date a borrowing is made and will mature on the date which is five years from the effective date of the Standby Loan Agreement. The proceeds of each loan shall be used only for the purpose of paying the purchase price for tendered Series C Bonds. When FGIC-SPI desires to make a borrowing under the Standby Loan Agreement, it must give GE Capital prior written notice of such borrowing by at least 1:00 p.m., New York City time, on the proposed borrowing date. No later than 4:00 p.m.,

New York City time, on each borrowing date (if the related notice of borrowing has been received by 1:00 p.m. on such date), GE Capital will make available the amount of the borrowing requested.

The Standby Loan Agreement expressly provides that it is not a guarantee by GE Capital of the Series C Bonds or of FGIC-SPI's obligations under the Standby Bond Purchase Agreement. GE Capital will not have any responsibility for, or incur any liability in respect of, any act, or any failure to act, by FGIC-SPI which results in the failure of FGIC-SPI to effect the purchase for the account of FGIC-SPI of tendered Series C Bonds with the funds provided pursuant to the Standby Loan Agreement.

GE Capital is subject to the informational requirements of the 1934 Act and in accordance therewith files reports and other information with the Commission. Such reports and other information can be inspected and copied at Room 1024 at the Office of the Commission, 450 Fifth Street N.W., Washington, D.C. 20549, as well as at the Regional Offices of the Commission at 500 W. Madison, 14th Floor, Chicago, Illinois 60661-2511, and 7 World Trade Center, New York, New York 10048 and copies can be obtained by mail from the Public Reference Section of the Commission at 450 Fifth Street, N.W., Washington D.C. 20549 at prescribed rates. Reports and other information concerning GE Capital can also be inspected at the offices of the New York Stock Exchange, 20 Broad Street, New York, New York 10005 on which certain of GE Capital's securities are listed.

The following table sets forth the consolidated ratio of earnings to fixed charges of GE Capital for the periods indicated:

| Fiscal Year Ended December 31 | | | | | Six Months Ended June 26, 1993 |
|--------------------------------------|--------------------|--------------------|--------------------|--------------------|---|
| <u>1988</u> | <u>1989</u> | <u>1990</u> | <u>1991</u> | <u>1992</u> | |
| 1.30 | 1.30 | 1.31 | 1.34 | 1.44 | 1.59 |

For purposes of computing the consolidated ratio of earnings to fixed charges, earnings consist of net earnings adjusted for the provision for income taxes, minority interest and fixed charges. Fixed charges consist of interest on all indebtedness and one-third of annual rentals, which GE Capital believes is a reasonable approximation of the interest factor of such rentals.

**SUMMARY OF CERTAIN PROVISIONS
RELATING TO THE SERIES D BONDS AND SERIES E BONDS**

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SUMMARY OF CERTAIN PROVISIONS RELATING TO THE SERIES D BONDS AND SERIES E BONDS

The following is a summary of certain provisions of the Twenty-third Supplemental Resolution and certain provisions relating to the Series D Bonds and Series E Bonds. This summary is not intended to be a full statement of the terms of the Twenty-third Supplemental Resolution and, accordingly, is qualified by reference thereto and is subject to the full text thereof. Capitalized terms not previously defined in this Official Statement or defined in this Appendix J have the meanings set forth in the Twenty-third Supplemental Resolution. Copies of the Twenty-third Supplemental Resolution may be obtained from the Trustee.

See also "THE SERIES D BONDS AND THE SERIES E BONDS" in the Official Statement for a description of certain other provisions of the Resolution relating to the Series D Bonds and Series E Bonds, and "GLOSSARY AND SUMMARY OF CERTAIN DOCUMENTS" in Appendix D to this Official Statement for a summary of certain other provisions of the Resolution.

The Series D Bonds and Series E Bonds are being issued with maturities of June 15, 2008, 2009, 2012 and 2013. The Auction, Auction Procedures and the provisions of this Appendix shall apply and be deemed to apply separately to the Series D Bonds and Series E Bonds of each maturity and references in this Appendix to or with respect to Series D Bonds and Series E Bonds shall apply and be deemed to apply to, or with respect to, the Series D Bonds and Series E Bonds of each maturity, as the case may be.

DEFINITIONS OF CERTAIN TERMS

"Applicable Day Count Fraction" means, with respect to any Interest Period or Auction Period, the actual number of days in such Interest Period or Auction Period, as the case may be, divided by the number of days in such Interest Period or Auction Period, as the case may be, on the basis of twelve thirty day months.

"Applicable Series D Bonds Rate" means the rate or rates per annum at which interest accrues on the Series D Bonds of each maturity for any Auction Period.

"Applicable Series E Bonds Rate" means the rate or rates per annum at which interest accrues on the Series E Bonds of each maturity for any Auction Period.

"Auction" means the implementation of the Auction Procedures on an Auction Date.

"Auction Agent" means the Initial Auction Agent unless and until a Substitute Auction Agent Agreement becomes effective, after which Auction Agent means the Substitute Auction Agent.

"Auction Agent Agreement" means the Initial Auction Agent Agreement unless and until a Substitute Auction Agent Agreement is entered into, after which Auction Agent Agreement shall mean such Substitute Auction Agent Agreement.

"Auction Agent Fee" means an amount initially equal to an annualized rate of 0.03 of one percent of the aggregate principal amount of the Series D Bonds for which such fee accrues.

"Auction Date" means December 21, 1993, and thereafter the Business Day immediately preceding the first day of each Auction Period Accrual Date, other than: (i) an Auction Period Accrual Date which is immediately preceded by an Auction Record Date at the close of business on which all of the Outstanding Series D Bonds were Fixed; (ii) each Auction Period Accrual Date commencing after the ownership of the Series D Bonds is no longer maintained in book-entry form by the Securities Depository; (iii) each Auction Period Accrual Date commencing after the occurrence and during the continuance of a Payment Default; or (iv) any Auction Period Accrual Date commencing less than two Business Days after the cure or waiver of a Payment Default.

"Auction Period" means the period from and including the Closing Date to, but not including, the first Auction Period Accrual Date and, thereafter, from and including each Auction Period Accrual Date to, but not including, the next succeeding Auction Accrual Date; provided, however, that if such date is later than the

maturity date of a maturity of Series D Bonds, the last day of such Auction Period shall be the maturity date of such Series D Bonds.

"Auction Period Accrual Date" means December 22, 1993 and every 5th Wednesday thereafter (or such other day that the Market Agent shall establish as an Auction Period Accrual Date); provided that if such day is not a Business Day, the Auction Period Accrual Date shall be the next succeeding Business Day.

"Auction Procedures" are those procedures set forth in "DESCRIPTION OF AUCTION" below.

"Auction Rate" means with respect to the interest rate on the Series D Bonds, the rate of interest per annum that results from implementation of the Auction Procedures.

"Auction Record Date" means the Business Day preceding each Auction Date.

"Authorized Denomination" means with respect to the Series D Bonds and the Series E Bonds, \$50,000 or any integral multiple thereof.

"Beneficial Owner" means the person who is the beneficial owner of Series D Bonds or Series E Bonds according to the records of the Securities Depository while such Series D Bonds and Series E Bonds are in book-entry form or the Trustee while such Series D Bonds and Series E Bonds are not in book-entry form.

"Bid" has the meaning set forth herein under "DESCRIPTION OF AUCTION — Auction Procedures".

"Bond Payment Date" means December 15, 1993, and semiannually thereafter on each June 15 and December 15; provided, however, that if such date is not a Business Day, interest due on such date shall be paid on the next succeeding Business Day without accrual of any additional interest.

"Broker-Dealer" means Smith Barney Shearson Inc. or any other broker or dealer (each as defined in the Securities Exchange Act), commercial bank or other entity permitted by law to perform the functions required of a Broker-Dealer set forth in the Auction Procedures which (i) is a Participant (or an affiliate of a Participant), (ii) has been appointed as such by the Authority pursuant to the Resolution, and (iii) has entered into a Broker-Dealer Agreement that is in effect on the date of reference.

"Broker-Dealer Agreement" means each agreement between the Auction Agent and a Broker-Dealer pursuant to which the Broker-Dealer agrees to participate in Auctions as set forth in the Auction Procedures, as from time to time amended or supplemented. Each Broker-Dealer Agreement shall be substantially in the form of the Broker-Dealer Agreement, dated as of November 1, 1993, between the Initial Auction Agent and Smith Barney Shearson Inc..

"Broker-Dealer Fee" means an amount initially equal to an annualized rate of 0.25 of one percent of the aggregate principal amount of Series D Bonds for which such fee accrues.

"Business Day" means a day which is not a Saturday, Sunday or other day on which banking institutions in the state in which the principal corporate trust office of the Trustee or the principal office of the Auction Agent is located are closed or are required to close or a day on which the New York Stock Exchange is closed.

"Change of Tax Law" means, with respect to any Beneficial Owner of Series D Bonds or Series E Bonds, any amendment to, the Code or other statute enacted by the Congress of the United States or any temporary, proposed or final regulation promulgated by the United States Treasury after the date of initial delivery of the Series D Bonds and Series E Bonds, which (i) changes or would change any deduction, credit or other allowance allowable in computing liability for any federal tax with respect to, or (ii) imposes or would impose or reduces or would reduce or increases or would increase any federal tax (including, but not limited to, preference or excise taxes) upon, any interest earned by any holder of bonds the interest on which is excluded from federal gross income under Section 103 of the Code.

"Closed Period" means each period (i) commencing at 11:00 a.m., New York City time, on the Business Day immediately preceding any Auction Record Date and ending immediately prior to the opening of business on the Auction Period Accrual Date succeeding such Auction Record Date and (ii) commencing at 11:00

a.m., New York City time, on a Redemption Record Date and ending immediately prior to the opening of business on the related redemption date.

"Closing Date" means November 17, 1993.

"Day Count Basis" means, with respect to Regular Series D Bonds and the calculation of any Service Charge, actual days elapsed in a year of 360 days and otherwise, the number of days elapsed on the basis of twelve 30-day months in a year of 360 days.

"Existing Holder" means, with respect to any Auction, a person who has executed (and has not withdrawn or terminated) a Purchaser's Letter and who was listed as the Beneficial Owner of Series D Bonds (which are not Fixed) according to the records of the Auction Agent at the close of business on the Business Day immediately preceding such Auction.

"Fixed" means Regular Series D Bonds, the beneficial ownership of which has been linked with an equal aggregate principal amount of Regular Series E Bonds, and recorded as such as Newly Fixed Series D Bonds and Series E Bonds or as Regular Fixed Series D Bonds and Series E Bonds, as the case may be, under the applicable CUSIP number at the Securities Depository.

"Fixed Rate" has the meaning set forth in "THE SERIES D BONDS AND THE SERIES E BONDS — Interest — Applicable Series E Bonds Rate".

"Hold Order" has the meaning set forth herein under "DESCRIPTION OF AUCTION — Auction Procedures."

