

In the opinion of Bond Counsel, under existing law and assuming continued compliance with the Internal Revenue Code of 1986, as amended, interest on the Series A Bonds is not included in gross income for federal income tax purposes and is not an item of tax preference for the purpose of computing the alternative minimum tax imposed on individuals and corporations. However, interest on the Series A Bonds will be taken into account in determining adjusted current earnings for the purpose of computing the alternative minimum tax imposed upon certain corporations. In the opinion of Bond Counsel, the Series A Bonds, their transfer and the income therefrom, including any profit made on the sale thereof, are exempt from Massachusetts personal income taxes and the Series A Bonds are exempt from Massachusetts personal property tax. For federal and Massachusetts tax purposes, interest includes original issue discount. See "Tax Exemption" herein.



**\$416,455,000**  
**MASSACHUSETTS WATER RESOURCES AUTHORITY**  
**General Revenue Refunding Bonds, 2005 Series A**

**Dated: Date of Delivery**

**Due: August 1, as shown below**

The Series A Bonds will be issued as fully registered bonds and will be registered in the name of Cede & Co., as nominee for The Depository Trust Company ("DTC"), New York, New York. Purchases of the Series A Bonds will be made in book-entry form only, in the denominations of \$5,000 or any integral multiple thereof, and no physical delivery of the Series A Bonds will be made to purchasers. So long as Cede & Co. is the registered owner of the Series A Bonds, principal and semiannual interest (payable February 1 and August 1, commencing August 1, 2005) are payable to DTC by U.S. Bank National Association, as Trustee. See "The Series A Bonds - Book-Entry Only System." The Series A Bonds are subject to redemption prior to maturity as described herein.

The Series A Bonds will constitute general obligations of the Massachusetts Water Resources Authority (the "Authority"). In addition, the Series A Bonds will be secured by a lien on and pledge of certain revenues and other moneys of the Authority. Neither The Commonwealth of Massachusetts (the "Commonwealth") nor any political subdivision thereof shall be obligated to pay the principal of, premium, if any, or interest on any Series A Bond, and neither the faith and credit nor the taxing power of the Commonwealth or of any political subdivision thereof is pledged to such payment. The Authority has no taxing power.

Payment of the principal of and interest on the Series A Bonds maturing on and after August 1, 2010\* when due will be insured by a financial guaranty insurance policy to be issued simultaneously with the delivery of the Series A Bonds by



**\$362,800,000 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>
2006*	\$ 390,000	2 ¾%	2.40%	2017	\$19,785,000	5 ¼%	4.09%
2007*	2,700,000	3	2.75	2018‡	17,305,000	5 ¼	4.14
2008*	6,885,000	3	2.95	2019‡	10,920,000	5 ¼	4.18
2009*	6,360,000	3 ¼	3.125	2020‡	9,285,000	5 ¼	4.21
2009*	3,635,000	5	3.125	2021‡	30,145,000	5 ¼	4.24
2010	2,690,000	4	3.27	2022‡	43,875,000	5	4.37
2010	8,760,000	5	3.27	2023‡	44,690,000	5	4.41
2011	3,520,000	3 ½	3.43	2024‡	34,230,000	5 ¼	4.32
2012	3,655,000	4	3.58	2025‡	7,360,000	5 ¼	4.34
2013	6,270,000	5 ¼	3.73	2026‡	7,750,000	5 ¼	4.38
2014	14,925,000	5 ¼	3.83	2027‡	8,165,000	5	4.51
2015	26,450,000	5 ¼	3.93	2028‡	8,585,000	5	4.52
2016	25,440,000	5 ¼	4.01	2029‡	9,025,000	5	4.53

**\$53,655,000 5% Term Bond due August 1, 2034‡ – Yield 4.55%**

The Series A Bonds are offered when, as and if issued by the Authority and received by the Underwriters, subject to the approval of legality by Ropes & Gray LLP, Boston, Massachusetts, Bond Counsel, and certain other conditions. Certain legal matters will be passed upon for the Authority by its Disclosure Counsel, Palmer & Dodge LLP, Boston, Massachusetts, and for the Underwriters by their counsel, Mintz, Levin, Cohn, Ferris, Glowsky and Popeo, P.C., Boston, Massachusetts. Delivery of the Series A Bonds to DTC or its custodial agent is expected in New York, New York on or about April 14, 2005.

**Bear, Stearns & Co. Inc.**

**Goldman, Sachs & Co.**

**Citigroup**

**Morgan Stanley**

**UBS Financial Services**

**A.G. Edwards & Sons, Inc. First Albany Corporation M.R. Beal & Company**

**Raymond James & Associates**

March 15, 2005

† See "Ratings" herein.

\* The Series A Bonds maturing prior to August 1, 2010 are not insured.

‡ Priced to the August 1, 2017 optional redemption date.

The information set forth herein has been obtained from the Authority, The Depository Trust Company, MBIA Insurance Corporation and other sources that are deemed to be reliable but, as to information from sources other than the Authority, it is not to be construed as a representation of the Authority. The information and expressions of opinion herein are subject to change without notice, and neither the delivery of this Official Statement nor any sale of the Series A Bonds shall under any circumstances create any implication that there has been no change in the affairs of the Authority since the date hereof.

The Underwriters have provided the following sentence for inclusion in this Official Statement. The Underwriters have reviewed the information in this Official Statement in accordance with, and as part of, their responsibilities to investors under the federal securities laws as applied to the facts and circumstances of this transaction, but the Underwriters do not guarantee the accuracy or completeness of such information.

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

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

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# MASSACHUSETTS WATER RESOURCES AUTHORITY

## **Board of Directors**

Ellen Roy Herzfelder, *Chairperson*

John J. Carroll, *Vice Chairman*

Joseph A. MacRitchie, *Secretary*

Rudolph H. Banks

Kevin L. Cotter

Joseph C. Foti

Lucile P. Hicks

Vincent G. Mannering

Andrew M. Pappastergion

Antonia M. Pollak

Marie T. Turner

Frederick A. Laskey, *Executive Director*

## **Financial Advisors**

Lamont Financial Services Corporation  
P.G. Corbin & Company, Inc.

## **Consulting Engineer**

Camp Dresser & McKee Inc.

## **Bond Counsel**

Ropes & Gray LLP

## **Disclosure Counsel**

Palmer & Dodge LLP

## **Independent Auditors**

KPMG LLP

## **Bond Trustee**

U.S. Bank National Association

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**OFFICIAL STATEMENT**  
**OF THE**  
**MASSACHUSETTS WATER RESOURCES AUTHORITY**  
**RELATING TO**

**\$416,455,000**  
**GENERAL REVENUE REFUNDING BONDS, 2005 SERIES A**

**INTRODUCTION**

**Purpose.** This Official Statement provides certain information concerning the Massachusetts Water Resources Authority (the “Authority”) in connection with the sale of its \$416,455,000 aggregate principal amount of General Revenue Refunding Bonds, 2005 Series A (the “Series A Bonds”). The Series A Bonds are to be issued under and secured by the Authority’s General Revenue Bond Resolution adopted January 24, 1990, as amended and supplemented (the “General Bond Resolution”). In addition, the Series A Bonds will be issued and secured under the Authority’s Forty-Eighth Supplemental Resolution, approved by the Authority on February 9, 2005 (the “Supplemental Resolution”). The Supplemental Resolution, together with the General Bond Resolution, is referred to herein as the “General Resolution.” The Series A Bonds will constitute valid and binding general obligations of the Authority and will be further secured by a pledge of certain revenues of the Authority in accordance with the terms of the General Resolution on a parity basis with other outstanding Bonds of the Authority. See “Security for the Series A Bonds – General,” “– Outstanding Indebtedness” and “– Additional Indebtedness.” In addition, payment of the principal of and interest on the Series A Bonds maturing in the years 2010 through 2034 (the “Insured Series A Bonds”) when due will be guaranteed by a financial guaranty insurance policy to be issued by MBIA Insurance Corporation (“MBIA”). See “Bond Insurance” and Appendix E. (The Series A Bonds maturing in 2006 through 2009 will not be insured.) The proceeds of the Series A Bonds will be used to advance and currently refund certain Outstanding Bonds. See “Application of Series A Bond Proceeds and Other Moneys.”

**The Authority.** The Authority, established by the Massachusetts Water Resources Authority Act, Chapter 372 of the Acts of 1984 of The Commonwealth of Massachusetts (as amended, the “Act”), is a body politic and corporate, a public instrumentality and an independent public authority of The Commonwealth of Massachusetts (the “Commonwealth”). In 1985, the Authority assumed possession and control from the Metropolitan District Commission (the “MDC”) (which became part of the Department of Conservation and Recreation (the “DCR”) in July 2003), a department of the Commonwealth, of a water distribution system (the “Waterworks System”) and a sewer system (the “Sewer System”) (collectively, the “Systems”), which provide wholesale services in service areas encompassing, in whole or in part, 61 communities located primarily in eastern Massachusetts, including most of the metropolitan Boston area. Forty-eight cities, towns and special purpose entities currently are authorized to receive water from the Waterworks System. Forty-three cities, towns and special purpose entities connect their local sewer systems to the regional sewage collection and treatment facilities constituting the Sewer System. Approximately 2.5 million people, or approximately 43% of the total population of the Commonwealth, live in the Authority’s service areas. See “The Authority and its Service Areas.”

**The Capital Program.** In addition to its operating responsibilities, the Authority is responsible for rehabilitating, repairing and maintaining the Systems and bringing them into compliance with applicable environmental laws, including major facilities construction to comply with the requirements of the federal Safe Drinking Water Act (the “SDWA”) and the federal Clean Water Act. Since its assumption of the ownership and operations of the Systems in 1985, the Authority has undertaken an ambitious program of capital improvements to the Systems (the “Capital Program”), with estimated expenditures for Fiscal Years 1986 through 2014 of approximately \$7.8 billion, including completed expenditures of approximately \$6.3 billion through January 1, 2005.

The largest component of the Authority’s current capital program is the undertaking of major capital improvement projects designed to provide an appropriate level of redundancy to the Authority’s water delivery

system and to protect and improve the quality of water delivered from the Waterworks System, including projects mandated by the SDWA. Construction on the largest of these projects, the MetroWest Water Supply Tunnel, began in June 1996; the tunnel was placed in service on November 1, 2003. Two other major components of the Waterworks capital improvements are the Norumbega Covered Storage Reservoir and the Walnut Hill Water Treatment Plant. The Norumbega facility came on line in November 2003 and allowed for the elimination of open air reservoirs. The Walnut Hill Water Treatment Plant is scheduled to come on line in the spring of 2005. The Authority has completed the largest of its capital projects, the construction of the Deer Island Wastewater Treatment Plant and related facilities (the "Deer Island Project"), with the commencement of operation of the effluent outfall tunnel in September 2000 and the commencement of operation of the third, and final, battery of secondary treatment in January 2001.

The Authority reviews and reevaluates the Capital Program from time to time and adjusts it, as necessary, to respond to changing factors, such as changing environmental law and mandates, including requirements of the Clean Water Act and the SDWA, construction industry costs and unforeseen physical conditions that can affect both the cost and timing of particular projects.

For further information on the Capital Program, see "Capital Improvement Program," "Environmental Regulation and Litigation" and Appendix B - "Engineering and Financial Feasibility Report."

**Rates and Charges.** In Fiscal Year 2005, approximately 92% of the Authority's revenues are budgeted to be derived from wholesale rates and charges assessed to the cities, towns and special purpose entities (collectively, the "Local Bodies") which are served by the Systems. One Local Body, the Boston Water and Sewer Commission (the "BWSC"), a public instrumentality of the Commonwealth providing retail water and sewer services within the City of Boston, will account for approximately 32% of the Authority's combined water and sewer charges in Fiscal Year 2005. The obligation to pay the Authority's rates and charges for services rendered is a general obligation of each Local Body, supported by its full faith and credit and payable from all available revenue sources, including local retail user charges and, in the case of city and town Local Bodies ("Municipal Local Bodies") only, real and personal property taxes and financial aid distributed to such Municipal Local Bodies by the Commonwealth ("local aid"). No specific revenues of the Local Bodies, however, are pledged for the payment of the Authority's wholesale rates and charges. Since its inception, the Authority has collected 100% of its rates and charges within the fiscal year in which they were due.