"Initial Auction Agent" means Chemical Bank, a New York corporation, its successors and assigns.

"Initial Auction Agent Agreement" means the Auction Agent Agreement, dated as of November 1, 1993, between the Trustee and the Initial Auction Agent, including any amendment thereof or supplement thereto.

"Initial Market Agent" means Smith Barney Shearson Inc., its successors and assigns.

"Interest Period" means the period commencing on and including a Bond Payment Date and ending on and excluding the next succeeding Bond Payment Date; provided, that the first Interest Period shall commence on the date of initial delivery of the Series D Bonds and Series E Bonds.

"Market Agent" means the Initial Market Agent unless and until a Substitute Market Agent Agreement is entered into, after which Market Agent shall mean the Substitute Market Agent.

"Market Agent Agreement" means the Market Agent Agreement, dated as of November 1, 1993, between the Trustee and the Initial Market Agent, until and unless a Substitute Market Agent Agreement is effective, after which Market Agent Agreement shall mean such Substitute Market Agent Agreement, in each case as from time to time amended or supplemented.

"Moody's" means Moody's Investors Service, a Delaware corporation, its successors and assigns.

"Newly Fixed Series D Bonds and Series E Bonds" means, on any date of determination, Series D Bonds and Series E Bonds which are Fixed, but which were not Fixed at the close of business on the immediately preceding Regular Record Date, and the beneficial ownership of which is recorded under the applicable CUSIP number at the Securities Depository.

"Order" has the meaning set forth herein under "DESCRIPTION OF AUCTION — Auction Procedures."

"Participant" means a person who is a participant in or member of the Securities Depository, as determined by the rules or bylaws of the Securities Depository.

"Payment Default" means (i) a default in the due and punctual payment of any installment of interest on the Series D Bonds or the Series E Bonds which default continues for two Business Days or (ii) a default in the due and punctual payment of any interest, principal or premium, if any, on the Series D Bonds or the Series E Bonds at their maturity, which default continues for two Business Days.

“Potential Holder” means any person, including any Existing Holder, who shall have executed (and shall not have withdrawn or terminated) a Purchaser’s Letter and who may be interested in acquiring Series D Bonds (or, in the case of an Existing Holder thereof, an additional principal amount of Series D Bonds).

“Purchaser’s Letter” means an executed letter substantially in the form as set forth in “PURCHASER’S LETTER” below.

“Redemption Record Date” means the record date selected by the Trustee for purpose of redemption of the Series D Bonds and Series E Bonds.

“Regular Fixed Series D Bonds and Series E Bonds” means, on any date of determination, Series D Bonds and Series E Bonds which are Fixed and which were Fixed at the close of business on the first Auction Record Date during an Interest Period and the beneficial ownership of which is recorded under the applicable CUSIP number at the Securities Depository.

“Regular Record Date” means, the Business Day next preceding each Bond Payment Date.

“Regular Series D Bonds” means, on any date of determination, Series D Bonds which are not Fixed and the beneficial ownership of which is recorded under the applicable CUSIP number at the Securities Depository.

“Regular Series E Bonds” means, on any date of determination, Series E Bonds which are not Fixed and the beneficial ownership of which is recorded under the applicable CUSIP number at the Securities Depository.

“S&P” means Standard & Poor’s Ratings Group, a division of McGraw Hill, a New York corporation, its successors and assigns.

“Securities Depository” means initially The Depository Trust Company, a New York banking corporation, its successors and assigns, or if (i) the then Securities Depository resigns from its functions as depository of the Series D Bonds and Series E Bonds or (ii) the Authority discontinues the use of the Securities Depository pursuant to the Resolution, any other securities depository which agrees to follow the procedures required to be followed by a securities depository in connection with the Series D Bonds and Series E Bonds and which is appointed by the Authority with the consent of the Auction Agent and the Market Agent, which consent shall not be unreasonably withheld.

“Securities Exchange Act” means the Securities Exchange Act of 1934, as amended.

“Separated” means Newly Fixed Series D Bonds and Series E Bonds or Regular Fixed Series D Bonds and Series E Bonds, the beneficial ownership of which has been separated into equal aggregate principal amounts of Series D Bonds and Series E Bonds, and recorded as such as Regular Series D Bonds and Regular Series E Bonds, under the applicable CUSIP numbers at the Securities Depository.

“Service Charge” means the dollar amount payable to the Auction Agent and any Broker-Dealer on a Bond Payment Date, as calculated pursuant to “THE SERIES D BONDS AND THE SERIES E BONDS — Interest — Service Charge.”

“Service Charge Rate” means, on any Auction Date, the sum of: (i) the rate at which the Broker-Dealer Fee accrues on such Auction Date and (ii) the rate at which the Auction Agent Fee accrues on such Auction Date.

“Submission Deadline” shall have the meaning set forth herein under “DESCRIPTION OF AUCTION — Auction Procedures.”

“Submitted Sell Orders” shall have the meaning set forth herein under “DESCRIPTION OF AUCTION — Auction Procedures.”

“Substitute Auction Agent” means the person with whom the Trustee enters into a Substitute Auction Agent Agreement.

“Substitute Auction Agent Agreement” means an auction agent agreement containing terms substantially similar to the terms of the Initial Auction Agent Agreement, whereby a person having the qualifications

required by the Resolution agrees with the Trustee to perform the duties of the Auction Agent set forth therein.

"Substitute Market Agent" means the person with whom the Trustee enters into a Substitute Market Agent Agreement.

"Substitute Market Agent Agreement" means a market agent agreement containing terms substantially similar to the terms of the Initial Market Agent Agreement, whereby a person having the qualifications required by the Resolution agrees with the Trustee to perform the duties of the Market Agent set forth therein.

FIXING AND SEPARATING SERIES D BONDS AND SERIES E BONDS

Fixing Series D Bonds and Series E Bonds

A Beneficial Owner of Regular Series D Bonds may cause such Series D Bonds to be combined with Regular Series E Bonds, or "Fixed", in accordance with the procedure set forth below. When Series D Bonds and Series E Bonds have been Fixed, they may be traded as a unit, until Separated as described below under "Separating Series D Bonds and Series E Bonds". Series D Bonds and Series E Bonds that are Fixed as described below are referred to as "Newly Fixed Series D Bonds and Series E Bonds" unless they are Fixed on a Bond Payment Date, in which case they will be Regular Fixed Series D Bonds and Series E Bonds as of such Bond Payment Date. On and after the next succeeding Regular Record Date, such Newly Fixed Series D Bonds and Series E Bonds shall automatically become "Regular Fixed Series D Bonds and Series E Bonds". **During the Interest Period in which the Newly Fixed Series D Bonds and Series E Bonds were Fixed, the Service Charge payable with respect to the Series D Bonds which were Fixed will continue to accrue for the remainder of such Interest Period.**

So long as ownership of the Series D Bonds and Series E Bonds is maintained in book-entry form by the Securities Depository if, on any Business Day other than during a Closed Period (as defined herein) the Auction Agent shall receive a "Request to Fix" (the form of which is provided in a Broker-Dealer Agreement) from a Broker-Dealer on behalf of a Beneficial Owner pursuant to a Broker-Dealer Agreement, which requests that specified equal principal amounts of Regular Series D Bonds be combined with Regular Series E Bonds, having the same maturity date, in the account of the Participant of such Beneficial Owner at the Securities Depository designated in such request, then the Auction Agent shall promptly deliver appropriate instructions to the Securities Depository to debit such aggregate principal amount of Regular Series D Bonds and Regular Series E Bonds, having the same maturity date, from, and credit an equal aggregate principal amount of Newly Fixed Series D Bonds and Series E Bonds, in the case of Regular Series D and Series E Bonds Fixed prior to a Bond Payment Date, or Regular Fixed Series D Bonds and Series E Bonds Fixed on a Bond Payment Date, to the account of such Participant at the Securities Depository. Any such Newly Fixed Series D Bonds and Series E Bonds or Regular Fixed Series D Bonds and Series E Bonds, as the case may be, shall have the same maturity date as the Series D Bonds and Series E Bonds relating to such Request to Fix. If the Auction Agent shall have received the completed Request to Fix by 12:00 Noon on any Business Day, then the Auction Agent shall deliver such instructions to the Securities Depository no later than the close of business on the next Business Day. When Newly Fixed Series D Bonds and Series E Bonds are redelivered, the beneficial ownership thereof will be recorded at the Securities Depository under a single CUSIP number.

The interest rate payable to a Beneficial Owner of Regular Fixed Series D Bonds and Series E Bonds will be 5.20% with respect to the June 15, 2008 maturity, 5.25% with respect to the June 15, 2009 maturity and 5.35% with respect to the June 15, 2012 and June 15, 2013 maturities for the applicable Interest Period. No Service Charge will be payable in connection with such Regular Fixed Series D Bonds and Series E Bonds for such Interest Period. So long as the Service Charge Rate is 0.28% per annum the interest rate payable to a Beneficial Owner of Newly Fixed Series D Bonds and Series E Bonds for the Interest Period during which such Series D Bonds and Series E Bonds became Fixed will be, in the case of each maturity of Newly Fixed Series D Bonds and Series E Bonds, 5.06% with respect to the June 15, 2008 maturity, 5.11% with respect to

the June 15, 2009 maturity and 5.21% with respect to the June 15, 2012 and June 15, 2013 maturities for such Interest Period, since such Beneficial Owner is obligated to pay the Service Charge accrued during the Interest Period.

Beneficial Owners of Series D Bonds which were Fixed at the close of business on the Auction Record Date immediately preceding any Auction Date may not participate in the Auction held on such Auction Date. Series D Bonds and Series E Bonds which are Fixed may only be transferred together in minimum denominations of \$100,000 (\$50,000 principal amount of Series E Bonds and \$50,000 principal amount of Series D Bonds) and integral multiples thereof. A purchaser of Newly Fixed Series D Bonds and Series E Bonds or Regular Fixed Series D Bonds and Series E Bonds in the secondary market will make payment of the purchase price thereof in accordance with the Securities Depository's normal procedures, which, on the date of this Official Statement, provide for payment in next-day funds against delivery to its Participant of such Series D Bonds and Series E Bonds. If the Series D Bonds and Series E Bonds are no longer registered in the name of the Securities Depository or its nominee, the Series D Bonds and Series E Bonds may not be Fixed. See "BOOK-ENTRY FORM ONLY" in the Official Statement for a description of the circumstances under which the Series D Bonds or the Series E Bonds may no longer be required to be registered in the name of the Securities Depository or its nominee.

Separating Series D Bonds and Series E Bonds

A Beneficial Owner of Regular Fixed Series D Bonds and Series E Bonds or Newly Fixed Series D Bonds and Series E Bonds may cause such Series D Bonds and Series E Bonds to be "Separated" in accordance with the procedures described below. When Series D Bonds and Series E Bonds have been Separated, they may be traded separately, until Fixed as described above. Series E Bonds that are Separated as discussed below are referred to as "Regular Series E Bonds". Series D Bonds that are Separated as described below are referred to as "Regular Series D Bonds".

Newly Fixed Series D Bonds and Series E Bonds or Regular Fixed Series D Bonds and Series E Bonds may only be separated on a Bond Payment Date.

So long as ownership of the Series D Bonds and Series E Bonds is maintained in book-entry form by the Securities Depository, if on any Business Day during a seven day period immediately prior to a Regular Record Date, the Auction Agent shall receive a "Request to Separate" (the form of which is provided in a Broker-Dealer Agreement) from a Broker-Dealer on behalf of a Beneficial Owner pursuant to a Broker-Dealer Agreement, which requests that a principal amount of Series D Bonds and Series E Bonds in the account of the Participant of such Beneficial Owner at the Securities Depository designated in such request that are combined be Separated, thereby allowing them to be traded separately, then the Auction Agent shall promptly deliver appropriate instructions to the Securities Depository to debit such principal amount of Regular Fixed Series D Bonds and Series E Bonds or Newly Fixed Series D Bonds and Series E Bonds, as the case may be, from, and credit an equal aggregate principal amount of Regular Series D Bonds and Regular Series E Bonds to, the account of such Participant at the Securities Depository on the following Bond Payment Date. Notwithstanding the foregoing, if a Bond Payment Date falls within a Closed Period such Separation shall be effective on the next succeeding Auction Period Accrual Date. Any such Regular Series D Bonds and Regular Series E Bonds shall have the same maturity date as the Regular Fixed Series D Bonds and Series E Bonds. If the Auction Agent shall have received the completed Request to Separate by 12:00 Noon on any Business Day, then the Auction Agent shall deliver such instructions to the Securities Depository not later than the close of business on the next Business Day. When such Series D Bonds and Series E Bonds have been Separated and redelivered, the beneficial ownership thereof will be recorded at the Securities Depository under separate CUSIP numbers.

MANDATORY TENDER OF SERIES D BONDS

Any Beneficial Owner of Series E Bonds may, at any time and from time to time, notify a Broker-Dealer that such Beneficial Owner intends to submit a Bid for a specified principal amount of Series D Bonds, having the same maturity date as such Series E Bonds, on the next succeeding Auction Date in order to cause such

Series D Bonds to be Fixed with all or a portion of such Series E Bonds, and that if such Bid is unsuccessful, in whole or in part, such Beneficial Owner requires that Series D Bonds (which are not Fixed) in an aggregate principal amount equal to the unsuccessful portion of such Bid be tendered to such Beneficial Owner for purchase on the seventh Business Day prior to the next succeeding Auction Date following the Auction in which such Bid proved unsuccessful (a "Tender Date"). Such Series D Bonds shall be tendered for purchase at a price equal to the principal amount thereof, plus accrued but unpaid interest to the Tender Date less an amount equal to the Service Charge, if any, applicable to any such Series D Bonds, multiplied by a fraction, the numerator of which is the number of days from and including the immediately preceding Bond Payment Date to but not including the Tender Date and the denominator of which is the number of days in the Interest Period in which such Tender Date occurs (the "Tender Price"). Any such purchase shall be effected by book-entry transfer of such Series D Bonds to the account of the Participant of such Beneficial Owner identified in such notice.

If any such Bid is unsuccessful, in whole or in part, such Broker-Dealer shall give the Auction Agent and the Trustee written notice stating that a Beneficial Owner of Series E Bonds is the Beneficial Owner of a specified principal amount of Series E Bonds of a specified maturity and that such Beneficial Owner wishes to purchase an equal principal amount of Series D Bonds, having the same maturity date as such Series E Bonds, on a specified Tender Date to be Fixed with such Series E Bonds. Such notice shall be given to the Trustee and the Auction Agent not later than the Business Day following the Auction in which such Bid proved unsuccessful. The Auction Agent shall, not later than the next Business Day, give written notice (a "Tender Demand") stating that a Beneficial Owner of Series E Bonds is the Beneficial Owner of a specified principal amount of Series E Bonds of a specified maturity and that such Beneficial Owner wishes to purchase an equal principal amount of Series D Bonds, having the same maturity date as such Series E Bonds, on a specified Tender Date to be Fixed with such Series E Bonds.

On the second Business Day following the day of the Securities Depository's receipt of a Tender Demand, the Securities Depository shall select, by lot in such manner as it shall determine from a position listing of the aggregate stated amounts of Regular Series D Bonds as of the close of business on the date of such Tender Demand, the Regular Series D Bonds to be tendered. Such Regular Series D Bonds shall have the same maturity date as the maturity date of the Series E Bonds held by the Beneficial Owner relating to the Tender Demand. The Securities Depository shall give the Participant for the Regular Series D Bonds so selected and the Auction Agent written notice (a "Tender Notice") thereof. Such Tender Notice shall specify the Tender Date set forth in such Tender Demand, the amount of Regular Series D Bonds to be tendered by such Participant on the Tender Date and the Tender Price thereof. Each Tender Notice shall be mailed to such Participant and the Auction Agent by first-class mail, postage prepaid, no later than the second Business Day following the Securities Depository's receipt of such Tender Demand.

The giving of a Tender Notice with respect to Regular Series D Bonds shall supersede any Order given by the Existing Holder of such Series D Bonds with respect to such Series D Bonds for the Auction occurring on such Auction Date following the Tender Date specified in the Tender Notice.

The Series D Bonds specified in the Tender Notice are subject to mandatory tender on the Tender Date specified therein against payment of the Tender Price specified therein. On such Tender Date the Beneficial Owner of Series E Bonds who caused the Tender Demand to be submitted shall forward such Tender Price to such Beneficial Owner's Broker-Dealer and such Broker-Dealer shall forward such Tender Price in immediately available funds by 2:00 p.m., New York City time to the Broker-Dealer for the tendering Series D Bonds. The Securities Depository shall deliver such Series D Bonds against payment therefor by the Broker-Dealer by book-entry transfer on the Tender Date to the account of the Broker-Dealer without any action on the part of or on behalf of the Beneficial Owners of Series D Bonds. Upon receipt of such Series D Bonds on the Tender Date, the Broker-Dealer shall deliver such Series D Bonds against payment therefor by book-entry transfer to the account of the Participant specified by the Beneficial Owner of Series E Bonds if not such Broker-Dealer. Such Beneficial Owner of Series E Bonds and the Broker-Dealer who submitted the Tender Demand shall thereupon take all actions required to have such Series E Bonds and the Regular Series D Bonds so purchased Fixed as described herein prior to the next succeeding Closed Period.

In the event that any Beneficial Owner of Series E Bonds who has submitted a Tender Demand fails to provide the Tender Price for the purchase of the principal amount of Series D Bonds specified therein on the Tender Date therefor, the purchase of such principal amount of Series D Bonds may not take place on such Tender Date, and in such event such principal amount of Series D Bonds shall be deemed to be subject to a

Submitted Sell Order for purposes of the next succeeding Auction. The foregoing provisions shall not, however, be deemed to limit the obligations of a Beneficial Owner of Series E Bonds to pay the Tender Price specified in any Tender Demand given by or on behalf of such Beneficial Owner, or to reimburse any Participant or other person on account of the payment of such Tender Price.

Each Beneficial Owner of Series D Bonds agrees that if such owner should receive any payment in connection with any tender transaction to which it is not entitled (as a result of failure of an owner of Series E Bonds to provide the Tender Price or otherwise), such owner will take such actions (including return of funds and repayment of interest to any party who provided funds to such holder which party was not obligated to provide) so that all interested parties (including any Broker-Dealer) are restored to the positions which would have resulted if the tender transaction was effected, or not effected, as the case may be, in accordance with the provisions described above.

CALCULATION OF CERTAIN RATES RELATING TO AN AUCTION

The Auction Agent shall calculate the Maximum Rate and the Minimum Rate on each Auction Date. If ownership of the Series D Bonds is no longer maintained in book-entry form by the Securities Depository, the Trustee shall calculate the Maximum Rate on the Business Day immediately preceding each Auction Period after the delivery of certificates representing the Series D Bonds pursuant to the Resolution. If a Payment Default shall have occurred, the Trustee shall calculate the Non-Payment Rate on the first day of (i) each Auction Period commencing after the occurrence and during the continuance of such Payment Default and (ii) any Auction Period commencing less than two Business Days after the cure of any Payment Default. The Auction Agent shall calculate the Applicable Factors and determine the "AA" Composite Commercial Paper Rate for each Auction Period other than the first Auction Period; provided, that if the ownership of the Series D Bonds is no longer maintained in book-entry form, or if a Payment Default has occurred, then the Trustee shall calculate the Applicable Factors and determine the "AA" Composite Commercial Paper Rate for each such Auction Period. The determination by the Trustee or the Auction Agent, as the case may be, of the Applicable Factors, the "AA" Composite Commercial Paper Rate, Maximum Rate, Minimum Rate and Non-Payment Rate shall be final and binding (in the absence of manifest error) upon all Beneficial Owners and all other parties. If calculated or determined by the Auction Agent, the Auction Agent shall promptly advise the Trustee of the Applicable Factors, "AA" Composite Commercial Paper Rate, Maximum Rate and Minimum Rate.

"Maximum Rate" means, on any date of determination, the interest rate per annum equal to the Applicable Percentage of the higher of (i) the After-Tax Equivalent Rate on such date and (ii) the Index on such date; provided, however, that such rate shall not exceed the excess of (A) 10.229% per annum in the case of the Series D Bonds maturing on June 15, 2008, 10.327% per annum in the case of the Series D Bonds maturing on June 15, 2009, 10.524% per annum in the case of the Series D Bonds maturing on June 15, 2012, and 10.524% per annum in the case of the Series D Bonds maturing on June 15, 2013 over (B) the Service Charge Rate on such date. If the ownership of the Series D Bonds is no longer maintained in book-entry form by the Securities Depository, the Maximum Rate, on any date of determination, shall equal the Applicable Percentage of the higher of (i) the After-Tax Equivalent Rate on such date and (ii) the Index on such date; provided, however, that such rate shall not exceed 10.229% per annum in the case of the Series D Bonds maturing on June 15, 2008, 10.327% per annum in the case of the Series D Bonds maturing on June 15, 2009, 10.524% per annum in the case of the Series D Bonds maturing on June 15, 2012, and 10.524% per annum in the case of the Series D Bonds maturing on June 15, 2013. In no event shall the Maximum Rate be more than the maximum rate permitted by the laws of the State of New York, as the same may be modified by United States law of general application.

"Minimum Rate" means, on any date of determination, the rate per annum equal to 85% (as such percentage may be adjusted as described below under "DESCRIPTION OF AUCTION — Adjustment in Percentages Used to Determine Maximum, Minimum and Non-Payment Rate") of the lesser of (i) the

After-Tax Equivalent Rate on such date and (ii) the Index on such date. In no event shall the Minimum Rate be more than the Maximum Rate.