The Authority is required by the Act to set its rates and charges at levels sufficient to pay, among other things, its current expenses and its debt service, and is required by the General Resolution to provide debt service coverage at specified levels. In accordance with the Act, the Authority's rate-setting responsibility is exercised by its Board of Directors independent of the approval of any department, agency or other instrumentality of the Commonwealth or any other governmental body. The Authority's rate-setting is not subject to certain limitations imposed by the Massachusetts law commonly known as "Proposition 2½" on the rate of growth of assessments by state and other governmental entities on municipalities. See "Local Bodies - Municipal Sources of Revenue."

From Fiscal Year 2001 through Fiscal Year 2005, the average annual increase in the Authority's rates and charges was approximately 4.6%, with a 3.9% increase in Fiscal Year 2005 as adopted in the Fiscal Year 2005 Current Expense Budget (the "FY05 CEB"). The Authority estimated receipt of \$8.7 million of debt service assistance from the Commonwealth in Fiscal Year 2005. Based on the expected receipt of this amount, the Authority reduced the rate revenue requirements of the Local Bodies, resulting in an effective rate increase of 1.9% for Fiscal Year 2005 as compared to the Fiscal Year 2004 Current Expense Budget (the "FY04 CEB"). See "Rates and Charges – Historical Rates and Charges." The Authority's future rates and charges are expected to continue to increase due to increases in the annual operating expenses of the Systems, as well as from increased debt service costs. However, the Authority believes that economic and environmental benefits of an improved infrastructure help to maintain public support for its Capital Program. The Authority expects that these considerations, together with the statutory enforcement mechanisms available to it for collection of its rates and charges, will continue to assure that the Authority's revenue requirements are met. See "Rates and Charges – Future Rates and Charges" and "– Enforcement."

**Appendices.** Attached hereto as Appendix A is the report of the Authority's independent auditors on the Authority's financial statements at June 30, 2004 and 2003 and for the Fiscal Years then ended. Attached hereto as

Appendix B is the Engineering and Financial Feasibility Report prepared by Camp Dresser & McKee Inc., the Authority's consulting engineer (the "Consulting Engineer") in connection with the issuance of the Series A Bonds. Attached hereto as Appendix C is a Summary of Certain Provisions of the General Bond Resolution prepared by Bond Counsel to the Authority. Attached hereto as Appendix D is the proposed form of legal opinion of Bond Counsel. Attached hereto as Appendix E is the specimen form of financial guaranty insurance policy to be issued by MBIA with respect to the Insured Series A Bonds.

### **THE SERIES A BONDS**

The following is a summary of certain provisions of the Series A Bonds. Reference is hereby made to the Series A Bonds and the General Resolution, each in its entirety, for detailed provisions of the Series A Bonds.

#### **GENERAL**

The Series A Bonds shall be dated their date of delivery and shall bear interest from such date payable semiannually on each February 1 and August 1, commencing August 1, 2005, at the rates per annum shown on the cover page hereof. Interest on the Series A Bonds will be calculated on the basis of twelve 30-day months for a 360-day year. The Series A Bonds shall mature on the dates and in the principal amounts shown on the cover page hereof.

#### **REDEMPTION PROVISIONS**

**Mandatory Sinking Fund Redemption.** The Series A Bonds maturing August 1, 2034 shall be subject to mandatory sinking fund redemption and shall be redeemed by sinking fund installments on August 1 of each of the years and in the amounts set forth in the following table at a redemption price equal to 100% of the principal amount thereof plus accrued interest to the date of redemption:

<u>Year</u>	<u>Principal Amount</u>
2030	\$ 9,380,000
2031	10,000,000
2032	10,500,000
2033	11,445,000
2034 <sup>†</sup>	12,330,000

<sup>†</sup>Stated maturity.

**Optional Redemption.** The Series A Bonds maturing on or before August 1, 2017 are not subject to optional redemption prior to maturity.

The Series A Bonds maturing after August 1, 2017 shall be subject to optional redemption prior to maturity in whole or in part on any date, beginning on August 1, 2017, at the option of the Authority and in such order of maturity as may be determined by the Authority, at a redemption price of par plus accrued interest to the date of redemption.

**Notice of Redemption and Other Notices.** So long as The Depository Trust Company ("DTC"), New York, New York, or its nominee is the Bondholder, the Authority and the Trustee will recognize DTC or its nominee as the Bondholder for all purposes, including notices and voting. 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 and regulatory requirements as may be in effect from time to time.

The Trustee shall give notice of redemption to the Bondholders not less than thirty (30) days or more than forty-five (45) days prior to the date fixed for redemption. Failure to mail notice to a particular Bondholder, or any defect in the notice to such Bondholder, shall not affect the redemption of any other Bond. So long as DTC or its

nominee is the Bondholder, any failure on the part of DTC or failure on the part of a nominee of a Beneficial Owner (having received notice from a Direct Participant or otherwise) to notify the Beneficial Owner so affected, shall not affect the validity of the redemption.

**Selection for Redemption.** In the event that less than all of the Series A Bonds of any one maturity are to be redeemed and for so long as the book-entry system remains in effect for the Series A Bonds, the portion of any Series A Bond of a particular maturity to be redeemed shall be selected by DTC in such manner as DTC may determine. If the book-entry only system for the Series A Bonds is no longer in effect, selection for redemption of less than all the Series A Bonds of any one maturity will be made by the Trustee by lot or in any other manner of selection the Trustee in its discretion shall deem appropriate and fair.

## **BOOK-ENTRY ONLY SYSTEM**

DTC will act as securities depository for the Series A Bonds. The Series A Bonds will be issued as fully-registered securities registered in the name of Cede & Co. (DTC's partnership nominee). One fully-registered Series A Bond certificate will be issued for each maturity of the Series A Bonds, each in the aggregate principal amount of such maturity, and will be deposited with DTC.

DTC, the world's largest depository, is a limited-purpose trust company organized under the New York Banking Law, a "banking organization" within the meaning of the New York Banking Law, a member of the Federal Reserve System, a "clearing corporation" within the meaning of the New York Uniform Commercial Code, and a "clearing agency" registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934. DTC holds and provides asset servicing for over 2 million issues of U.S. and non-U.S. equity issues, corporate and municipal debt issues, and money market instruments from over 85 countries that DTC's participants ("Direct Participants") deposit with DTC. DTC also facilitates the post-trade settlement among Direct Participants of sales and other securities transactions in deposited securities, through electronic computerized book-entry transfers and pledges between Direct Participants' accounts. This eliminates the need for physical movement of securities certificates. Direct Participants include both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations. DTC is a wholly-owned subsidiary of The Depository Trust & Clearing Corporation ("DTCC"). DTCC, in turn, is owned by a number of Direct Participants of DTC and Members of the National Securities Clearing Corporation, Government Securities Clearing Corporation, MBS Clearing Corporation, and Emerging Markets Clearing Corporation, ("NSCC", "GSCC", "MBSCC", and "EMCC", also subsidiaries of DTCC), as well as by the New York Stock Exchange, Inc., the American Stock Exchange LLC, and the National Association of Securities Dealers, Inc. Access to the DTC system is also available to others such as both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, and clearing corporations that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly ("Indirect Participants"). DTC has Standard & Poor's highest rating: AAA. The DTC Rules applicable to its Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at [www.dtcc.com](http://www.dtcc.com).

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

To facilitate subsequent transfers, all Series A Bonds deposited by Direct Participants with DTC are registered in the name of DTC's partnership nominee, Cede & Co., or such other name as may be requested by an authorized representative of DTC. The deposit of Series A Bonds with DTC and their registration in the name of Cede & Co. or such other DTC nominee do not effect any change in beneficial ownership. DTC has no knowledge of the actual Beneficial Owners of the Series A Bonds; DTC's records reflect only the identity of the Direct



Participants to whose accounts such Series A Bonds are credited, which may or may not be the Beneficial Owners. The Direct and Indirect Participants will remain responsible for keeping account of their holdings on behalf of their customers.

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

Neither DTC nor Cede & Co. (nor any other DTC nominee) will consent or vote with respect to Series A Bonds unless authorized by a Direct Participant in accordance with DTC's Procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the Authority as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts Series A Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Principal and interest payments on the Series A Bonds will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit Direct Participants' accounts upon DTC's receipt of funds and corresponding detail information from the Authority or the Trustee, on payable date in accordance with their respective holdings shown on DTC's records. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of such Participant and not of DTC (nor its nominee), the Trustee, or the Authority, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of redemption proceeds, distributions, and dividend payments to Cede & Co. (or such other nominee as may be requested by an authorized representative of DTC) is the responsibility of the Authority or the Trustee, disbursement of such payments to Direct Participants will be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners will be the responsibility of Direct and Indirect Participants.

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

The information contained herein 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.

Neither the Trustee nor the Authority will have any responsibility or obligation to such DTC Participants or the persons for whom they act as nominees with respect to the payments to the DTC Participants, the Indirect Participants or Beneficial Owners.

## **EXCHANGE AND TRANSFER**

If for any reason the book-entry only system is discontinued, the Series A Bonds will be exchangeable and transferable on the registration books of the Authority at the designated corporate trust office of the Trustee in denominations of \$5,000 of principal amount or any whole multiple thereof. Upon presentation and surrender of any Series A Bond for transfer or exchange, the Trustee will authenticate and deliver in the name of the designated transferee or transferees or the registered owner, as appropriate, one or more new fully registered Series A Bonds in any authorized denomination or denominations. For every exchange or transfer of Series A Bonds, the Authority or the Trustee may make a charge sufficient to reimburse it for any tax, fee or other governmental charge required to be paid with respect to such exchange or transfer. The Authority shall not be obligated to make any transfer or exchange of any Series A Bonds during the 15-day period preceding an interest or principal payment date. Neither the Authority nor the Trustee shall be required to transfer or exchange the Series A Bonds for a period of fifteen days next preceding the mailing of any notice of redemption or to transfer or exchange any Series A Bond called for redemption.

## **BOND INSURANCE**

INVESTORS SHOULD BE AWARE THAT THE FOLLOWING TEXT OF THIS SECTION WAS FURNISHED BY MBIA. THESE PROVISIONS SHOULD BE READ IN CONJUNCTION WITH THIS OFFICIAL STATEMENT AS A WHOLE. THE AUTHORITY DOES NOT AND CANNOT MAKE ANY REPRESENTATION REGARDING THESE MATTERS. REFERENCE IS MADE TO APPENDIX E FOR A SPECIMEN OF MBIA'S POLICY.

### **THE MBIA INSURANCE CORPORATION INSURANCE POLICY**

The following information has been furnished by MBIA Insurance Corporation ("MBIA") for use in this Official Statement. Reference is made to Appendix E for a specimen of MBIA's policy.

MBIA's policy unconditionally and irrevocably guarantees the full and complete payment required to be made by or on behalf of the Authority to the Paying Agent 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 Insured Series A Bonds 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 by MBIA's 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 Insured Series A 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").

MBIA's policy does not insure against loss of any prepayment premium which may at any time be payable with respect to any Insured Series A Bonds. MBIA's 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 Insured Series A Bonds upon tender by an owner thereof; or (iv) any Preference relating to (i) through (iii) above. MBIA's policy also does not insure against nonpayment of principal of or interest on the Insured Series A Bonds resulting from the insolvency, negligence or any other act or omission of the Paying Agent or any other paying agent for the Insured Series A Bonds. MBIA's policy does not insure the Series A Bonds maturing in 2006 through 2009, inclusive.

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 MBIA from the Paying Agent or any owner of a Insured Series A Bond the payment of an insured amount for which is then due, that such required payment has not been made, MBIA 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 U.S. Bank Trust National Association, 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 Insured Series A Bonds or presentment of such other proof of ownership of the Insured Series A Bonds, together with any appropriate instruments of assignment to evidence the assignment of the insured amounts due on the Insured Series A Bonds as are paid by MBIA, and appropriate instruments to effect the appointment of MBIA as agent for such owners of the Insured Series A Bonds in any legal proceeding related to payment of insured amounts on the Insured Series A Bonds, such instruments being in a form satisfactory to U.S. Bank Trust National Association, U.S. Bank Trust National Association shall disburse to such owners or the Paying Agent payment of the insured amounts due on such Insured Series A Bonds, less any amount held by the Paying Agent for the payment of such insured amounts and legally available therefor.