“Non-Payment Rate” means, on any date of determination, the interest rate per annum equal to 265% of the Index on such date (as such percentage may be adjusted as described below under “DESCRIPTION OF AUCTION — Adjustment in Percentage Used to Determine Maximum, Minimum and Non-Payment Rates”); provided, however, that such rate shall not exceed 10.229% per annum in the case of the Series D Bonds maturing on June 15, 2008, 10.327% per annum in the case of the Series D Bonds maturing on June 15, 2009, 10.524% per annum in the case of the Fixed Series D Bonds maturing on June 15, 2012, and 10.524% per annum in the case of the Series D Bonds maturing on June 15, 2013; provided, that if an Auction was held on the Business Day immediately preceding the first day of an Auction Period during which the Series D Bonds are to be payable as to interest at the Non-Payment Rate, the Non-Payment Rate as determined above shall be reduced by an amount equal to the Service Charge Rate on such date of determination; and provided further, that in no event shall the Non-Payment Rate be more than the maximum rate permitted by the laws of the State of New York, as the same may be modified by United States law of general application.

“After-Tax Equivalent Rate” means, on any date of determination, the interest rate per annum equal to the product of (i) the “AA” Composite Commercial Paper Rate on such date and (ii) 1.00 minus the Statutory Corporate Tax Rate on such date.

“AA’ Composite Commercial Paper Rate” means, as of any date of determination, the interest equivalent of the 30-day rate on commercial paper placed on behalf of the issuers whose corporate bonds are rated “AA” by S&P, or the equivalent of such rating by S&P or another nationally recognized securities rating agency, as such 30-day rate is made available on a discount basis or otherwise by the Federal Reserve Bank of New York for the Business Day immediately preceding such date of determination. If, however, the Federal Reserve Bank of New York does not make available any such rate, then the arithmetic average of the interest equivalent of the 30-day rate on commercial paper placed on behalf of such issuers, as quoted to the Auction Agent on a discount basis or otherwise, by the Commercial Paper Dealers, as of the close of business on the Business Day immediately preceding such date of determination. If any Commercial Paper Dealer does not quote a commercial paper rate required to determine the “AA” Composite Commercial Paper Rate, the “AA” Composite Commercial Paper Rate shall be determined on the basis of the quotation or quotations furnished by the remaining Commercial Paper Dealer or Commercial Paper Dealers.

“Statutory Corporate Tax Rate” means, as of any date of determination, the highest tax rate bracket (expressed in decimals) now or hereafter applicable in each taxable year on the taxable income of every corporation as set forth in Section 11 of the Code or any successor section, without regard to any minimum additional tax provision or provisions regarding changes in rates during a taxable year, and which on the Closing Date is 35%.

“Commercial Paper Dealers” means Smith Barney Shearson Inc. and such other commercial paper dealer or dealers as may be appointed pursuant to the Resolution.

“Applicable Percentage” means, on any date of determination, the percentage determined as described below (as such percentage may be adjusted as described below under “DESCRIPTION OF AUCTION — Adjustment of Percentages Used in Determining Maximum, Minimum and Non-Payment Rates”) based on Moody’s or S&P’s credit ratings of Series D Bonds in effect at the close of business on the Business Day immediately preceding such date, as set forth below, provided that if the Series D Bonds are rated by both Moody’s and S&P, such percentages shall be based on the lower of such credit ratings.

| Credit Rating | | Applicable Percentage |
|---------------|-------------|-----------------------|
| Moody’s | S&P | |
| “Aaa” | “AAA” | 175% |
| “Aa” | “AA” | 175 |
| “A” | “A” | 175 |
| “Baa” | “BBB” | 200 |
| Below “Baa” | Below “BBB” | 265 |

In the event that the Series D Bonds are not rated by a Rating Agency, the Applicable Percentage shall be 265%. For purposes of the Applicable Percentage, S&P's rating categories of "AAA", "AA", "A" and "BBB", and Moody's rating categories of "Aaa", "Aa", "A" and "Baa", refer to and include the respective rating categories correlative thereto if either or both of such rating agencies have changed or modified their generic rating categories or if Moody's or S&P do not rate, or no longer rate, the Series D Bonds or have been replaced.

"*Index*" means, on any date of determination, the PSA Index, or if such rate is not available, the Index so determined by the Market Agent for the Series D Bonds and Series E Bonds, which shall equal the prevailing rate for bonds rated in the highest short-term rating category by Moody's and S&P in respect of issuers most closely resembling the "high grade" component issuers included in the PSA Index that are subject to tender by the holders thereof for purchase on not more than seven (7) days' notice and the interest on which is (i) variable on a weekly basis, (ii) excludable from gross income for federal income tax purposes under the Code, and (iii) not subject to an "alternate minimum tax" or similar tax under the Code, unless all tax-exempt bonds are subject to such tax.

"*PSA Index*" means on any date, a rate determined on the basis of the seven-day high-grade market index of tax-exempt variable-rate demand obligations, as produced by Municipal Market Data and published or made available by the Public Securities Association ("PSA") or any person acting in cooperation with or under the sponsorship of PSA and acceptable to the Market Agent for the Series D Bonds and Series E Bonds, and effective from such date.

DESCRIPTION OF AUCTION

Auction Participants

Existing Holders and Potential Holders. Participants in each Auction will include: (i) "Existing Holders", which shall mean any person who is listed as the Beneficial Owner of Series D Bonds (which are not Fixed) in the records of the Auction Agent (described below) at the close of business on each Auction Record Date, and who shall have executed a Purchaser's Letter and (ii) "Potential Holders", which shall mean any person, including any Existing Holder, who shall have executed (and not withdrawn or terminated) a Purchaser's Letter and who may be interested in acquiring Series D Bonds (or, in the case of an Existing Holder, an additional principal amount of Series D Bonds). Beneficial Owners of Series D Bonds which were Fixed at the close of business on the Auction Record Date immediately preceding any Auction Date are not Existing Holders for purposes of the Auction Procedures, whether or not listed as the owner thereof on the records of the Auction Agent, and, with respect to such Series D Bonds, may not participate in the Auction held on such Auction Date. Such Fixed Series D Bonds will not be included in the aggregate principal amount of Series D Bonds held by such Existing Holder for the purposes of the Auction Procedures.

By purchasing Series D Bonds which are not Fixed, whether in an Auction or otherwise, each prospective purchaser of Series D Bonds or its Broker-Dealer must agree and will be deemed to have agreed: (i) to participate in Auctions on the terms described herein; (ii) so long as the beneficial ownership of the Series D Bonds is maintained in book-entry form by the Securities Depository, to sell, transfer or otherwise dispose of Series D Bonds which are not Fixed only pursuant to a Bid (as defined below) or a Sell Order (as defined below) in an Auction, or to or through a Broker-Dealer, provided that in the case of all transfers other than those pursuant to an Auction, the Existing Holder of Series D Bonds so transferred, its Participant or its Broker-Dealer advises the Auction Agent of such transfer; (iii) to have its beneficial ownership of Series D Bonds maintained at all times in book-entry form by the Securities Depository for the account of its Participant of the Securities Depository, which in turn will maintain records of such beneficial ownership, and to authorize such Participant to disclose to the Auction Agent such information with respect to such beneficial ownership as the Auction Agent may request; (iv) that a Sell Order placed by an Existing Holder shall constitute an irrevocable offer to sell the principal amount of Series D Bonds specified in such Sell Order; (v) that a Bid placed by an Existing Holder shall constitute an irrevocable offer to sell the principal amount of Series D Bonds specified in such Bid if the rate specified in such Bid is greater than, or in some cases equal to,

the Auction Rate determined in the Auction; (vi) that a Bid placed by a Potential Holder shall constitute an irrevocable offer to purchase the principal amount of Series D Bonds specified in such Bid if the rate specified in such Bid is less than or equal to the Auction Rate determined in the Auction; and (vii) to tender its Series D Bonds for sale at 100% of the principal amount thereof, plus accrued but unpaid interest, if required as described above under “MANDATORY TENDER OF SERIES D BONDS”.

The principal amount of Series D Bonds purchased or sold may be subject to proration procedures on the Auction Date. Each purchase or sale of Series D Bonds on the Auction Date shall be made for settlement on the first Business Day immediately following such Auction Date at a price equal to 100% of the principal amount thereof plus accrued interest thereon. See “— Auction Procedures — *Settlement Procedures*” below. The Auction Agent is entitled to rely upon the terms of any Order submitted to it by a Broker-Dealer.

Auction Agent. The Auction Agent is acting as agent for the Trustee in connection with Auctions. In the absence of bad faith or negligence on its part, the Auction Agent shall not be liable for any action taken, suffered or omitted or for any error of judgment made by it in the performance of its duties under the Auction Agent Agreement, and shall not be liable for any error of judgment made in good faith unless the Auction Agent shall have been negligent in ascertaining the pertinent facts.

The Auction Agent may terminate the Auction Agent Agreement upon notice to the Trustee, the Authority and the Market Agent on a date not earlier than 90 days after such notice. Notwithstanding the foregoing, the Auction Agent may terminate the Auction Agent Agreement, if, within 30 days after notifying the Trustee, the Authority and the Market Agent that it has not received payment of any Auction Agent Fee due it in accordance with the terms of the Auction Agent Agreement, the Auction Agent does not receive such payment. The Trustee, acting at the direction of (i) the Authority or (ii) the owners of 66⅔% of the aggregate principal amount of the Series D Bonds and Series E Bonds, may remove the Auction Agent on at least 90 days’ notice. If the Auction Agent should resign or be removed or dissolved, or if the property or affairs of the Auction Agent shall be taken under the control of any state or federal court for any reason, the Trustee is obligated to use its best efforts to appoint a successor Auction Agent. Any resignation of the Auction Agent or termination of the Auction Agent Agreement, other than as described in the second sentence of this paragraph, shall not become effective until a successor Auction Agent has been appointed.

On the Bond Payment Date for each Interest Period, the Auction Agent will be entitled to receive an Auction Agent Fee for all services rendered by it under the Auction Agent Agreement and the Broker-Dealer Agreements with respect to such Auction. In addition, on the initial Bond Payment Date, the Auction Agent will be entitled to receive an Auction Agent Fee calculated for the initial Interest Period on the initial aggregate principal amount of the Series D Bonds for all services rendered by it in connection with the original issuance of the Series D Bonds.

The Auction Agent Agreement provides that the rate at which the Auction Agent Fee accrues will be such that the Auction Agent receives as compensation for all services rendered by it under the Auction Agent Agreement and the Broker-Dealer Agreements an amount comparable to that received by the Auction Agent and other institutions performing similar functions for rendering comparable services to others and which at least reflects the actual costs to the Auction Agent of rendering such services, including the amount of any fees, payable by the Auction Agent to the Market Agent. The Auction Agent and the Trustee agree to negotiate in good faith from time to time to determine the appropriate rate at which the Auction Agent Fee should accrue. If the Auction Agent and the Trustee, with the consent of the Authority, agree to a change in the rate at which the Auction Agent Fee is to accrue, the Auction Agent is required to give notice thereof to all Beneficial Owners of Series D Bonds and Series E Bonds within two Business Days of such change. See “THE SERIES D BONDS AND THE SERIES E BONDS — Interest — *Service Charge*” in the Official Statement for a description of the manner in which the Auction Agent Fee will be paid.

Broker-Dealer. Existing Holders and Potential Holders may participate in Auctions only by submitting Orders (in the manner described below) through a “Broker-Dealer”, including Smith Barney Shearson Inc. or any other broker or dealer (each as defined in the Securities Exchange Act of 1934, as amended), commercial bank or other entity permitted by law to perform the functions required of a Broker-Dealer set forth below, which (i) is a Participant, (ii) has been selected by the Authority and (iii) has entered into a Broker-Dealer

Agreement with the Auction Agent that remains effective, in which the Broker-Dealer agrees to participate in Auctions as described in the Auction Procedures, as from time to time amended or supplemented.

On each Bond Payment Date, each Broker-Dealer will be entitled to receive a Broker-Dealer Fee for its services as Broker-Dealer. For purposes of the preceding sentence, Series D Bonds will be deemed to have been placed by a Broker-Dealer in an Auction if such Series D Bonds were the subject of an Order submitted by such Broker-Dealer that is any of the following: a Submitted Bid of an Existing Holder that resulted in such Existing Holder continuing to hold such Series D Bonds as a result of the Auction, a Submitted Bid of a Potential Holder that resulted in such Potential Holder purchasing such Series D Bonds as a result of the Auction or a valid Hold Order. In addition, if an Auction is for any reason not held on an Auction Date, Series D Bonds will be deemed to have been placed by a Broker-Dealer in such Auction if such Series D Bonds were acquired by an Existing Holder through such Broker-Dealer. Each Broker-Dealer will also be entitled to receive a service charge on the initial Bond Payment Date calculated for the initial Interest Period on the aggregate principal amount of the Series D Bonds initially sold by such Broker-Dealer or an affiliate thereof as an underwriter in the initial offering of the Series D Bonds.

The Auction Agent Agreement provides that the rate at which the Broker-Dealer Fee accrues will be the prevailing rate received by broker-dealers for rendering comparable services to others. The Auction Agent has agreed to advise the Trustee, at the Trustee's request, at least annually of the then-current prevailing rate received by broker-dealers for rendering comparable services to others. The Trustee will adjust the rate at which the Broker-Dealer Fee accrues, if necessary, to equal such prevailing rate. If the Trustee, with the consent of the Authority, determines to change the rate at which the Broker-Dealer Fee accrues, the Auction Agent is required to give notice thereof to the Existing Holders of Series D Bonds and Series E Bonds within two Business Days of such change. See "THE SERIES D BONDS AND THE SERIES E BONDS — Interest — *Service Charge*" in the Official Statement for a description of the manner in which the Broker-Dealer Fee will be paid.

Market Agent. The "Market Agent", initially Smith Barney Shearson Inc., is responsible under the terms of a Market Agent Agreement with the Trustee for determination of the Index and for determination of any changes to be made in the percentages used in determining the Maximum Rate, the Minimum Rate and the Non-Payment Rate. See "— Adjustment in Percentages Used to Determine Maximum, Minimum and Non-Payment Rates" below.

Auction Procedures

Auctions to establish the Auction Rate will be held on each Auction Date (except as described in the Official Statement under "THE SERIES D BONDS AND THE SERIES E BONDS — Interest — *Applicable Series D Bonds Rate*") by application of the Auction Procedures described herein. As described in more detail above under "CALCULATION OF CERTAIN RATES RELATING TO AN AUCTION", the Auction Agent shall calculate the "AA" Composite Commercial Paper Rate, the Maximum Rate and the Minimum Rate on each Auction Date.

Any calculation by the Auction Agent (or the Trustee, if applicable) of the Applicable Series D Bonds Rate, the Service Charge Rate, the Applicable Series E Bonds Rate, the Fixed Rate, the "AA" Composite Commercial Paper Rate, the Maximum Rate, the Minimum Rate and the Non-Payment Rate shall be binding, in the absence of manifest error, on all Existing Holders and all other parties.

Submission of Orders. Prior to 1:00 p.m., New York City time on any Auction Date, or such other time on any Auction Date by which Broker-Dealers are required to submit Orders to the Auction Agent as specified by the Auction Agent from time to time (the "Submission Deadline"):

- (a) each Existing Holder of Series D Bonds may submit to a Broker-Dealer by telephone or otherwise an order, consisting of information as to: (i) the principal amount of Outstanding Series D Bonds, if any, held by such Existing Holder which such Existing Holder desires to continue to hold without regard to the Auction Rate for the next succeeding Auction Period (a "Hold Order"); (ii) the principal amount of Outstanding Series D Bonds, if any, which such Existing Holder offers to sell if the

Auction Rate for the next succeeding Auction Period shall be less than the rate per annum specified by such Existing Holder (a “Bid”); and/or (iii) the principal amount of Outstanding Series D Bonds, if any, held by such Existing Holder which such Existing Holder offers to sell without regard to the Auction Rate for the next succeeding Auction Period (a “Sell Order”); and

(b) one or more Broker-Dealers may contact Potential Holders to determine the principal amount of Series D Bonds which each such Potential Holder offers to purchase if the Auction Rate for the next succeeding Auction Period shall not be less than the rate per annum specified by such Potential Holder (also a “Bid”).

Each Hold Order, Bid and Sell Order shall be an “Order”. Each Existing Holder and each Potential Holder placing an Order is referred to as a “Bidder”.

Subject to the provisions described below under “— *Validity of Orders*”, a Bid by an Existing Holder shall constitute an irrevocable offer to sell, in each case for settlement in same day funds on the next Auction Period Accrual Date therefor at a price equal to 100% of the principal amount thereof: (i) the principal amount of Outstanding Series D Bonds specified in such Bid if the Auction Rate shall be less than the rate specified in such Bid, (ii) such principal amount or a lesser principal amount of Outstanding Series D Bonds to be determined as described below in “— *Acceptance and Rejection of Orders*”, if the Auction Rate shall be equal to the rate specified in such Bid or (iii) such amount or a lesser principal amount of Outstanding Series D Bonds to be determined as described below in “— *Acceptance and Rejection of Orders*”, if the rate specified therein shall be higher than the Maximum Rate and Sufficient Clearing Bids (as defined below) have not been made.

Subject to the provisions described below under “— *Validity of Orders*”, a Sell Order by an Existing Holder shall constitute an irrevocable offer to sell, in each case for settlement in same day funds on the next Auction Period Accrual Date therefor at a price equal to 100% of the principal amount thereof: (i) the principal amount of Outstanding Series D Bonds specified in such Sell Order or (ii) such principal amount or a lesser principal amount of Outstanding Series D Bonds as described below in “— *Acceptance and Rejection of Orders*”, if Sufficient Clearing Bids have not been made.

Subject to the provisions described below under “— *Validity of Orders*”, a Bid by a Potential Holder shall constitute an irrevocable offer to purchase, in each case for settlement in same day funds on the next Auction Period Accrual Date therefor at a price equal to 100% of the principal amount thereof: (i) the principal amount of Outstanding Series D Bonds specified in such Bid if the Auction Rate shall be higher than the rate specified in such Bid or (ii) such principal amount or a lesser principal amount of Outstanding Series D Bonds as described below in “— *Acceptance and Rejection of Orders*”, if the Auction Rate is equal to the rate specified in such Bid.

If any rate specified in any Bid contains more than three figures to the right of the decimal point, the Auction Agent shall round such rate up to the next highest one-thousandth (.001) of one percent.

If an Order or Orders covering all Outstanding Series D Bonds held by any Existing Holder is not submitted to the Auction Agent prior to the Submission Deadline, the Auction Agent shall deem a Hold Order to have been submitted on behalf of such Existing Holder covering the principal amount of Outstanding Series D Bonds held by such Existing Holder and not subject to an Order submitted to the Auction Agent.

Neither the Authority, the Trustee nor the Auction Agent shall be responsible for any failure of a Broker-Dealer to submit an Order to the Auction Agent on behalf of any Existing Holder or Potential Holder, nor shall any such party be responsible for failure by the Securities Depository, to effect any transfer or to provide the Auction Agent with current information regarding registration of transfers.

An Existing Holder may submit different types of Orders in an Auction with respect to Series D Bonds then held by such Existing Holder. An Existing Holder that offers to purchase additional Series D Bonds is, for purposes of such offer, treated as a Potential Holder. For information concerning the priority given to different types of Orders placed by Existing Holders, see “— *Validity of Orders*” below.

Any Bid specifying a rate higher than the Maximum Rate will (i) be treated as a Sell Order if submitted by an Existing Holder and (ii) not be accepted if submitted by a Potential Holder. Any Bid specifying a rate lower than the Minimum Rate will be treated as a Bid specifying the Minimum Rate. See “— *Determination of Sufficient Clearing Bids and Winning Bid Rate*” and “— *Acceptance and Rejection of Orders*” below.

Validity of Orders. If any Existing Holder submits through a Broker-Dealer to the Auction Agent one or more Orders covering in the aggregate more than the principal amount of Outstanding Series D Bonds held by such Existing Holder, such Orders shall be considered valid as follows and in the order of priority described below.

Hold Orders. All Hold Orders shall be considered, but only up to and including in the aggregate the principal amount of Series D Bonds held by such Existing Holder, and if the aggregate principal amount of Series D Bonds subject to such Hold Orders exceeds the aggregate principal amount of Series D Bonds held by such Existing Holder, the aggregate principal amount of Series D Bonds subject to each such Hold Order shall be reduced pro rata so that the aggregate principal amount of Series D Bonds subject to such Hold Order equals the aggregate principal amount of Outstanding Series D Bonds held by such Existing Holder.

Bids. Any Bid shall be considered valid up to and including the excess of the principal amount of Outstanding Series D Bonds held by such Existing Holder over the aggregate principal amount of Series D Bonds subject to any Hold Orders referred to above. Subject to the preceding sentence, if more than one Bid with the same rate is submitted on behalf of such Existing Holder and the aggregate principal amount of Outstanding Series D Bonds subject to such Bids is greater than such excess, such Bids shall be considered valid up to and including the amount of such excess. Subject to the preceding sentences, if more than one Bid with different rates are submitted on behalf of such Existing Holder, such Bids shall be considered valid first in the ascending order of their respective rates until the highest rate is reached at which such excess exists and then at such rate up to and including the amount of such excess. In any event, the aggregate principal amount of Outstanding Series D Bonds, if any, subject to Bids not valid under the provisions described above shall be treated as the subject of a Bid by a Potential Holder at the rate therein specified.