### **MBIA**

MBIA Insurance Corporation ("MBIA") is the principal operating subsidiary of MBIA Inc., a New York Stock Exchange listed company (the "Company"). The Company is not obligated to pay the debts of or claims against MBIA. MBIA is domiciled in the State of New York and licensed to do business in and subject to regulation under the laws of all 50 states, the District of Columbia, the Commonwealth of Puerto Rico, the Commonwealth of

the Northern Mariana Islands, the Virgin Islands of the United States and the Territory of Guam. MBIA has three branches, one in the Republic of France, one in the Republic of Singapore and one in the Kingdom of Spain. New York has laws prescribing minimum capital requirements, limiting classes and concentrations of investments and requiring the approval of policy rates and forms. State laws also regulate the amount of both the aggregate and individual risks that may be insured, the payment of dividends by MBIA, changes in control and transactions among affiliates. Additionally, MBIA is required to maintain contingency reserves on its liabilities in certain amounts and for certain periods of time.

MBIA does not accept any responsibility for the accuracy or completeness of this Official Statement or any information or disclosure contained herein, or omitted herefrom, other than with respect to the accuracy of the information regarding the policy and MBIA set forth under the heading "Bond Insurance." Additionally, MBIA makes no representation regarding the Insured Series A Bonds or the advisability of investing in the Insured Series A Bonds.

The Financial Guarantee Insurance Policies are not covered by the Property/Casualty Insurance Security Fund specified in Article 76 of the New York Insurance Law.

## **MBIA INFORMATION**

The following documents filed by the Company with the Securities and Exchange Commission (the "SEC") are incorporated herein by reference:

- (1) The Company's Annual Report on Form 10-K for the year ended December 31, 2003; and
- (2) The Company's Quarterly Report on Form 10-Q for the quarter ended September 30, 2004.

Any documents filed by the Company pursuant to Sections 13(a), 13(c), 14 or 15(d) of the Exchange Act of 1934, as amended, after the date of this Official Statement and prior to the termination of the offering of the Insured Series A Bonds offered hereby shall be deemed to be incorporated by reference in this Official Statement and to be a part hereof. Any statement contained in a document incorporated or deemed to be incorporated by reference herein, or contained in this Official Statement, shall be deemed to be modified or superseded for purposes of this Official Statement to the extent that a statement contained herein or in any other subsequently filed document which also is or is deemed to be incorporated by reference herein modifies or supersedes such statement. Any such statement so modified or superseded shall not be deemed, except as so modified or superseded, to constitute a part of this Official Statement.

The Company files annual, quarterly and special reports, information statements and other information with the SEC under File No. 1-9583. Copies of the SEC filings (including (1) the Company's Annual Report on Form 10-K for the year ended December 31, 2003, and (2) the Company's Quarterly Reports on Form 10-Q for the quarters ended March 31, 2004, June 30, 2004 and September 30, 2004) are available (i) over the Internet at the SEC's web site at <http://www.sec.gov>; (ii) at the SEC's public reference room in Washington D.C.; (iii) over the Internet at the Company's web site at <http://www.mbia.com>; and (iv) at no cost, upon request to MBIA Insurance Corporation, 113 King Street, Armonk, New York 10504. The telephone number of MBIA is (914) 273-4545.

As of December 31, 2003, MBIA had admitted assets of \$9.9 billion (audited), total liabilities of \$6.2 billion (audited), and total capital and surplus of \$3.7 billion (audited) determined in accordance with statutory accounting practices prescribed or permitted by insurance regulatory authorities. As of September 30, 2004 MBIA had admitted assets of \$10.4 billion (audited), total liabilities of \$6.7 billion (audited), and total capital and surplus of \$3.7 billion (audited) determined in accordance with statutory accounting practices prescribed or permitted by insurance regulatory authorities.

## **FINANCIAL STRENGTH RATINGS OF MBIA**

Moody's Investors Service, Inc. rates the financial strength of MBIA "Aaa."

Standard & Poor’s, a division of The McGraw-Hill Companies, Inc. rates the financial strength of MBIA “AAA.”

Fitch Ratings rates the financial strength of MBIA “AAA.”

Each rating of MBIA should be evaluated independently. The ratings reflect the respective rating agency’s current assessment of the creditworthiness of 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 Insured Series A Bonds, and such ratings may be subject to revision or withdrawal at any time by the rating agencies. Any downward revision or withdrawal of any of the above ratings may have an adverse effect on the market price of the Insured Series A Bonds. MBIA does not guaranty the market price of the Insured Series A Bonds nor does it guaranty that the ratings on the Insured Series A Bonds will not be revised or withdrawn.

### **APPLICATION OF SERIES A BOND PROCEEDS AND OTHER MONEYS**

#### **GENERAL**

The proceeds of the Series A Bonds together with other available funds are expected to be applied on the date of issue of the Series A Bonds in the estimated amounts as follows (rounded to the nearest dollar):

Sources of Funds:

Principal Amount of Series A Bonds .....	\$ 416,455,000
Net Original Issue Premium.....	31,052,278
Available Moneys Under General Resolution.....	<u>34,206,191</u>
 TOTAL.....	 \$ <u>481,713,469</u>

Use of Funds:

Deposit to the Refunding Trust Fund.....	\$ 452,143,351
Deposit to Debt Service Reserve Fund.....	25,226,089
Costs of Issuance (including any Bond Insurance Premium).....	2,009,938
Underwriters’ Discount .....	<u>2,334,091</u>
 TOTAL.....	 \$ <u>481,713,469</u>

#### **PLAN OF REFUNDING**

A portion of the proceeds from the sale of the Series A Bonds will be deposited into the Refunding Trust Fund established under a Refunding Trust Agreement (the “Refunding Trust Agreement”) to be entered into between the Authority and U.S. Bank National Association, as trustee for the Refunded Bonds listed below, in an amount which, together with certain amounts available under the General Resolution, will provide for the payment of the redemption price of and interest on the Refunded Bonds on the first available optional redemption dates and at the redemption prices set forth below. The refunding is contingent upon delivery of the Series A Bonds.

### Refunded Bonds

<u>Series</u>	<u>Original Maturity</u>	<u>Amount to be Refunded</u>	<u>Redemption Date</u>	<u>Redemption Price</u>
1993C	December 1, 2023	\$51,895,000	June 1, 2005	100%
1995B	December 1, 2008 through 2010 and 2016	\$47,590,000	December 1, 2005	102%
1996A	November 1, 2007 through 2010	\$15,625,000	November 1, 2006	101%
1998A	August 1, 2015 through 2017	\$19,050,000	August 1, 2008	100%
1998A	August 1, 2027 (represents sinking fund installment for 2018)	\$6,960,000	August 1, 2008	100%
2000A	August 1, 2012 through 2022	\$56,105,000	August 1, 2010	101%
2000A	August 1, 2030	\$66,990,000	August 1, 2010	101%
2000A	August 1, 2039 (represents sinking fund installments for 2031 through 2034)	\$47,355,000	August 1, 2010	101%
2002B	August 1, 2013 through 2020 and August 1, 2022 through 2024	\$85,130,000	August 1, 2011	101%
2003D	August 1, 2014 through 2015 and 2021	\$18,010,000	August 1, 2013	100%
2004A	August 1, 2015 through 2019	\$9,505,000	August 1, 2014	100%

### SECURITY FOR THE SERIES A BONDS

#### GENERAL

The following summary of the security for the Series A Bonds is qualified in its entirety and reference is hereby made to Appendix C hereto and to the General Resolution, which set forth in further detail provisions relating to the security for the Series A Bonds. For definitions of certain capitalized terms used but not defined herein, see “Summary of Certain Provisions of the General Bond Resolution” in Appendix C.

The Series A Bonds constitute valid and binding general obligations of the Authority and the full faith and credit of the Authority is pledged to the payment of the principal and redemption price of and interest on the Series A Bonds. The Authority is subject to suit, but its property is not generally subject to attachment or levy by execution to satisfy a judgment on the Series A Bonds. The Authority has no taxing power.

Neither the Commonwealth nor any political subdivision thereof shall be obligated to pay the principal of, or premium or interest on any Series A Bond and neither the faith and credit nor taxing power of the Commonwealth or of any political subdivision thereof is pledged to such payment.

The General Resolution provides for the issuance of bonds thereunder. To date, the Authority has issued 19 Series of Bonds (as hereinafter defined) under the General Resolution. The Authority may issue additional Bonds on a parity with the Bonds issued to date and the Series A Bonds (collectively, "Bonds") upon the satisfaction of certain conditions. See "Additional Indebtedness" below and "Summary of Certain Provisions of the General Bond Resolution - Additional Indebtedness," "- Conditions Precedent to Delivery of a Series of Bonds" and "- Conditions Precedent to Delivery of a Series of Parity or Senior Secured Bonds" in Appendix C. All Bonds are equally and ratably secured under the provisions of the General Resolution and by the Funds and Accounts established thereunder, including, without limitation, the Debt Service Reserve Fund. See "Debt Service Reserve Fund" below. The General Resolution also permits the issuance of Subordinated Bonds which are referred to herein, together with the Bonds, as "Secured Bonds."

The Authority expects to issue additional Secured Bonds, the majority of which are expected to constitute Bonds, to finance its Capital Program. The Act limits the total amount of the Authority's unrefunded bonds and notes which may be outstanding at any time. See "Financial Operations - Debt Limitation." For a table showing the debt service on Outstanding Secured Bonds see "Financial Operations - Outstanding and Proposed Indebtedness."

### **NET REVENUE PLEDGE**

In the General Resolution, the Authority pledges as security for Bonds, (i) its Revenues, (ii) all moneys or securities held in any Fund or Account established under the General Resolution (except the Operating Fund, the Note Payment Fund, the Rebate Fund and any Subordinated Debt Service Reserve Fund) together with all investment earnings thereon (except to the extent such earnings are required to be deposited into the Rebate Fund), and (iii) all other moneys and securities to be received by the Authority or by any Fiduciary pursuant to the General Resolution. This pledge is subject to the provisions of the General Resolution regarding the application of Revenues and the other moneys pledged as security for Secured Bonds. For the definition of Revenues see "Summary of Certain Provisions of the General Bond Resolution" in Appendix C.

The General Resolution provides that the Authority shall promptly cause all Revenues received to be deposited in the Revenue Fund held by the Trustee and that prior to application to the Debt Service Fund, the Subordinated Debt Service Fund and the other Funds and Accounts established under the General Resolution, the Revenues on deposit in the Revenue Fund are to be applied to the Authority's expenses of maintaining, repairing and operating the Systems and engaging in other activities authorized by the Act.

The General Resolution provides that the funds on deposit in the Revenue Fund be transferred by the Trustee on the last Business Day of each month to the following funds and accounts in the following order:

*First*, to the Operating Fund, an amount necessary to make the amount on deposit therein equal to the Operating Expenses for the next succeeding three months as shown in the Operating Budget of the Authority on file with the Trustee.

*Second*, to the Debt Service Fund, the amounts necessary on a pro rata basis (i) to make up any deficiency in any Subaccount resulting from an increase in the applicable interest rate on any Variable Rate Bonds over the rate assumed in calculating the amount required for a prior deposit pursuant to the General Resolution, (ii) to increase the amount on deposit in each Subaccount of the Interest Account to equal interest included in Adjusted Debt Service next coming due on Outstanding Bonds of the applicable Series accrued and unpaid and to accrue to and including the last day of the next succeeding month after taking into account any available moneys in the corresponding Subaccount of the Capitalized Interest Account, (iii) to increase the amount on deposit in each Subaccount of the Principal Account to equal that portion of the Principal Installment included in Adjusted Debt Service next coming due (within twelve months) on Outstanding Bonds of the applicable Series accrued and unpaid and to accrue to and including the last day of the next succeeding month, and (iv) to increase the amount on deposit in each

Subaccount of the Redemption Account to equal the Redemption Price of Outstanding Bonds of the applicable Series then called for redemption (other than Sinking Fund Installments) as of any date on or prior to the last day of the next succeeding month.

*Third*, to the Subordinated Debt Service Fund, the amounts with respect to Subordinated Bonds determined in the same manner as the amounts in the Debt Service Fund set forth in the preceding paragraph with respect to Bonds.

*Fourth*, to the Debt Service Reserve Fund, (i) one-twelfth of the amount necessary to increase the amount on deposit in each Series Subaccount of the Common Account to equal the applicable Series Debt Service Reserve Fund Requirement, and (ii) the deposit required by any Supplemental Resolution to any Special Account.

*Fifth*, to the Subordinated Debt Service Reserve Fund, (i) an amount necessary to increase the amount on deposit in each Series Subaccount of the Common Account to equal the level required by any Supplemental Resolution, and (ii) the deposit required by any Supplemental Resolution to any Special Account.

*Sixth*, to each Series Subaccount of the General Account of the Community Obligation and Revenue Enhancement Fund, one-twelfth of the difference between the Supplemental Bond Coverage Requirement with respect to such Series of Bonds and the amount on deposit in such Subaccount on the first day of the Fiscal Year.