Sell Orders. All Sell Orders shall be considered valid up to and including the excess of the principal amount of Outstanding Series D Bonds held by such Existing Holder over the aggregate principal amount of Series D Bonds subject to Hold Orders and valid Bids referred to above.

If more than one Bid for Series D Bonds is submitted on behalf of any Potential Holder, each Bid submitted shall be a separate Bid with the rate and principal amount therein specified. Any Bid or Sell Order submitted by an Existing Holder covering an aggregate principal amount of Series D Bonds not equal to an Authorized Denomination shall be rejected and shall be deemed a Hold Order. Any Bid submitted by a Potential Holder covering an aggregate principal amount of Series D Bonds not equal to an Authorized Denomination shall be rejected.

Any Bid specifying a rate higher than the Maximum Rate will be treated as a Sell Order if submitted by an Existing Holder and will not be accepted if submitted by a Potential Holder. Any Bid submitted by an Existing Holder or on behalf of a Potential Holder specifying a rate lower than the Minimum Rate shall be treated as a Bid specifying the Minimum Rate, and each such Bid shall be considered as valid and shall be selected in the ascending order of their respective rates contained in the Submitted Bids.

Any Order submitted in an Auction by a Broker-Dealer to the Auction Agent prior to the Submission Deadline on any Auction Date shall be irrevocable.

A Hold Order, a Bid or a Sell Order that has been determined valid pursuant to the procedures described above is referred to as a “Submitted Hold Order”, a “Submitted Bid” and a “Submitted Sell Order”, respectively (collectively, “Submitted Orders”).

Determination of Sufficient Clearing Bids and Winning Bid Rate. Not earlier than the Submission Deadline on each Auction Date, the Auction Agent shall assemble all Submitted Orders and shall determine:

(a) the excess of the total principal amount of Outstanding Series D Bonds over the sum of the aggregate principal amount of Outstanding Series D Bonds subject to Submitted Hold Orders (such excess being hereinafter referred to as the “Available Series D Bonds”); and

(b) from such Submitted Orders whether (i) the aggregate principal amount of Outstanding Series D Bonds subject to Submitted Bids by Potential Holders specifying one or more rates equal to or lower than the Maximum Rate exceeds or is equal to the sum of (ii) the aggregate principal amount of Outstanding Series D Bonds subject to Submitted Bids by Existing Holders specifying one or more rates higher than the Maximum Rate and (iii) the aggregate principal amount of Outstanding Series D Bonds subject to Submitted Sell Orders (in the event such excess or such equality exists, other than because all of the Outstanding Series D Bonds are subject to Submitted Hold Orders, such Submitted Bids in (i) above shall be hereinafter referred to collectively as “Sufficient Clearing Bids”); and

(c) if Sufficient Clearing Bids exist, the lowest rate specified in such Submitted Bids (which shall be the “Winning Bid Rate”), such that if:

(i) each such Submitted Bid from Existing Holders specifying such lowest rate and all other Submitted Bids from Existing Holders specifying lower rates were rejected (thus entitling such Existing Holders to continue to hold the principal amount of Series D Bonds subject to such Submitted Bids); and

(ii) each such Submitted Bid from Potential Holders specifying such lowest rate and all other Submitted Bids from Potential Holders specifying such lower rates, were accepted,

the result would be that such Existing Holders described in subparagraph (i) above would continue to hold an aggregate principal amount of Outstanding Series D Bonds which, when added to the aggregate principal amount of Outstanding Series D Bonds to be purchased by such Potential Holders described in subparagraph (ii) above, would equal not less than the Available Series D Bonds.

Notice of Auction Rate. Promptly after the Auction Agent has made the determinations described above, the Auction Agent shall advise the Authority and the Trustee of the Maximum Rate and the Minimum Rate and the components thereof on the Auction Date and based on such determinations, the Auction Rate for the next succeeding Auction Period as follows:

(a) if Sufficient Clearing Bids exist, that the Auction Rate for the next succeeding Auction Period shall be equal to the Winning Bid Rate so determined;

(b) if Sufficient Clearing Bids do not exist (other than because all of the outstanding Series D Bonds are subject to Submitted Hold Orders), that the Auction Rate for the next succeeding Auction Period shall be equal to the Maximum Rate; or

(c) if all Outstanding Series D Bonds are subject to Submitted Hold Orders, that the Auction Rate for the next succeeding Auction Period shall be equal to the Minimum Rate.

Acceptance and Rejection of Orders. Existing Holders shall continue to hold the principal amount of Series D Bonds that are subject to Submitted Hold Orders. Submitted Bids and Submitted Sell Orders shall be accepted or rejected and the Auction Agent shall take such other action as set forth below:

Sufficient Clearing Bids. If Sufficient Clearing Bids have been made, all Submitted Sell Orders shall be accepted and, subject to the denomination requirements described below, Submitted Bids shall be accepted or rejected as follows in the following order of priority and all other Submitted Bids shall be rejected:

(a) Existing Holders’ Submitted Bids specifying any rate that is higher than the Winning Bid Rate shall be accepted, thus requiring each such Existing Holder to sell the aggregate principal amount of Series D Bonds subject to such Submitted Bids;

(b) Existing Holders' Submitted Bids specifying any rate that is lower than the Winning Bid Rate shall be rejected, thus entitling each such Existing Holder to continue to hold the aggregate principal amount of Series D Bonds subject to such Submitted Bids;

(c) Potential Holders' Submitted Bids specifying any rate that is lower than the Winning Bid Rate shall be accepted;

(d) each Existing Holder's Submitted Bid specifying a rate that is equal to the Winning Bid Rate shall be rejected, thus entitling such Existing Holder to continue to hold the aggregate principal amount of Series D Bonds subject to such Submitted Bid, unless the aggregate principal amount of outstanding Series D Bonds subject to all such Submitted Bids shall be greater than the principal amount of Series D Bonds (the "remaining principal amount") equal to the excess of the Available Series D Bonds over the aggregate principal amount of Series D Bonds subject to Submitted Bids described in subparagraphs (b) and (c) above, in which event such Submitted Bid of such Existing Holder shall be rejected in part, and such Existing Holder shall be entitled to continue to hold the principal amount of Series D Bonds subject to such Submitted Bid, but only in an amount equal to the aggregate principal amount of Series D Bonds obtained by multiplying the remaining principal amount by a fraction, the numerator of which shall be the principal amount of outstanding Series D Bonds held by such Existing Holder subject to such Submitted Bid and the denominator of which shall be the sum of the principal amount of outstanding Series D Bonds subject to such Submitted Bids made by all such Existing Holders that specified a rate equal to the Winning Bid Rate; and

(e) each Potential Holder's Submitted Bid specifying a rate that is equal to the Winning Bid Rate shall be accepted but only in an amount equal to the principal amount of Series D Bonds obtained by multiplying the excess of the aggregate principal amount of Available Series D Bonds over the aggregate principal amount of Series D Bonds subject to Submitted Bids described in subparagraphs (b), (c) and (d) above by a fraction, the numerator of which shall be the aggregate principal amount of Outstanding Series D Bonds subject to such Submitted Bid and the denominator of which shall be the sum of the principal amounts of Outstanding Series D Bonds subject to Submitted Bids made by all such Potential Holders that specified a rate equal to the Winning Bid Rate.

Insufficient Clearing Bids. If Sufficient Clearing Bids have not been made (other than because all of the Outstanding Series D Bonds are subject to Submitted Hold Orders), subject to the denomination requirements described below, Submitted Orders shall be accepted or rejected as follows in the following order of priority and all other Submitted Bids shall be rejected:

(a) Existing Holders' Submitted Bids specifying any rate that is equal to or lower than the Maximum Rate shall be rejected, thus entitling such Existing Holders to continue to hold the aggregate principal amount of Series D Bonds subject to such Submitted Bids;

(b) Potential Holders' Submitted Bids specifying any rate that is equal to or lower than the Maximum Rate shall be accepted, and specifying any rate that is higher than the Maximum Rate shall be rejected; and

(c) each Existing Holder's Submitted Bid specifying any rate that is higher than the Maximum Rate and the Submitted Sell Order of each Existing Holder shall be accepted, thus entitling each Existing Holder that submitted any such Submitted Bid or Submitted Sell Order to sell the Series D Bonds subject to such Submitted Bid or Submitted Sell Order, but in both cases only in an amount equal to the aggregate principal amount of Series D Bonds obtained by multiplying the aggregate principal amount of Series D Bonds subject to Submitted Bids described in subparagraph (b) above by a fraction, the numerator of which shall be the aggregate principal amount of Outstanding Series D Bonds held by such Existing Holder subject to such Submitted Bid or Submitted Sell Order and the denominator of which shall be the aggregate principal amount of Outstanding Series D Bonds subject to all such Submitted Bids and Submitted Sell Orders.

All Hold Orders. If all Outstanding Series D Bonds are subject to Submitted Hold Orders, all Submitted Bids shall be rejected.

Authorized Denomination Requirement. If, as a result of the procedures described above regarding Sufficient Clearing Bids and Insufficient Clearing Bids, any Existing Holder would be entitled or required to sell, or any Potential Holder would be entitled or required to purchase, a principal amount of Series D Bonds that is not equal to an Authorized Denomination, the Auction Agent shall, in such manner as in its sole discretion it shall determine, round up or down the principal amount of Series D Bonds to be purchased or sold by any Existing Holder or Potential Holder so that the principal amount of Series D Bonds purchased or sold by each Existing Holder or Potential Holder shall be equal to an Authorized Denomination even if such allocation results in one or more of such Potential Holders not purchasing any Series D Bonds.

Based on the results of each Auction, the Auction Agent shall determine the aggregate principal amount of Series D Bonds to be purchased and the aggregate principal amount of Series D Bonds to be sold by Potential Holders and Existing Holders on whose behalf each Broker-Dealer submitted Bids or Sell Orders and, with respect to each Broker-Dealer, to the extent that such aggregate principal amount of Series D Bonds to be sold differs from such aggregate principal amount of Series D Bonds to be purchased, determine to which other Broker-Dealer or Broker-Dealers acting for one or more purchasers such Broker-Dealer shall deliver, or from which Broker-Dealers acting for one or more sellers such Broker-Dealer shall receive, as the case may be, Series D Bonds.

Settlement Procedures. The Auction Agent is required to advise each Broker-Dealer that submitted an Order in an Auction of the Auction Rate for the next Auction Period and, if such Order was a Bid or Sell Order, whether such Bid or Sell Order was accepted or rejected, in whole or in part, by telephone by approximately 3:00 p.m., New York City time, on the Auction Date. Each Broker-Dealer that submitted an Order on behalf of a Bidder is required to then advise such Bidder of the Auction Rate for the next Auction Period and, if such Order was a Bid or a Sell Order, whether such Bid or Sell Order was accepted or rejected, in whole or in part, confirm purchases and sales with each Bidder purchasing or selling Series D Bonds as a result of the Auction and advise each Bidder purchasing or selling Series D Bonds as a result of the Auction to give instructions to its Participant of the Securities Depository to pay the purchase price against delivery of such Series D Bonds or to deliver such Series D Bonds against payment therefor, as appropriate. Pursuant to the Auction Agent Agreement, the Auction Agent will record each transfer of Series D Bonds on the Existing Holders Registry (as defined therein) to be maintained by the Auction Agent.

In accordance with the Securities Depository's normal procedures, on the Business Day after the Auction Date, the transactions described above will be executed through the Securities Depository, and the accounts of the respective Participants at the Securities Depository will be debited and credited and Series D Bonds delivered as necessary to effect the purchases and sales of Series D Bonds as determined in the Auction. Purchasers are required to make payment through their Participants in same-day funds to the Securities Depository against delivery through their Participants. The Securities Depository will make payment in accordance with its normal procedures, which now provide for payment against delivery by its Participants in immediately available funds.

If any Existing Holder selling Series D Bonds in an Auction fails to deliver such Series D Bonds, the Broker-Dealer of any person that was to have purchased Series D Bonds in such Auction may deliver to such person a principal amount of Series D Bonds that is less than the principal amount of Series D Bonds that otherwise was to be purchased by such person but in any event equal to an Authorized Denomination. In such event, the principal amount of Series D Bonds to be delivered shall be determined by such Broker-Dealer. Delivery of such lesser principal amount of Series D Bonds shall constitute good delivery. For a further description of the Auction settlement procedures, see "AUCTION SETTLEMENT PROCEDURES" below.

Adjustment in Percentages Used to Determine Maximum, Minimum and Non-Payment Rates

The Market Agent shall adjust the percentage used in determining the Minimum Rate, the Applicable Percentages used in determining the Maximum Rate and the percentage of the Index used in calculating the Non-Payment Rate, if any such adjustment is necessary, in the judgment of the Market Agent, to reflect any Change of Tax Law such that Series D Bonds paying the Maximum Rate, the Minimum Rate or the Non-

Payment Rate in each case shall have substantially equal market values before and after such Change of Tax Law. In making any such adjustment, the Market Agent shall take the following factors, as in existence both before and after such Change of Tax Law, into account: (1) short-term taxable and tax-exempt market rates and indices of such short-term rates; (2) the market supply and demand for short-term tax-exempt securities; (3) yield curves for short-term and long-term tax-exempt securities or obligations having a credit rating that is comparable to the Series D Bonds and Series E Bonds; (4) general economic conditions; and (5) economic and financial factors present in the securities industry that may affect or that may be relevant to the Series D Bonds and Series E Bonds.

The Market Agent shall communicate its determination to adjust the percentage used in determining the Minimum Rate, the percentage of the Index used in determining the Non-Payment Rate, and the Applicable Percentages used in determining the Maximum Rate, by means of a written notice delivered at least 10 days prior to the Auction Date on which the Market Agent desires to effect the change to the Authority, the Trustee and the Auction Agent. Such notice shall be effective only if it is accompanied by an opinion of nationally recognized bond counsel to the effect that such adjustment is authorized by the Resolution, is permitted under the Code and will not have an adverse effect on the exclusion of interest on the Series D Bonds and Series E Bonds from gross income for federal income tax purposes.

An adjustment in the respective percentages used to determine the Minimum Rate, the Maximum Rate and the Non-Payment Rate shall take effect on an Auction Date only if:

(i) the Trustee and the Auction Agent receive, by 11:00 a.m., New York City time, on the Business Day immediately preceding such Auction Date, a certificate from the Market Agent by telecopy or similar means, in substantially the form required under the Resolution authorizing the adjustment of the percentage used in determining the Minimum Rate, the percentage of the Index used in determining the Non-Payment Rate and the Applicable Percentages used in determining the Maximum Rate which shall be specified in such authorization, and confirming that nationally recognized bond counsel expects to be able to give an opinion on or prior to such Auction Date to the effect that the adjustment in the percentage used in determining the Minimum Rate, the percentage of the Index used in determining the Non-Payment Rate and the Applicable Percentages used in determining the Maximum Rate, is authorized by the Resolution, is permitted under the Code, and will not have an adverse effect on the exclusion of interest on the Series D Bonds and Series E Bonds from gross income for federal income tax purposes; and

(ii) the Trustee and the Auction Agent receive by 9:30 a.m., New York City time, on such Auction Date, an opinion of nationally recognized bond counsel to the effect that the adjustment in the percentage used in determining the Minimum Rate, the percentage of the Index used in determining the Non-Payment Rate and the Applicable Percentages used in determining the Maximum Rate are authorized by the Resolution, are permitted under the Code and will not have an adverse effect on the exclusion of interest on the Series D Bonds and Series E Bonds from gross income for federal income tax purposes.

If any of the conditions referred to in (i) above are not met, the existing percentage used in determining the Minimum Rate, the percentage of the Index used in determining the Non-Payment Rate and the Applicable Percentages used in determining the Maximum Rate shall remain in effect and the rate of interest on Series D Bonds for the next succeeding Period shall be determined in accordance with the Auction Procedures. If any of the conditions referred to in (i) or (ii) above are not met, the existing percentage used in determining the Minimum Rate, the percentage of the Index used in determining the Non-Payment Rate and the Applicable Percentages used in determining the Maximum Rate shall remain in effect and the Auction Rate for the next succeeding Period shall equal the sum of the Maximum Rate.

AUCTION SETTLEMENT PROCEDURES

(a) Not later than 3:00 p.m., New York City time, on each Auction Date, the Auction Agent shall notify by telephone each Broker-Dealer that participated in the Auction held on such Auction Date and submitted an Order on behalf of an Existing Holder or Potential Holder of:

- (i) the Auction Rate fixed for the next Auction Period;
- (ii) whether there were Sufficient Clearing Bids in such Auction;
- (iii) if such Broker-Dealer (a "Seller's Broker-Dealer") submitted a Bid or a Sell Order on behalf of an Existing Holder, whether such Bid or Sell Order was accepted or rejected, in whole or in part, and the principal amount of Series D Bonds, if any, to be sold by such Existing Holder;
- (iv) if such Broker-Dealer (a "Buyer's Broker-Dealer") submitted a Bid on behalf of a Potential Holder, whether such Bid was accepted or rejected, in whole or in part, and the principal amount of Series D Bonds, if any, to be purchased by such Potential Holder;
- (v) if the aggregate amount of Series D Bonds to be sold by all Existing Holders on whose behalf such Broker-Dealer submitted a Bid or a Sell Order exceeds the aggregate principal amount of Series D Bonds to be purchased by all Potential Holders on whose behalf such Broker-Dealer submitted a Bid, the name or names of one or more Buyer's Broker-Dealers (and the name of the Participant, if any, of each such Buyer's Broker-Dealer) acting for one or more purchasers of such excess principal amount of Series D Bonds and the principal amount of Series D Bonds to be purchased from one or more Existing Holders on whose behalf such Broker-Dealer acted by one or more Potential Holders on whose behalf each of such Buyer's Broker-Dealers acted;
- (vi) if the principal amount of Series D Bonds to be purchased by all Potential Holders on whose behalf such Broker-Dealer submitted a Bid exceeds the amount of Series D Bonds to be sold by all Existing Holders on whose behalf such Broker-Dealer submitted a Bid or a Sell Order, the name or names of one or more Seller's Broker-Dealers (and the name of the Participant, if any, of each such Seller's Broker-Dealer) acting for one or more sellers of such excess principal amount of Series D Bonds and the principal amount of Series D Bonds to be sold to one or more Potential Holders on whose behalf such Broker-Dealer acted by one or more Existing Holders on whose behalf each of such Seller's Broker-Dealers acted; and
- (vii) the Auction Date for the next succeeding Auction.

(b) On each Auction Date, each Broker-Dealer that submitted an Order on behalf of any Existing Holder or Potential Holder shall:

- (i) advise each Existing Holder and Potential Holder on whose behalf such Broker-Dealer submitted a Bid or Sell Order in the Auction on such Auction Date whether such Bid or Sell Order was accepted or rejected, in whole or in part;
- (ii) in the case of a Broker-Dealer that is a Buyer's Broker-Dealer, advise each Potential Holder on whose behalf such Broker-Dealer submitted a Bid that was accepted, in whole or in part, to instruct such Potential Holder's Participant to pay to such Broker-Dealer (or its Participant) through the Securities Depository the amount necessary to purchase the principal amount of Series D Bonds to be purchased pursuant to such Bid against receipt of such Series D Bonds;
- (iii) in the case of a Broker-Dealer that is a Seller's Broker-Dealer, instruct each Existing Holder on whose behalf such Broker-Dealer submitted a Sell Order that was accepted, in whole or in part, or a Bid that was accepted, in whole or in part, to instruct such Existing Holder's Participant to deliver to such Broker-Dealer (or its Participant) through the Securities Depository the principal amount of Series D Bonds to be sold pursuant to such Order against payment therefor;
- (iv) advise each Existing Holder on whose behalf such Broker-Dealer submitted an Order and each Potential Holder on whose behalf such Broker-Dealer submitted a Bid of the Auction Rate for the next Auction Period;
- (v) advise each Existing Holder on whose behalf such Broker-Dealer submitted an Order of the next Auction Date; and

(vi) advise each Potential Holder on whose behalf such Broker-Dealer submitted a Bid that was accepted, in whole or in part, of the next Auction Date.

(c) On the basis of the information provided to it pursuant to paragraph (a) above, each Broker-Dealer that submitted a Bid or Sell Order in an Auction is required to allocate any funds received by it in connection with such Auction pursuant to paragraph (b) (ii) above, and any Series D Bonds received by it in connection with such Auction pursuant to paragraph (b) (iii) above among the Potential Holders, if any, on whose behalf such Broker-Dealer submitted Bids, the Existing Holders, if any on whose behalf such Broker-Dealer submitted Bids or Sell Orders in such Auction, and any Broker-Dealers identified to it by the Auction Agent following such Auction pursuant to paragraph (a) (v) or (a) (vi) above.