*Seventh*, to the Commonwealth Obligation Fund, an amount equal to the amount of Commonwealth Obligations payable during the next succeeding month.

*Eighth*, to the Rebate Fund, the amount of the Rebate Fund Requirement, if any, determined in accordance with the applicable Supplemental Resolution.

Each fund and account must be funded from Revenues to the amount required under the General Resolution before Revenues are transferred to funds and accounts lower in the flow of funds.

On each December 31 and June 30 or, if such day is not a Business Day, on the next preceding Business Day, the Trustee is required under the General Resolution to transfer funds in the Revenue Fund to the Operating Reserve Fund, the Insurance Reserve Fund, the Renewal and Replacement Reserve Fund and the Water Pollution Abatement Fund in the amounts specified in the General Resolution, then to the Revolving Fund, as directed by the Authority, and the remainder to the General Fund except to the extent that the Authority directs that the remainder be retained in the Revenue Fund.

See “Summary of Certain Provisions of the General Bond Resolution – Flow of Funds from the Revenue Fund” in Appendix C for a more detailed explanation of the flow of funds.

## **COVERAGE COVENANTS**

Under the Act and the General Resolution, the Authority is required to meet the following three covenants with respect to Rates and Charges (collectively, the “Coverage Covenants”).

**Rate Covenant.** Pursuant to the General Resolution, and as required by the Act, the Authority covenants that for each fiscal year it will maintain Revenues sufficient to pay Current Expenses, debt service on Indebtedness, required deposits to reserves, costs of maintenance, replacement or improvement of the Systems to be funded as Current Expenses, and all amounts which the Authority may be obligated to pay by any law or contract (the “Rate Covenant”).

**Combined Debt Service Coverage Ratio Covenant.** In addition to the Rate Covenant, the Authority is required under the General Resolution to fix and adjust Rates and Charges sufficient to provide Revenues Available

for Bond Debt Service in each fiscal year at least equal to (a) debt service for such fiscal year on all Outstanding Bonds times the Primary Bond Coverage Ratio of 1.2 (the "Primary Bond Coverage Requirement") plus (b) the amount necessary to fund the Community Obligation and Revenue Enhancement Fund so that the balance thereof equals debt service for such fiscal year on Bonds Outstanding as of the beginning of such fiscal year times the Supplemental Bond Coverage Ratio of 0.1 (the "Supplemental Bond Coverage Requirement"). This requirement to fix Rates and Charges is referred to herein as the "Combined Debt Service Coverage Ratio Covenant." Pursuant to modifications of the Act and the General Bond Resolution made in 1996, for purposes of calculating compliance with the Combined Debt Service Coverage Requirement for any fiscal year the Authority may treat state debt service assistance received by it either as Revenues or as a deduction from debt service requirements. In Fiscal Year 2004 the Authority elected the latter alternative.

The Primary Bond Coverage Ratio and the Supplemental Bond Coverage Ratio may be adjusted by the Authority provided that such adjustment will not adversely affect the then current ratings, if any, assigned to any series of Secured Bonds by each Rating Agency. In any event, the Primary Bond Coverage Ratio shall not be less than 1.1, and no such adjustment shall cause the sum of the Primary Bond Coverage Ratio and the Supplemental Bond Coverage Ratio to be less than 1.2.

**Subordinated Combined Debt Service Coverage Ratio Covenant.** In addition, under supplemental resolutions authorizing the issuance of Subordinated Bonds, including Subordinated Bonds issued to the Massachusetts Water Pollution Abatement Trust (the "SRF"), the Authority is required to fix and adjust Rates and Charges sufficient to provide Revenues Available for Bond Debt Service in each fiscal year at least equal to (a) 1.1 times debt service on the Subordinated Bonds and all Outstanding Secured Bonds issued on a parity with or senior to the Subordinated Bonds (the "Subordinated Primary Bond Coverage Requirement") plus (b) the amount necessary to fund the Community Obligation and Revenue Enhancement Fund to the Supplemental Bond Coverage Requirement (the "Subordinated Combined Debt Service Coverage Ratio Covenant"). For purposes of budgeting debt service deposits, calculating the Subordinated Combined Debt Service Coverage Ratio Covenant, and satisfying tests for the issuance of Additional Secured Bonds, the debt service requirements on the Subordinated Bonds issued to the SRF (the "SRF Bonds") are based on the net debt service requirements determined after application of loan subsidies to be provided by the Commonwealth and earnings on certain moneys.

**Covenant as to Establishment of Rates; Failure to Comply with Covenants.** Under the General Resolution the Authority covenants to adopt its Rates and Charges strictly in accordance with the Act as in effect on the original effective date of the General Resolution, which establishment shall be conclusive and final and not subject to supervision or regulation by the Commonwealth or any of its political subdivisions, at a level sufficient to satisfy the Coverage Covenants.

If in any fiscal year the Authority shall not comply with the Coverage Covenants, then the Authority shall not be deemed to be in default under the General Resolution so long as it shall specify to the Trustee the corrective steps which it has taken to ensure compliance with the Coverage Covenants for the then current fiscal year; retain the Consulting Engineer or Rate Consultant to review the adequacy of the Authority's charges with respect to the Systems and to recommend changes necessary for the Authority to be in compliance with the Coverage Covenants; and use its best efforts to effect such changes as recommended by the Consulting Engineer or Rate Consultant. See "Summary of Certain Provisions of the General Bond Resolution - Covenants of the Authority - Covenant as to Rates and Charges: Debt Service Coverage Ratio" in Appendix C.

**Operating Reserve Fund and Rate Stabilization Fund Transfers.** The Authority may include moneys transferred from the Operating Reserve Fund and the Rate Stabilization Fund as Revenues Available for Bond Debt Service in meeting the Coverage Covenants, subject to certain limitations. See the definition of "Revenues Available for Bond Debt Service" in the "Summary of Certain Provisions of the General Bond Resolution" in Appendix C.

## **DEBT SERVICE RESERVE FUND**

The General Resolution establishes a Debt Service Reserve Fund to be funded in an amount which equals the Debt Service Reserve Fund Requirement. The Debt Service Reserve Fund Requirement is equal to the aggregate of the Series Debt Service Reserve Fund Requirements for all Outstanding Series of Bonds. The Series Debt



Service Reserve Fund Requirement means, for any Series of Bonds, an amount equal to the least of (i) 100% of the Average Annual Adjusted Debt Service for such Series of Bonds, (ii) 10% of the original net proceeds of such Series of Bonds, (iii) 125% of the average annual Debt Service for such Series of Bonds, or (iv) the maximum amount of Debt Service due on such Series of Bonds in any succeeding Bond Year. The General Resolution requires, as a condition to the issuance of a Series of Bonds thereunder, that the Debt Service Reserve Fund be fully funded in an amount equal to the sum of the Debt Service Reserve Fund Requirement. After the issuance of the Series A Bonds, the amount on deposit in the Debt Service Reserve Fund will be approximately \$200.2 million. In addition, there is approximately \$34.6 million in the Subordinated Debt Service Reserve Fund which is available only for Subordinated Bonds. See “Summary of Certain Provisions of the General Bond Resolution” in Appendix C.

Moneys in the Debt Service Reserve Fund are available for the payment of principal and premium of and interest on all Bonds, but not Subordinated Bonds, equally and ratably. See “Financial Operations - Outstanding and Proposed Indebtedness” for a table setting forth the debt service requirements on the Authority’s Outstanding Secured Bonds immediately prior to the issuance of the Series A Bonds. In the event that moneys are withdrawn from the Debt Service Reserve Fund, such withdrawal shall be replenished as nearly as practicable in twelve equal monthly installments commencing in the fiscal year following such withdrawal. See “Summary of Certain Provisions of the General Bond Resolution - Flow of Funds from the Revenue Fund” in Appendix C.

## **COMMUNITY OBLIGATION AND REVENUE ENHANCEMENT FUND**

The General Resolution establishes a Community Obligation and Revenue Enhancement Fund as security for Secured Bonds. The General Resolution requires that the Community Obligation and Revenue Enhancement Fund be funded in monthly installments over a fiscal year with respect to each Series of Bonds (but not Subordinated Bonds) in an aggregate amount necessary to bring the balance therein up to the Supplemental Bond Coverage Requirement. The Supplemental Bond Coverage Requirement is subject to adjustment from time to time by the Authority. See “Coverage Covenants” above. Moneys in the Community Obligation and Revenue Enhancement Fund are available only for the payment of principal of, premium, if any, and interest on all Secured Bonds in the event of a Local Body Default (as such term is defined in Appendix C).

In the event that a Local Body fails to pay any Rates and Charges, the Authority has covenanted to exercise its statutory power to certify to the State Treasurer the amount of such unpaid Rates and Charges. The Act provides that upon such certification, the State Treasurer shall promptly intercept any amounts then payable by the Commonwealth to such Local Body and pay them to the Authority in satisfaction of such unpaid Rates and Charges. See “Rates and Charges - Enforcement.” Should a Local Body’s default continue, the Authority is required, by no later than twelve months from the date of such failure, to declare such failure a Local Body Default. Upon such declaration the Authority must send to each Local Body receiving services from the Authority a notice specifying the default and the amount thereof, and stating that, unless such default is cured, Rates and Charges to each Local Body will be increased so as to cover the default.

## **OTHER RESERVES**

The General Resolution also establishes an Operating Reserve Fund, an Insurance Reserve Fund and a Renewal and Replacement Reserve Fund. The annual requirement for each such reserve is funded in two installments on each December 31 and June 30. Under certain circumstances, moneys on deposit in each of these reserves are available to pay debt service on Secured Bonds. Additionally, other reserves and funds established under the General Resolution are generally available, with certain exceptions, to pay debt service on Secured Bonds in the event Revenues are insufficient. See “Summary of Certain Provisions of the General Bond Resolution - Debt Service Fund” and “- Subordinated Debt Service Fund” and “- Priority of Funds in the Event of Debt Service Fund Shortfall” and “- Priority of Funds in the Event of Subordinated Debt Service Fund Shortfall” in Appendix C.

**Operating Reserve Fund.** The Operating Reserve Fund is funded from Revenues in the amount of the Operating Reserve Fund Requirement which must be at least one-sixth (1/6th) of the annual Operating Expenses set forth in the Operating Budget. Moneys in the Operating Reserve Fund may be transferred to the Operating Fund for the payment of Operating Expenses upon delivery of a Certificate of an Authorized Representative of the Authority. See “Summary of Certain Provisions of the General Bond Resolution - Operating Reserve Fund” in Appendix C.

**Insurance Reserve Fund.** The Insurance Reserve Fund is funded from Revenues in the amount of the Insurance Reserve Fund Requirement. Moneys in the Insurance Reserve Fund may be applied by the Authority in the same manner as insurance proceeds, as provided in the General Resolution. See “Summary of Certain Provisions of the General Bond Resolution - Insurance Reserve Fund” in Appendix C.

**Renewal and Replacement Reserve Fund.** The Renewal and Replacement Reserve Fund is funded from Revenues in the amount of the Renewal and Replacement Reserve Fund Requirement. Moneys in the Renewal and Replacement Reserve Fund shall be applied to the Cost of any Capital Improvement which is not provided for by moneys available in the Construction Fund or the Operating Fund in accordance with the procedures set forth in the General Resolution. See “Summary of Certain Provisions of the General Bond Resolution - Renewal and Replacement Reserve Fund” in Appendix C.

The adequacy of each of the Operating Reserve Fund Requirement, the Insurance Reserve Fund Requirement and the Renewal and Replacement Reserve Fund Requirement is reviewed annually by the Authority and every third fiscal year by the Consulting Engineer or, in the case of the Insurance Reserve Fund Requirement, an insurance consultant. The adequacy of the funding requirements for the Operating Reserve Fund and the Renewal and Replacement Reserve Fund have been confirmed by the Consulting Engineer in its most recent triennial report with respect to the Systems, prepared and delivered in accordance with the General Resolution.

## **OUTSTANDING INDEBTEDNESS**

As of January 1, 2005, the Authority had Outstanding \$2.7 billion of Bonds, \$779 million of SRF Bonds, and \$1.7 billion of Multi-Modal Subordinated General Revenue Bonds and Subordinated General Revenue Bonds (which, together with the SRF Bonds, constitute Subordinated Bonds), and \$259 million of tax-exempt commercial paper notes (the “CP Notes”) (which constitute Subordinated Parity Bond Anticipation Notes). The interest on the CP Notes, but not the principal thereof, is secured by a lien on a parity with other Subordinated Bonds. For a further description of such Outstanding Indebtedness and a table setting forth the debt service requirements on the Authority’s Outstanding Secured Bonds subsequent to the issuance of the Series A Bonds, see “Financial Operations - Outstanding and Proposed Indebtedness.”

## **ADDITIONAL INDEBTEDNESS**

The General Resolution contains certain conditions precedent to the issuance of additional Bonds, including that the Authority shall have met its Combined Debt Service Coverage Ratio Covenant for the most recent period of 12 consecutive months for which data is available and that the Consulting Engineer shall certify that for the fiscal year of issuance and the fiscal year thereafter either (i) projected Revenues Available for Bond Debt Service will be sufficient to satisfy the Combined Debt Service Coverage Ratio Covenant (taking into account the Series of Bonds to be issued and any other Series of Bonds to be issued in such Fiscal Year), or (ii) projected Revenues Available for Bond Debt Service, including only increases in Rates and Charges then approved and including increases in Operating Expenses to the extent required by the General Resolution, will be sufficient to pay debt service on all Bonds (taking into account the Series of Bonds to be issued) and certain required reserve deposits, including required deposits to the Community Obligation and Revenue Enhancement Fund. The foregoing requirements need not be met for Bonds issued to refund other Bonds so long as debt service is not increased in any fiscal year and the latest maturity date of Secured Bonds is not extended. The General Resolution requires that upon the issuance of Bonds, for refunding purposes or otherwise, the Debt Service Reserve Fund be fully funded to its applicable requirement. The General Resolution provides certain conditions precedent to the issuance of Secured Bonds secured on a parity with or senior to the SRF Bonds which are similar to the conditions in connection with the issuance of additional Bonds. In addition, the General Resolution permits the Authority to issue other Indebtedness including, but not limited to, revenue, grant and bond anticipation notes, Indebtedness secured by the General Fund and certain non-recourse Indebtedness. See “Summary of Certain Provisions of the General Bond Resolution - Additional Indebtedness” and “- Conditions Precedent to Delivery of a Series of Bonds” and “- Conditions Precedent to Delivery of a Series of Parity or Senior Secured Bonds” in Appendix C.

## **THE AUTHORITY AND ITS SERVICE AREAS**

### **PURPOSES AND POWERS**

The Authority was created by the Act, effective January 1, 1985. Pursuant to the Act, the Authority has several main objectives: to construct and maintain sewage treatment facilities which ensure that the Sewer System's wastewater discharges meet federal and state pollution control requirements; to maintain, operate and improve an adequate water supply distribution system and provide water in conformance with all applicable state and federal regulations; to establish programs for leak detection and reduction of infiltration and inflow within its service areas; to repair, replace, rehabilitate and extend the Systems and to finance the capital and operating expenses arising from their operations on a self-sustaining basis; to provide professional management and Systems-wide planning; and to establish and administer charges on a basis which will foster the conservation of water and improve the quality of the environment.

Ownership, possession and control of all personal property constituting the MDC water and sewer systems were transferred to the Authority effective July 1, 1985. Real property formerly included in the MDC water and sewer systems, including all watersheds, reservoirs and other water rights, was retained by the Commonwealth, to be managed by the MDC Watershed Management Division. As of July 2003, the MDC became part of the DCR and the DCR's Division of Water Supply Protection is charged with the duties and responsibilities formerly performed by the MDC Watershed Management Division. The Authority is granted by the Act an exclusive right to utilize such quantities of water as may be safely yielded from the DCR Division of Water Supply Protection's watersheds, reservoirs and other water rights (the "DCR Watershed System") which are necessary to provide the Authority's water supply. The DCR Division of Water Supply Protection is responsible for the acquisition, construction and maintenance of the DCR Watershed System. See "The Systems." The Authority is obligated to pay the Commonwealth for the costs of the DCR Division of Water Supply Protection.

The Authority is empowered by the Act to exercise the following powers in furtherance of its objectives: issue revenue bonds and notes (subject to the debt limitation contained in the Act) (see "Financial Operations - Debt Limitation"); hire personnel and engage consultants and other experts; adopt budgets for its operations and capital improvement programs and establish, after it has held public hearings, rates and charges for its services; expand the service areas of the Waterworks System and the Sewer System subject to certain approvals and other conditions (see "The Systems"); acquire property by purchase, lease or, under certain limitations, eminent domain (other than water and water rights) and lease, sell, transfer or otherwise encumber its property (subject to legal restraints on the disposition of certain public property); and establish rates and charges for its services and commodities without supervision by other agencies of the Commonwealth or any other governmental body and enforce the collection thereof (see "Rates and Charges").

The Act provides that the Authority's existence shall continue until terminated by law, provided that no such law shall take effect so long as any bonds or notes of the Authority are outstanding unless adequate provision has been made for the payment or satisfaction of such obligations.

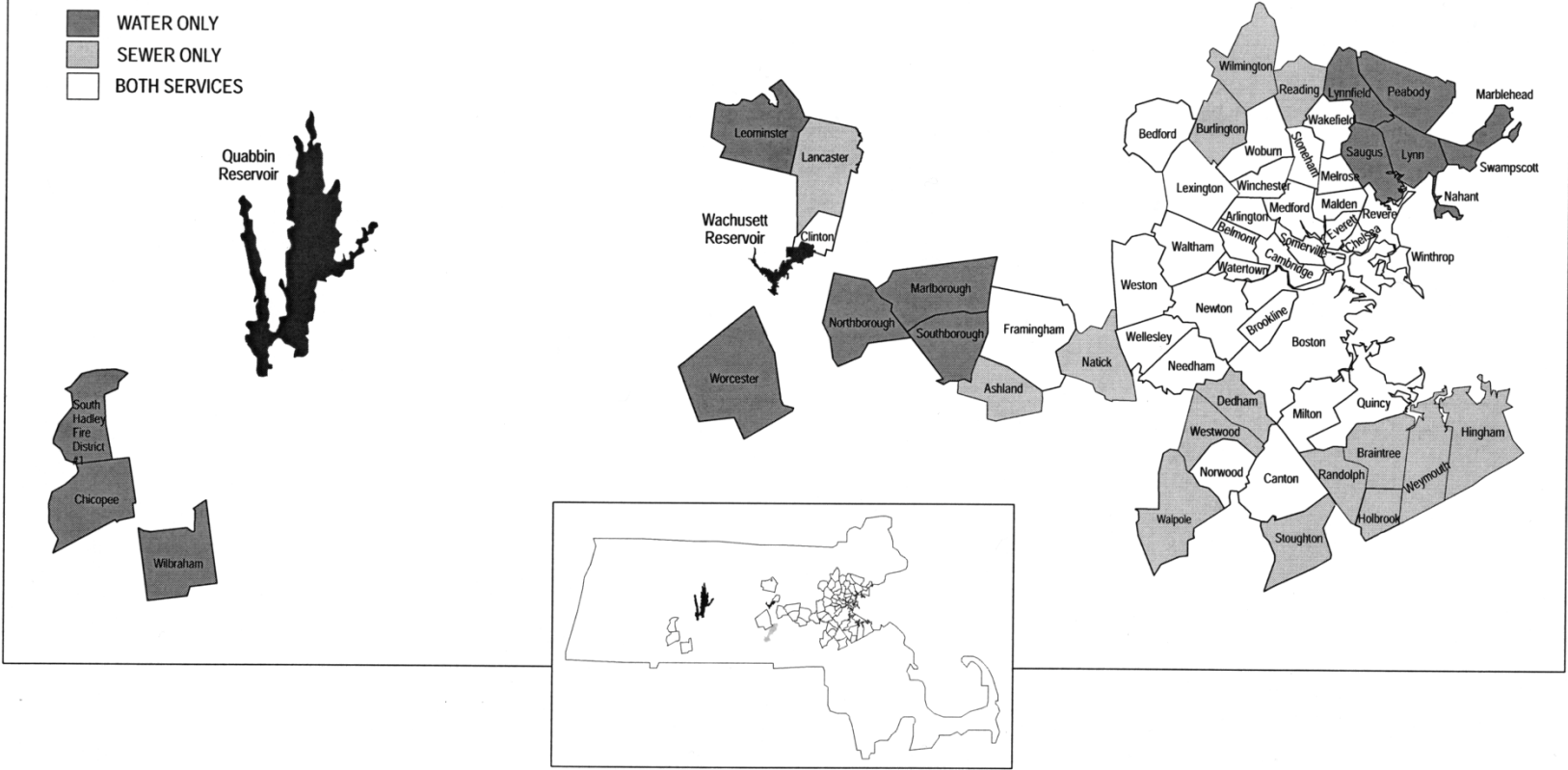
### **SERVICE AREAS AND MAP**

The Authority currently provides wholesale water and sewer services in service areas encompassing, in whole or in part, 61 communities located primarily in eastern Massachusetts, including most of the cities and towns in the metropolitan Boston area. Approximately 2.5 million people, or approximately 43% of the total population of the Commonwealth, live in the Authority's service areas. Under certain circumstances, the Authority's service areas may be expanded to include additional communities. See "The Systems."

The map on the following page shows the Authority's current service areas for water and sewer services.

MWRA SERVICE AREA

- WATER ONLY
- SEWER ONLY
- BOTH SERVICES



## CHARGES TO LOCAL BODIES

Forty-eight Local Bodies are authorized to be served by the Waterworks System and 43 Local Bodies are authorized to be served by the Sewer System.

More than 80% of the Authority's revenues historically have been derived from the rates and charges paid by the Local Bodies for the Authority's wholesale water and sewer services. The Local Bodies in turn fund payment of the Authority's rates and charges from a variety of local sources. The obligation to pay the Authority's rates and charges is a general obligation of each Local Body, supported by its full faith and credit and payable from all revenue sources. See "Local Bodies."

For water supply, 32 of the 48 Local Bodies named in the Act derive their entire municipal water supply from the Waterworks System. Eleven receive a portion of their water supply from the Waterworks System. Three -- Dedham, Leominster and Worcester -- historically have received virtually no water from the Authority (although Worcester did receive limited water from the Authority as a result of extremely dry weather in the summer of 1999 as did Dedham in the summers of 2002, 2003 and 2004). In June 2002, the Board approved the application of the Town of Stoughton to become a member of the Waterworks System and began supplying water to the town in the first quarter of Fiscal Year 2004. The allocation among Local Bodies of the Authority's water charges for each fiscal year generally is based upon water consumption in the preceding calendar year. See "Rates and Charges - General."

For the Sewer System, all 43 Local Bodies named in the Act currently receive service from the Authority. The Authority's sewer charges are allocated on a proportional basis utilizing, among other factors, total metered flow, contributing population and census population. See "Rates and Charges - General."

Five Local Bodies, of which the BWSC is the largest, are budgeted to account for approximately 47.6% of the aggregate rates and charges assessed in Fiscal Year 2005 as follows:

	<u>Percent of Total FY 2005 Authority Water Charges</u>	<u>Percent of Total FY 2005 Authority Sewer Charges</u>	<u>Percent of Total FY 2005 Authority Charges</u>
Boston Water & Sewer Commission	39.5%	28.6%	31.9%
City of Newton	4.9	4.4	4.5
City of Quincy	4.8	4.2	4.4
City of Cambridge	0.0	5.0	3.5
City of Somerville	<u>3.2</u>	<u>3.3</u>	<u>3.3</u>
Total	52.4%	45.5%	47.6%

The following table sets forth the Fiscal Year 2005 charges assessed by the Authority to each Local Body, except charges to certain Local Bodies and certain governmental users with special arrangements with the Authority. See Footnote 1 to the following table and "Local Bodies - Special Arrangements." The Authority estimated receipt of \$8.7 million in debt service assistance from the Commonwealth in Fiscal Year 2005 and reduced the rate revenue installment due from the Local Bodies on September 1, 2004 by this amount. The table reflects the impact of such reduction.