(d) On each Auction Date:

(i) each Potential Holder and Existing Holder with an Order in the Auction on such Auction Date shall instruct its Participant as provided in (b) (ii) or (b) (iii) above, as the case may be;

(ii) each Seller's Broker-Dealer that is not a Participant of the Securities Depository shall instruct its Participant to (A) pay through the Securities Depository to the Participant of the Existing Holder delivering Series D Bonds to such Broker-Dealer following such Auction pursuant to (b) (iii) above the amount necessary to purchase such Series D Bonds against receipt of such Series D Bonds, and (B) deliver such Series D Bonds through the Securities Depository to a Buyer's Broker-Dealer (or its Participant) identified to such Seller's Broker-Dealer pursuant to (a) (v) above against payment therefor; and

(iii) each Buyer's Broker-Dealer that is not a Participant in the Securities Depository shall instruct its Participant to (A) pay through the Securities Depository to Seller's Broker-Dealer (or its Participant) identified following such Auction pursuant to (a) (vi) above the amount necessary to purchase the Series D Bonds to be purchased pursuant to (b) (ii) above against receipt of such Series D Bonds, and (B) deliver such Series D Bonds through the Securities Depository to the Participant of the purchaser thereof against payment therefor.

(e) On the Business Day following each Auction Date:

(i) each Participant for a Bidder in the Auction on such Auction Date referred to in (d) (i) above shall instruct the Securities Depository to execute the transactions described under (b) (ii) or (b) (iii) above for such Auction, and the Securities Depository shall execute such transactions;

(ii) each Seller's Broker-Dealer or its Participant shall instruct the Securities Depository to execute the transactions described in (d) (ii) above for such Auction, and the Securities Depository shall execute such transactions; and

(iii) each Buyer's Broker-Dealer or its Participant shall instruct the Securities Depository to execute the transactions described in (d) (iii) above for such Auction, and the Securities Depository shall execute such transactions.

(f) If an Existing Holder selling Series D Bonds in an Auction fails to deliver such Series D Bonds (by authorized book-entry), a Broker-Dealer may deliver to the Potential Holder on behalf of which it submitted a Bid that was accepted a principal amount of Series D Bonds that is less than the principal amount of Series D Bonds that otherwise was to be purchased by such Potential Holder. In such event, the principal amount of Series D Bonds to be so delivered shall be determined solely by such Broker-Dealer. Delivery of such lesser principal amount of Series D Bonds shall constitute good delivery. Notwithstanding the foregoing terms of this paragraph (f), any delivery or nondelivery of Series D Bonds which shall represent any departure from the results of an Auction, as determined by the Auction Agent, shall be of no effect unless and until the Auction Agent shall have been notified of such delivery or nondelivery in accordance with the provisions of the Auction Agent Agreement and the Broker-Dealer Agreements.

PURCHASER'S LETTER

To: The Auction Agent
A Broker-Dealer
A DTC Participant
Other Persons

1. This letter is designed to apply to auctions for publicly or privately offered debt or equity securities ("Securities") of any issuer ("Authority") which are described in any final prospectus or other offering materials relating to such Securities as the same may be amended or supplemented (collectively, with respect to the particular Securities concerned, the "Prospectus"), and which involve periodic rate settings through auctions ("Auctions"). This letter shall be for the benefit of any Authority and of any trust company or auction agent (collectively, "trust company"), broker-dealer, agent member, securities depository or other interested person in connection with any Securities and related Auctions (it being understood that such persons may be required to execute specified agreements and nothing herein shall alter such requirements). The terminology used herein is intended to be general in its application and not to exclude any Securities in respect of which (in the Prospectus or otherwise) alternative terminology is used.

2. We may from time to time offer to purchase, purchase, offer to sell and/or sell Securities of any Authority as described in the Prospectus relating thereto. We agree that this letter shall apply to all such purchases, sales and offers and to Securities owned by us. We understand that the interest rate on Securities may be based from time to time on the results of Auctions as set forth in the Prospectus.

3. We agree that any bid or sell order placed by us shall constitute an irrevocable offer by us to purchase or sell the Securities subject to such bid or sell order, or such lesser amount of Securities as we shall be required to sell or purchase as a result of such Auction, at the applicable price, all as set forth in the Prospectus, and that if we fail to place a bid or sell order with respect to Securities owned by us with a broker-dealer on any auction date, or a broker-dealer to which we communicate a bid or sell order fails to submit such bid or sell order to the trust company concerned, we shall be deemed to have placed a hold order with respect to such Securities as described in the Prospectus. We authorize any broker-dealer that submits a bid or sell order as our agent in Auctions to execute contracts for the sale of Securities covered by such bid or sell order. We recognize that the payment by such broker-dealer for Securities purchased on our behalf shall not relieve us of any liability to such broker-dealer for payment for such Securities.

4. We agree that, during the applicable period as described in the Prospectus, dispositions of Securities can be made only in the denominations set forth in the Prospectus and we will sell, transfer or otherwise dispose of any Securities held by us from time to time only pursuant to a bid or sell order placed in an Auction, to or through a broker-dealer or, when permitted in the Prospectus, to a person that has signed and delivered, or caused to be delivered on its behalf, to the applicable trust company a letter substantially in the form of this letter (or other applicable purchaser's letter), provided that in the case of all transfers other than pursuant to Auctions, we or our broker-dealer or our agent member shall advise such trust company of such transfer. We understand that a restrictive legend will be placed on certificates representing the Securities and stop-transfer instructions will be issued to the transfer agent and/or registrar, all as set forth in the Prospectus. We agree to comply with any other transfer restrictions or other related procedures as described in the Prospectus.

5. We agree that, during the applicable period as described in the Prospectus, ownership of Securities shall be represented by a global certificate registered in the name of the applicable securities depository or its nominee, that we will not be entitled to receive any certificate representing the Securities and that our ownership of any Securities will be maintained in book-entry form by the securities depository for the account of our agent member, which in turn will maintain records of our beneficial ownership. We authorize and instruct our agent member to disclose to the applicable trust company such information concerning our beneficial ownership of Securities as such trust company shall request.

6. We acknowledge that partial deliveries of Securities purchased in Auction may be made to us and such deliveries shall constitute good delivery as set forth in the Prospectus.

7. This letter is not a commitment by us to purchase any Securities.

8. This letter supersedes any prior-dated version of this purchaser's letter, and supplements any prior or post-dated purchaser's letter specific to particular Securities; any recipient of this letter may rely upon it until such recipient has received a signed writing amending or revoking this letter.

9. The descriptions of the Auction procedures set forth in each applicable Prospectus are incorporated by reference herein and, in case of any conflict between this letter and any such description, such description shall control.

10. Any photocopy or other reproduction of this letter shall be deemed of equal effect as a signed original.

11. Our agent member of the securities depository currently is _____.

12. Our personnel authorized to place orders with broker-dealers for the purposes set forth in the Prospectus in Auctions is/are listed below:

Telephone Number

| | |
|--|--|
| | |
| | |
| | |

13. Our taxpayer identification number is _____.

14. We agree that, during the applicable periods described in the Prospectus, if we decided to link our beneficial ownership of any Securities with our beneficial ownership of other debt or equity securities of the Authority, or if we decide to separate any such linkage, we will instruct our agent member and our broker-dealer to link such beneficial ownership or to separate such linkage in accordance with the procedures set forth in the Prospectus, and we acknowledge that such instructions must be submitted through the applicable trust company and may not be given during certain periods described in the Prospectus.

Dated:

[Name of Purchaser] _____

[Authorized Signature] _____

[Printed Name of Authorized Signature] _____

[Title] _____

[Mailing Address] _____

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MSRB

DO NOT STAPLE THIS FORM

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FORM G-36(OS) - FOR OFFICIAL STATEMENTS

1. NAME OF ISSUER(S): (1) New York City Municipal Water Finance Authority (2) _____
2. DESCRIPTION OF ISSUE(S): Water and Sewer System Revenue Bonds (1) Fixed Rate Fiscal 1994 Series B
(2) Adjustable Rate Fiscal 1994 Series C (3) Auction Rate Securities Fiscal 1994 Series D
(4) Inverse Rate Securities Fiscal 1994 Series E
3. STATE(S) NY
4. DATED DATE(S): (1) 11/17/93 (2) 12/2/93 (3) 11/17/93 (4) 11/17/93
5. DATE OF FINAL MATURITY OF OFFERING 6/15/23 6. DATE OF SALE 11/10/93
7. PAR VALUE OF OFFERING \$ 1,026,025,000
8. PAR AMOUNT UNDERWRITTEN (if there is no underwriting syndicate) \$ 1,026,025,000
9. IS THIS AN AMENDED OR STICKERED OFFICIAL STATEMENT? ☐ Yes ☒ No
10. CHECK ALL THAT APPLY:
 - a. ☐ At the option of the holder thereof, all securities in this offering may be tendered to the issuer of such securities or its designated agent for redemption or purchase at par value or more at least as frequently as every nine months until maturity, earlier redemption, or purchase by the issuer or its designated agent.
 - b. ☐ At the option of the holder thereof, all securities in this offering may be tendered to the issuer of such securities or its designated agent for redemption or purchase at par value or more at least as frequently as every two years until maturity, earlier redemption, or purchase by the issuer or its designated agent.
 - c. ☐ This offering is exempt from SEC rule 15c2-12 under section (c)(1) of that rule. Section (c)(1) of SEC rule 15c2-12 states that an offering is exempt from the requirements of the rule if the securities offered have authorized denominations of \$100,000 or more and are sold to no more than 35 persons each of whom the participating underwriter believes: (1) has the knowledge and experience necessary to evaluate the merits and risks of the investment; and (2) is not purchasing for more than an amount, with a view toward distributing the securities.
11. MANAGING UNDERWRITER Smith Barney Shearson

| 16. MATURITY DATE | CUSIP NUMBER | MATURITY DATE | CUSIP NUMBER |
|-------------------|--------------|---------------|--------------|
| Series B | | Series D | |
| 6/15/00 | 649706 ZR2 | 6/15/08 | 649706 B72 |
| 6/15/01 | ZS0 | 6/15/09 | C48 |
| 6/15/02 | ZT8 | 6/15/12 | D88 |
| 6/15/03 | ZU5 | 6/15/13 | C97 |
| 6/15/04 | ZV3 | | |
| 6/15/05 | ZW1 | Series E | |
| 6/15/06 | ZX9 | 6/15/08 | B98 |
| 6/15/07 | ZY7 | 6/15/09 | C63 |
| 6/15/08 | ZZA | 6/15/12 | E20 |
| 6/15/11 | A32 | 6/15/13 | D39 |
| 6/15/19 | A57 | | |
| 6/15/19 | D47 | | |
| 6/15/19 | D54 | | |
| | | | |
| Series C | | | |
| 6/15/23 | B49 | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

17. MSRB rule G-34 requires that CUSIP numbers be assigned to each new issue of municipal securities unless the issue is ineligible for CUSIP number assignment under the eligibility criteria of the CUSIP Service Bureau.

☐ Check here if the issue is ineligible for CUSIP number assignment.

State the reason why the issue is ineligible for CUSIP number assignment: _____

18. Submit two copies of the completed form along with two copies of the official statement to Municipal Securities Rulemaking Board, 1818 N Street, NW, Suite 800, Washington, DC 20036-2491. Incomplete submissions will be returned for correction.