**FISCAL YEAR 2005 SYSTEMS CHARGES BY LOCAL BODY\***

Local Body	Service Provided		Systems Charges			Percent of Total FY 2005 Charges
	Water	Sewer	Water	Sewer	Combined	
Arlington	x	x	\$ 2,838,679	\$ 5,811,076	\$ 8,649,755	1.9%
Ashland		x	0	1,431,722	1,431,722	0.3
Bedford		x	0	2,357,318	2,357,318	0.5
Belmont	x	x	1,457,654	3,463,333	4,920,987	1.1
Boston Water and Sewer Commission <sup>2</sup>	x	x	52,527,739	89,118,633	141,646,372	31.9
Braintree		x	0	5,736,914	5,736,914	1.3
Brookline	x	x	3,917,687	8,821,268	12,738,955	2.9
Burlington		x	0	3,352,886	3,352,886	0.8
Cambridge		x	0	15,650,295	15,650,295	3.5
Canton	x	x	1,477,535	2,834,189	4,311,724	1.0
Chelsea	x	x	2,322,465	4,397,194	6,719,659	1.5
Dedham		x	0	4,262,123	4,262,123	1.0
Everett	x	x	3,216,034	5,584,883	8,800,917	2.0
Framingham	x	x	4,948,458	8,241,392	13,189,850	3.0
Hingham		x	0	1,117,122	1,117,122	0.3
Holbrook		x	0	1,096,205	1,096,205	0.2
Lexington	x	x	3,303,339	5,062,751	8,366,090	1.9
Lynn Water and Sewer Commission <sup>3</sup>	x		209,257	0	209,257	0.0
Lynnfield Water District <sup>4</sup>	x		263,419	0	263,419	0.1
Malden	x	x	3,912,218	8,273,885	12,186,103	2.7
Marblehead	x		1,255,532	0	1,255,532	0.3
Marlborough	x		2,216,953	0	2,216,953	0.5
Medford	x	x	3,521,045	8,313,470	11,834,515	2.7
Melrose	x	x	1,547,949	4,121,863	5,669,812	1.3
Milton	x	x	1,870,732	3,885,380	5,756,112	1.3
Nahant	x		246,351	0	246,351	0.1
Natick		x	0	3,777,540	3,777,540	0.9
Needham	x	x	786,119	4,609,914	5,396,033	1.2
Newton	x	x	6,453,163	13,624,048	20,077,211	4.5
Northborough	x		205,822	0	205,822	0.0
Norwood	x	x	2,072,309	4,870,039	6,942,348	1.6
Peabody	x		346,546	0	346,546	0.1
Quincy	x	x	6,413,295	13,067,874	19,481,169	4.4
Randolph		x	0	3,914,768	3,914,768	0.9
Reading		x	0	2,943,779	2,943,779	0.7
Revere	x	x	2,985,984	6,583,747	9,569,731	2.2
Saugus	x		2,243,393	0	2,243,393	0.5
Somerville	x	x	4,219,922	10,346,323	14,566,245	3.3
Southborough	x		449,833	0	449,833	0.1
Stoneham	x	x	1,867,171	3,158,677	5,025,848	1.1
Stoughton	x	x	155,751	3,243,127	3,398,878	0.8
Swampscott	x		1,354,396	0	1,354,396	0.3
Wakefield	x	x	1,223,119	4,141,858	5,364,977	1.2
Walpole		x	0	2,404,692	2,404,692	0.5
Waltham	x	x	5,128,931	9,195,767	14,324,698	3.2
Watertown	x	x	1,930,527	4,203,949	6,134,476	1.4
Wellesley	x	x	245,979	3,930,914	4,176,893	0.9
Weston	x		989,949	0	989,949	0.2
Westwood		x	0	1,871,749	1,871,749	0.4
Weymouth		x	0	7,856,294	7,856,294	1.8
Wilmington		x	0	1,782,205	1,782,205	0.4
Winchester	x	x	621,008	2,945,320	3,566,328	0.8
Winthrop	x	x	998,369	2,178,152	3,176,521	0.7
Woburn	x	x	1,298,535	7,640,841	8,939,376	2.0
<b>Total</b>			<u>\$133,043,167</u>	<u>\$311,225,479</u>	<u>\$444,268,646</u>	<u>100.0%</u>

\*May not add due to rounding.

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- <sup>1</sup> This chart excludes six communities, the revenues received from which are accounted for by the Authority as other charges for services, rather than as rates and charges. These excluded communities include four of the 19 communities which receive water pursuant to contracts: Chicopee, South Hadley (served by South Hadley Fire District No. 1), Wilbraham and Worcester. Worcester currently only receives water services on an emergency basis and most recently received water during the drought that occurred in the summer of 1999. The fifth excluded community is Clinton, which receives its first 800 million gallons of water per year at no charge pursuant to special act, and typically consumes less than 800 million gallons annually, but would be charged generally applicable rates for any amounts in excess thereof. Clinton also receives wastewater services provided by the Clinton Wastewater Treatment Plant and charges for this service are excluded from this chart. The sixth excluded community, Lancaster (served by the Lancaster Sewer District), receives wastewater services provided by the Clinton Wastewater Treatment Plant. The six excluded communities are budgeted to account for approximately \$3.9 million in Authority revenues for Fiscal Year 2005. The chart also excludes Leominster which, although named in the Act to be served by the Authority's Waterworks System, has taken no water from the Authority since January 1991.
- <sup>2</sup> The Authority's services for the City of Boston are provided through and assessed to the BWSC. The BWSC is a body politic and corporate and independent political subdivision of the Commonwealth. The City of Boston is not liable for the rates and charges imposed on the BWSC by the Authority.
- <sup>3</sup> The Authority's services to a single large industrial user in Lynn are provided through and assessed to the Lynn Water and Sewer Commission (the "LWSC"). The LWSC provides service to the rest of Lynn from its own resources without obtaining service from the Authority. The LWSC is a body politic and corporate and independent political subdivision of the Commonwealth. Neither the City of Lynn nor the retail industrial user is liable for the rates and charges imposed on the LWSC by the Authority.
- <sup>4</sup> The Authority provides water services to approximately 45% of the population of Lynnfield through the Lynnfield Water District, a body corporate of the Commonwealth. The Town of Lynnfield is not liable for the rates and charges imposed on the Lynnfield Water District by the Authority.

Subject to applicable federal and state regulations and certain regulatory powers of the Authority, Local Bodies continue to exercise control over their respective retail water distribution and wastewater collection systems. Except in an emergency, written notice of any proposed local rules and regulations regarding use of the retail systems must be furnished to the Authority prior to adoption. Regulatory powers for monitoring and regulating Local Bodies conferred by the Act upon the Authority relate to matters such as water conservation and development of local water supply sources, implementation of federal and state toxic waste and pretreatment laws, reduction of infiltration and inflow of ground and surface waters into the Sewer System, and installation of water meters. See "The Systems."

Local Bodies currently served by the Authority could by state legislative action or with the Authority's approval seek to develop alternative water or wastewater delivery systems, although such systems would need to comply with all applicable federal and state environmental standards. The Authority and its Consulting Engineer believe that such alternatives are likely to be prohibitive in cost for most of the Local Bodies and, particularly in the case of alternative sewage treatment facilities, would take many years to implement.

## **RATES AND CHARGES**

### **GENERAL**

For Fiscal Year 2005, approximately 92% of the Authority's budgeted revenues are expected to be derived from wholesale rates and charges assessed to the Local Bodies. The remaining revenues are expected to be derived primarily from investment income and miscellaneous income, including assessments to certain Local Bodies not included as rates and charges. The Act requires that the Authority set its rates and charges at levels sufficient to pay, among other things, its current expenses and its debt service, and to provide the debt service coverage required by the General Resolution. See "Security for the 2005 Series A Bonds - Coverage Covenants." In addition to this revenue, the Authority estimated receipt of \$8.7 million in financial assistance from the Commonwealth ("state debt service assistance") in Fiscal Year 2005. The Authority used such amount to reduce Fiscal Year 2005 rate charges assessed to the Local Bodies, and reflected the expected receipt of such amount in the rate revenue installments that were due from the Local Bodies on September 1, 2004. See "Historical Rates and Charges" below. Based on the

final state allocation, the Authority currently expects to receive \$8.0 million of debt service assistance in Fiscal Year 2005. There can be no assurance that the Authority will actually receive any such amount.

In accordance with the Act, the Authority's rate setting is exercised independently by its Board of Directors without being subject to the approval of any department, agency or other instrumentality of the Commonwealth or any other governmental body. The Authority's rates and charges are adopted annually in June after notice and public hearing, and the review and receipt of non-binding recommendations by the Authority's Advisory Board. The level of the Authority's rates and charges assessed to Local Bodies is not subject to the limitations set forth in Proposition 2½. For a discussion of the effect of Proposition 2½ on the ability of Municipal Local Bodies to raise revenues to pay assessed rates and charges through property tax levies, see "Local Bodies - Municipal Sources of Revenue."

The Authority's charges for services are billed directly to Local Bodies on a wholesale basis. The Authority currently certifies annual charges to each Local Body on or about July 1 of each year. To assist Local Bodies with their respective annual budget or rate-setting processes, the Authority furnishes them with preliminary estimates of their respective rates and charges for the following fiscal year in February of each year. Authority charges are payable in ten equal installments due on or before the first business day of each month, excluding January and July, of each fiscal year. There is an interest charge of 1% per month for late payments.

As required by the Act, the Authority establishes charges of general application separately for the services provided by the Waterworks System and the Sewer System. Generally, charges for water services are computed by the Authority on the basis of metered water use for the immediately preceding calendar year. Accordingly, with certain exceptions, the Fiscal Year 2005 water charges are based on the Local Bodies' metered water use in calendar year 2003. In setting water rates, the Authority first identifies through its budgeting process the total amount of revenue which must be raised through water rates in a given fiscal year, net of other anticipated sources of revenue, such as investment income, receipts from water supply contracts and other special arrangements. Water charges are computed based on the proportional number of gallons consumed by each Local Body during the immediately preceding calendar year.

Sewer charges are computed on a proportional allocation basis utilizing, among other things, total flow, contributing population and census population for each Local Body. Consistent with the initial step in setting water rates, the Authority first determines the total amount of revenue to be raised from sewer charges. The total amount of required revenue for the Sewer System is allocated either to operating costs or capital costs. Operating costs are allocated to each Local Body based on the average of the prior three calendar years' total flow, with adjustments for strength of flow to take into account above-average concentrations of total suspended solids and biochemical oxygen demand. Capital costs, including debt service, are allocated to each Local Body based on a combination of (i) average of the prior three years' peak month wastewater flow and average concentrations of total suspended solids and biochemical oxygen demand (2/8), (ii) the proportion of the population of the Local Body which is served by the local sewer system (the "contributing population") to the total contributing population in the Sewer System (3/8), and (iii) the proportion of the Local Body's U.S. census population, based upon the Commonwealth's most recent bi-annual update (the "census population"), to the total census population in the Sewer System (3/8).

## **HISTORICAL RATES AND CHARGES**

The Authority's rates and charges have increased at an average annual rate of approximately 4.6% for the period from Fiscal Year 2001 through Fiscal Year 2005. During this period, 100% of the Authority's rates and charges were collected within 30 days of their due dates. The following table sets forth the aggregate charges of the Authority from Fiscal Year 2001 through Fiscal Year 2005. The table also sets forth the percentage increase in charges in each fiscal year over those of the prior fiscal year.



**HISTORICAL RATE REVENUE  
AND PERCENTAGE INCREASES<sup>1</sup>**  
(dollar amounts in millions)

Fiscal Year	Water		Sewer		Combined	
	Amount	Increase	Amount	Increase	Amount	Increase
2001	\$ 93.2	---	\$283.2	---	\$376.3	---
2002	102.3	9.83%	287.2	1.42%	389.5	3.50%
2003	112.5	9.93	304.2	5.91	416.7	6.97
2004 <sup>2</sup>	123.8	7.33	312.0	2.60	435.8	3.89 <sup>3</sup>
2005 <sup>4</sup>	134.3	8.52	318.7	2.12	453.0	3.94

<sup>1</sup> Does not include revenues received by the Authority from Local Bodies pursuant to contracts or special act which are accounted for as other charges for service rather than as rates and charges.

<sup>2</sup> Based upon the FY04 CEB; does not reflect the receipt of \$4.1 million of state debt service assistance.

<sup>3</sup> In Fiscal Year 2004, the towns of Marlborough and Southborough became part of the rate revenue base, resulting in the Fiscal Year 2004 rate revenue requirement being \$3.1 million higher than it would have been. In order to provide an accurate basis for comparison, the rate revenue change from Fiscal Year 2003 to Fiscal Year 2004 is based on the final Fiscal Year 2003 rate revenue requirement plus \$2.8 million in Fiscal Year 2003 of other user charges revenue from Marlborough and Southborough.

<sup>4</sup> Based upon the FY05 CEB; does not reflect the receipt of \$8.7 million of state debt service assistance. The net impact of the estimated receipt of the \$8.7 million of state debt service assistance was to reduce the rate revenue requirement percentage increase from 3.9% to 1.9% as compared to the FY04 CEB.

The Authority's rate increases for the period from Fiscal Year 2001 through Fiscal Year 2005 were substantially lower than during the Authority's first several years of operation. From Fiscal Year 1986 through Fiscal Year 1993, the Authority had increased total sewer charges by 579% and total water charges by 143%, for a combined increase of 394% for the period, and an average annual combined increase of 26.7%. The lower range of rate increases in more recent years is due to several factors. These include the receipt of state debt service assistance, as described below, several federal grants for the Deer Island Project, use of commercial paper for construction financing requirements, issuance of variable rate debt, additional borrowing at subsidized interest rates from the SRF, and various efficiency and cost control strategies adopted by the Authority. Notwithstanding its success in mitigating rate increases, the Authority currently projects that, absent unanticipated new sources of revenue or other unexpected changes to its programs, its future rates and charges will experience larger annual increases than in the most recent fiscal years.

Beginning in Fiscal Year 1994, the Authority received funding through the Commonwealth's Water and Sewer Rate Relief Fund (the "Fund"). The Fund provides state debt service assistance to issuers of eligible indebtedness, such as the Authority, for qualified projects in order to mitigate extraordinary increases in rates. The Commonwealth appropriated to the Fund \$53.9 million for each of Fiscal Years 2000 and 2001, \$58.7 million for Fiscal Year 2002 and \$38.7 million for Fiscal Year 2003. Of these amounts, the Authority received state debt service assistance for Fiscal Years 2000, 2001 and 2002 in the amounts of \$46.5 million, \$51.3 million and \$50.2 million, respectively. Due to Commonwealth budget constraints, the Authority did not receive any state debt service assistance in Fiscal Year 2003. The Current Expense Budget for Fiscal Year 2004 did not assume the receipt of any state debt service assistance. However, the Commonwealth appropriated \$5 million to the Fund, \$4.1 million of which was allocated to the Authority and received in March 2004. The FY05 CEB, as adopted in June 2004 did not assume receipt of any debt service assistance as it was adopted prior to the approval of the Commonwealth budget. The amount subsequently appropriated to the Fund by the Commonwealth for Fiscal Year 2005, \$10 million, was vetoed by the Governor; however, the state legislature overrode the veto. The Authority estimated receipt of up to \$8.7 million in the spring of 2005 from the Fund and based on this expectation, reduced the rate revenue requirement that was due from the Local Bodies on September 1, 2004 by such amount.

## FUTURE RATES AND CHARGES

While the Authority expects to continue to seek and adopt measures to moderate its rate increases in the future, the Authority's rates and charges must continue to be increased to meet the increased debt service costs necessary to finance the facilities included in the Capital Program, and to fund increased operating expenses resulting from the operation of such facilities. The Authority has developed its Proposed Current Expense Budget for Fiscal Year 2006 (the "Proposed FY06 CEB") and, in connection therewith, has developed planning estimates of its future rate revenue requirements and the related percentage rate increases for Fiscal Years 2006 through 2015. The Proposed FY06 CEB estimates an increase for Fiscal Year 2006 of 5.7% over Fiscal Year 2005 rates and charges. These estimates do not assume the receipt of any debt service assistance in Fiscal Year 2006 or future years.

The Authority's planning estimates assume an inflation rate of 2.5% for capital projects which are not yet under contract, an annual capital budget expenditure rate of 85%, with two-thirds of the remaining 15% assumed to be spent three years later; and that the costs of the Capital Program will be as currently set forth in the Authority's Proposed Fiscal Year 2006 Capital Improvement Program (the "Proposed FY06 CIP") which was forwarded by the Authority to the Advisory Board for its review and comment in December 2004. The planning estimates assume that all of the Authority's future long-term bond financings will consist of 40-year debt with an interest rate of 6% in Fiscal Years 2006 through 2015. Operating expense inflation rates for facilities currently in operation are assumed at 2.5%.

The table below sets forth the Authority's estimates of its rate revenue requirements for Fiscal Years 2005 through 2010 based on the FY05 CEB. The Authority believes that the estimates are based upon realistic cost estimates and other assumptions, including the receipt of no state debt service assistance, and include adequate provision for contingencies. However, as discussed below, there can be no assurance that actual revenue requirements or expenditures will not vary from current estimates and cause actual rates and charges to be different from current estimates. For a discussion of risk factors that could lead to higher costs in the Capital Program, see "Capital Improvement Program - Factors Affecting the Capital Projects."

### ESTIMATED FUTURE RATE REVENUE REQUIREMENTS AND PERCENTAGE INCREASES (dollar amounts in millions)

<u>Fiscal Year</u>	<u>Rate Revenue*</u>	<u>Percentage Increase</u>
2005	\$453.0	---
2006	483.4	6.7%
2007	515.7	6.7
2008	550.3	6.7
2009	585.7	6.4
2010	641.0	9.4

\* Based on the FY05 CEB and receipt of no state debt service assistance. The rate revenue requirement for Fiscal Year 2005 does not reflect \$8.7 million of debt service assistance estimated to be received in the spring of 2005.

See Appendix B for a discussion of the Consulting Engineer's rate projections through Fiscal Year 2010.

Actual retail rate increases of specific Local Bodies vary considerably because of different practices among Local Bodies to the extent to which the Authority's rates and charges are incorporated into retail user charges and the disparity in levels of the local water and sewer costs of the Local Bodies. Based upon a 2004 survey conducted by the Authority's Advisory Board of Local Bodies' rates and charges (the "2004 Survey") and the Authority's budgeted rates and charges for Fiscal Year 2005, and assuming annual household water usage of 90,000 gallons, the annual average household combined water and sewer bill in those Local Bodies that receive full water and/or sewer

services from the Authority is \$886. Actual annual bills vary from this average, in part due to the fact that there are certain Local Bodies which in the past raised their own retail rates at paces different from the Authority's rate increases.

The Local Bodies fund their payment of the Authority's rates and charges in a variety of ways so that it is difficult to generalize about the effect of the Authority's future rate increases on retail ratepayers, including households and businesses in the service area. However, for illustrative purposes, based upon data provided by the Authority, the Consulting Engineer has calculated the impact of the projected rate increases on an average household in a hypothetical Local Body, as described in the Engineering and Feasibility Report. The average household in the circumstances assumed by the Consulting Engineer would pay an estimated retail user charge for combined water and sewer service of approximately \$886 in Fiscal Year 2005 and \$938 in Fiscal Year 2006. This estimate is based on the Authority's FY05 CEB, Fiscal Year 2005 rates and charges, and the 2004 Survey. This per household retail user charge would increase in Fiscal Year 2010 to approximately \$1,226 in future dollars, under the Consulting Engineer's estimates. The Consulting Engineer's assumptions include: (1) that the Local Body which provides retail services to such household receives full water and sewer service from the Authority; (2) that the Local Body passes on to each household it serves 100% of the increase in the Authority's charges and of local charges in the form of retail user charges; (3) that such costs of the Local Body, other than Authority charges, will increase by 5% per year in each of the fiscal years up to and including Fiscal Year 2010; (4) that the Authority charges in Fiscal Year 2005 constituted approximately 61% of the Local Body's total costs; and (5) that the household consumes 90,000 gallons of water annually. Provision for and payment of these increases will depend on a number of factors, including the Local Bodies' methods of funding Authority charges and the availability of local sources of revenue.

Actual future experience with respect to both the Authority's aggregate rates and charges and the Local Bodies' retail charges, as well as actual usage, is likely to vary from the estimates set forth above, although the Authority cannot predict what those variations will be.

As discussed above, in the early years of the Authority, prior to Fiscal Year 1994, increases in operating expenses of the Systems, including increases in debt service, caused substantial annual percentage increases in the Authority's rates and charges to the Local Bodies. The Authority expects continued annual percentage increases in its rates and charges to the Local Bodies, although the Authority does not expect such percentage increases to return to pre-Fiscal Year 1994 levels.

From time to time, public concern is expressed regarding the increasing level of the Authority's rates and charges. However, the Authority believes that several factors will work to mitigate future public opposition. These include (i) the federal and state legal and regulatory mandates (including legal enforcement orders issued by courts or administrative agencies) to which much of the Capital Program responds, (ii) the importance of improvements to the Systems to support future regional economic growth, (iii) public support for meeting environmental protection and public health goals, and (iv) the Authority's success in mitigating rate increases during the past five fiscal years, resulting in an average annual increase of approximately 4.6% from Fiscal Year 2001 through Fiscal Year 2005, and estimated future rate increases that are expected to be significantly below those in the early years of the Authority, prior to Fiscal Year 1994.

The Authority believes that the considerations described above have contributed to the Authority receiving substantial financial assistance, from both the federal and state governments, to help finance the Capital Program. This financial assistance -- in the form of capital grants, SRF loans at subsidized interest rates, and state debt service assistance -- has helped in the past to mitigate rate increases and the Authority believes that SRF loans and state debt service assistance will continue to be necessary in order to mitigate future rate increases and to assure that revenue requirements continue to be met. Accordingly, the Authority actively will continue to pursue such financial assistance for its programs through legislative and other avenues. There can be no assurance, however, as to the continuation of state and federal support or the development of additional revenue sources or other forms of financial assistance.

## ENFORCEMENT

The Authority has adopted, and is authorized by the Act to enforce, billing and collection procedures and regulations, including requirements for the submission to the Authority of relevant information regarding the provision of retail services by Local Bodies. In the event any charge to a Local Body is not paid when due, the Act authorizes the Authority to recover the amount due, together with interest and other actual damages, by action in the state superior court.

Without suit, the Authority may use an intercept mechanism (the "local aid intercept") established by the Act to recover amounts unpaid by a Local Body. To trigger this mechanism, the Authority must certify to the State Treasurer the amount of any unpaid charge, whereupon the State Treasurer is required by the Act to deduct such unpaid charge from all amounts payable to the Local Body by the Commonwealth, if any, regardless of their intended use (including state reimbursements, grants and general local aid funds) and to pay such amount over to the Authority. For a description of general local aid funds as a source of revenue available to Local Bodies to pay Authority charges, see "Local Bodies - Municipal Sources of Revenue." The Authority has covenanted in the General Resolution to use this enforcement mechanism in the event that a Local Body fails to make timely payment. See "Security for the Series A Bonds - Community Obligation and Revenue Enhancement Fund" and Appendix C "Summary of Certain Provisions of the General Bond Resolution - Community Obligation and Revenue Enhancement Fund." The Authority has successfully used the local aid intercept six times since 1990, including, in one case, following a Local Body's protesting of the Authority's rates and charges. The amounts intercepted represented less than one-tenth of one percent of all rates and charges assessed and collected in the applicable fiscal year. The Authority has not used the local aid intercept since Fiscal Year 1993.

Distributions of local aid payable to the municipalities served by Special Purpose Local Bodies, including the BWSC, would not be available to meet unpaid charges due the Authority through the local aid intercept. Municipalities served by such Special Purpose Local Bodies account for approximately 32% of the Authority's combined rates and charges assessed for Fiscal Year 2005.

Under the laws of the Commonwealth, there are currently several other similar local aid intercept mechanisms that may affect the amount available for intercept on behalf of the Authority. The State Treasurer is authorized to deduct from a Local Body's local aid distributions amounts owed by such Local Body to the Commonwealth for certain assessments and charge-backs. In addition, under the so-called Qualified Bond Act, cities and towns in the Commonwealth may secure their bonds and notes by authorizing the State Treasurer to intercept from their respective local aid distributions the amount necessary to pay principal and interest on such debt. The City of Revere and the City of Chelsea had outstanding \$5,905,000 and \$71,565,000 aggregate principal amount of bonds, respectively, under the Qualified Bond Act as of January 1, 2005, and there were no other obligations of any Municipal Local Body outstanding under the Qualified Bond Act as of such date. Under state law, a municipality may certify to the state Department of Revenue ("DOR") its inability or likely inability to pay debt service on its indebtedness when due and if DOR after investigation concurs with such certification, then DOR is required to certify such inability or likely inability to the State Treasurer who shall apply the municipality's local aid distributions to the payment of such indebtedness. In addition, in the event that certain regional school districts are unable to adopt a budget by December 1 of any year, the State Department of Education is authorized to assume operation of the district and funds for such operation are authorized to be deducted from local aid distributions of the regional school district's members, which may include certain Municipal Local Bodies. The State Treasurer is also empowered to deduct from the local aid distributions to a Local Body any unpaid assessments for the costs of any public transportation authority, such as the Massachusetts Bay Transportation Authority or a regional transit authority, of which such Local Body is a member. Finally, under the Commonwealth legislation establishing the SRF, the State Treasurer may, under certain circumstances, deduct from a community's local aid distribution (i) the amount of charges owed by the community to the SRF, (ii) the amount of charges owed by the community to any entity which provides wastewater or drinking water service to the community and has a repayment obligation to the SRF (a "Regional Unit") which the Regional Unit has not fulfilled by reason of the default of such community in its payment obligations to the Regional Unit, and (iii) the community's pro rata share of any payment obligation of a Regional Unit to the SRF which has not been fulfilled but not due to the default of any particular community or communities served by the Regional Unit. Since the Authority is a Regional Unit under the SRF statute, failure by the Authority to pay debt service on its loans from the SRF would permit the SRF to exercise its intercept against the Local Bodies. As of January 1, 2005, the Authority had outstanding \$779 million in aggregate principal amount of

loans from the SRF. The SRF also has made loans to or purchased local governmental obligations from 34 Local Bodies in an approximate aggregate principal amount of \$230.1 million outstanding as of January 1, 2005, the debt service on which also is subject to intercept.

In addition to the possibility of a Municipal Local Body's local aid being accessed by another offset mechanism prior to the Authority's attempt to intercept it, the availability of local aid in the future to satisfy unpaid charges imposed by the Authority will be dependent upon, among other things, the aggregate amount actually appropriated by the state legislature and distributed by the Governor in a fiscal year. For a discussion of these and other factors affecting local aid, see "Local Bodies - Municipal Sources of Revenue" and "Local Bodies - Economic Factors."

## **OTHER SOURCES OF REVENUE**

The Authority receives revenues from other sources, including water supply contracts and other arrangements between the Authority and certain Local Bodies under which amounts paid to the Authority are not accounted for by the Authority as rates and charges (although such contract revenues are included in the definition of Rates and Charges for purposes of the General Resolution). See "Local Bodies - Special Arrangements." Revenue under such contracts is budgeted to be approximately \$6 million in Fiscal Year 2005, including water supply revenues from three Local Bodies (Chicopee, South Hadley Fire District No. 1 and Wilbraham). The Authority also receives investment earnings on various funds which it holds. Such earnings are budgeted to total approximately \$28.7 million in Fiscal Year 2005. Revenues from permits, fines, fees and other miscellaneous sources are budgeted to total approximately \$4.9 million in Fiscal Year 2005.

## **LOCAL BODIES**

### **GENERAL**

The Authority provides services to Local Bodies on a wholesale basis. The obligation of the Local Bodies to pay for these services is a general obligation payable from any and all sources of revenue available to the Local Bodies. The legal structure of a Local Body determines which revenue sources are available to it under state law. The revenues available to Special Purpose Local Bodies, each a retail system operator, are limited primarily to retail user fees and charges and investment income. Such entities have no taxing power and do not ordinarily receive distributions of local aid. Revenues of Municipal Local Bodies used to pay the Authority's rates and charges are derived primarily from retail user charges, property taxes, and local aid. All Municipal Local Bodies have instituted retail user charges, although there are substantial differences in the proportion of its full costs that each Municipal Local Body recovers through its retail user charges.

### **BOSTON WATER AND SEWER COMMISSION**

The BWSC is budgeted to account for approximately 31.9% of the Authority's combined rates and charges assessed for Fiscal Year 2005. Established in 1977 as a public instrumentality, a body politic and corporate and a political subdivision of the Commonwealth, the BWSC is responsible for the retail operation of the water distribution and wastewater collection and storm water drainage systems of the City of Boston (the "City") and for the maintenance and improvement of such systems. The BWSC purchases its water in bulk from the Authority. Such water is delivered through 29 active metered connections located at various points throughout the BWSC's water distribution system. The BWSC's sewer system transports the City's wastewater to the Authority's interceptor sewers which convey the wastewater to the Authority's Deer Island Treatment Plant for treatment and disposal.

The Authority's charges to the BWSC constitute general obligations of the BWSC. The BWSC has no taxing power but funds its operations through the collection of user fees and charges. Chapter 436 of the Acts of 1977 of the Commonwealth (the "BWSC Act") requires the BWSC to establish its rates and charges at levels sufficient to (i) pay the current expenses of the BWSC (including the Authority's rates and charges), (ii) pay all BWSC debt service, (iii) create and maintain reasonable reserves required by any bond resolution, (iv) provide funds

for paying the cost of all necessary repairs, replacements and renewals of the BWSC's systems, and (v) pay or provide for any and all amounts which the BWSC may be obligated to pay or provide for by law or contract. The BWSC's rates and charges are independently set by the BWSC and are not subject to regulation or approval by any other governmental body. However, the BWSC is required to give written notice to the Authority of its proposed rules and regulations, including its rates, relating to its water and sewer services prior to adoption.

The BWSC serves approximately 86,000 accounts. Its twenty largest users in calendar year 2004 are estimated to account for approximately 17.3% of the BWSC's aggregate retail user charges. Its customers include many large commercial entities, governmental agencies and not-for-profit institutions such as its five largest customers for calendar year 2004, the Boston Housing Authority, the City of Boston, Harvard University, Boston University and the Massachusetts Port Authority. The BWSC has realized surpluses from its operations in each year since its inception.

The BWSC has issued revenue bonds to finance improvements to its water distribution and wastewater collection systems. As of January 1, 2005, the BWSC had approximately \$343.2 million aggregate principal amount of revenue bonds outstanding. In addition, the BWSC has received loans from the SRF and combined loans/grants from the Authority's Infiltration/Inflow, Local Water Infrastructure Rehabilitation Financial Assistance Program and Pipeline Assistance Program. As of January 1, 2005, the BWSC had \$20.7 million of its SRF loans and \$30.9 million of its loans from the Authority outstanding. In the resolutions providing for the issuances of its revenue bonds, the BWSC has granted a security interest on its revenues as security for its revenue bonds. The BWSC bond resolutions also provide that debt service on the BWSC's revenue bonds and operating expenses of the BWSC shall be paid prior to the Authority's rates and charges.

The single largest component of the BWSC's expenses has been assessments to the BWSC by the Authority. Authority assessments for the costs of water supply and wastewater treatment services provided to the BWSC have continued and, based on BWSC projections, will continue to increase as a percentage of the BWSC's total expenses. BWSC financial statements show the Authority's assessments to the BWSC to be 61.5% of the total costs of operation of the BWSC in calendar year 2004. As of January 1, 2005, the BWSC projected that this percentage would be 60.7% in 2005, 63.8% in 2006, 63.9% in 2007, 64.4% in 2008 and 64.7% in 2009.

For calendar years 1994 through 2001 and 2005, there had been no increase in the BWSC's combined water and sewer rates. In calendar year 2002, the BWSC's combined water and sewer rate increased 8.9%. In January 2003, such rate increased 8.9%, and there was an additional increase of 3.9% in April 2003. The combined water and sewer rate increase for calendar year 2004 was 5.8%. As of January 1, 2005, the BWSC estimated that over the period from calendar years 2006 through 2009, the Authority's assessments to the BWSC will increase at an average annual rate of 7.1% and the BWSC's rates will increase at an average annual rate of 8.6%. The BWSC's estimates are based upon the Authority's Fiscal Year 2005 CEB planning estimates. See "Rates and Charges - General" above. The BWSC is able to mitigate the impact of the Authority's assessments on its rates and charges to its retail customers through the funding of its rate stabilization fund, which has increased over the past several years. The BWSC expects to use the fund in the coming years to continue to mitigate increases in the BWSC's retail rates and charges.

The BWSC employs an inclining block rate structure, consisting of ten steps. The BWSC's staff believes that this structure provides conservation incentives to all users, increased stability of the BWSC's revenues, and some relief to those customers least able to pay rising water and sewer rates, and ensures the efficient allocation of the costs of providing water, wastewater and stormwater drainage services.

## **MUNICIPAL SOURCES OF REVENUE**

**General.** Cities and towns in the Commonwealth are limited by state law as to the types of revenues that they can raise to support local spending, including for the rates and charges of the Authority. Under current state law, the Municipal Local Bodies may derive their revenues from several sources, including water and sewer user charges, property taxes, local aid distributions, certain excise receipts (including motor vehicle excises, local option excises on hotel and motel room occupancy and aircraft fuel), departmental revenues (including parking fines and building permit fees), and investment income. Some of the revenue sources discussed in this subsection are not available to Special Purpose Local Bodies, including the BWSC.

**User Fees and Charges.** Each Municipal Local Body owns and operates a distribution system of pipes for water and a collection system for sewage. Each Municipal Local Body is authorized by state law to charge just and equitable retail user charges to cover the respective costs of providing these municipal services, including operation and maintenance of the Municipal Local Body's system, replacement of capital components of the system over time, and the Authority's annual charges to such Municipal Local Body. These retail user charges are not subject to the limitations of Proposition 2½. Under the Act, Local Bodies may establish rates and charges for retail services on a flat rate basis or on an ascending unit rate based on quantity, and may permit adjustments in their local rates for the age, infirmity or poverty of their retail customers.

The Act also permits the Authority, subject to federal and state constitutional restrictions on the impairment of contracts in effect on the effective date of the Act, to require Local Bodies to adopt systems of rates and charges which comply with applicable federal and state law and with Authority policies designed to promote water conservation, full local cost recovery, the elimination of infiltration and inflow of ground and surface waters, and the pretreatment of industrial wastes.

The revenues received by a Municipal Local Body through its retail user charges are not pledged to the payment of any costs of the local systems, including the payment of the rates and charges of the Authority. A Municipal Local Body may elect, however, to segregate such retail user charges and apply them only to the costs of the respective local systems.

Enforcement remedies are available under state law to Municipal Local Bodies to collect unpaid retail user charges. A Municipal Local Body may terminate water and sewer service to any retail user who has not paid the respective charges. In addition, if a Municipal Local Body accepts the applicable statutory sections, unpaid water and sewer charges become a lien upon the associated real estate by operation of law and are added to the property tax bill for such real estate. In general, the laws relating to the imposition of interest on unpaid real estate taxes and the foreclosure of title to real estate for nonpayment of taxes apply equally to unpaid water and sewer charges.

Among the Municipal Local Bodies, different local policies, including each Municipal Local Body's decision about the extent to which the costs of operating its local system are recovered through its retail rates, and the complexity of its rate structure and its accounting methodologies, result in divergent retail user charges. Currently, while all Municipal Local Bodies have instituted retail user charges, certain Municipal Local Bodies may not recover the entire cost of providing retail services through user charges. The Authority is able to offer technical assistance to the Municipal Local Bodies to help them establish systems of retail user charges and identify costs that can be recovered through such charges.

**Property Taxes.** Property taxes are raised through assessments against real and personal property in a municipality. State law mandates a revaluation of all taxable property every three years. These revaluations are reviewed and certified by the Commonwealth. In the years between the revaluation, the Commonwealth permits municipalities to establish new values for year-to-year increases in assessments on the basis of market trends, using the most recent revaluation as a basis. These new values, together with the municipalities' proposed tax rate, are subject to annual certification by the Commonwealth. The property tax levy generally is certified by the Commonwealth in the fall. Most municipalities adopt a quarterly payment schedule for property taxes, with installments due on August 1, November 1, February 1 and May 1.

Proposition 2½ generally constrains levels of property taxation, one of the primary sources of revenue for cities and towns in the Commonwealth, and limits the charges and fees imposed on cities and towns by certain governmental entities. The law is not a constitutional provision and accordingly is subject to amendment or repeal by the legislature. Proposition 2½ contains limitations on the revenues which may be collected by certain governmental entities, including a limitation on the property taxes which may be levied by any city or town in any fiscal year to the lesser of (i) 2.5% of the full and fair cash valuation of the real estate and personal property therein, and (ii) 2.5% over the previous year's levy limit plus any growth in the tax base from certain new construction and parcel subdivisions. Proposition 2½ also limits any increase in the charges and fees assessed by certain governmental entities on cities and towns to the sum of (i) 2.5% of the total charges and fees imposed in the preceding fiscal year, and (ii) any increase in charges for services customarily provided locally or services obtained by the city or town at its option.

Any property tax increase in excess of the limits imposed by Proposition 2½ must be approved by a vote of the municipality. However, amendments to Proposition 2½ enacted in 1994 permit a Municipal Local Body, and a Special Purpose Local Body through agreement with the municipalities it serves, to offset increases in user charges resulting from increases in water and sewer debt service costs (including increases in the Authority's debt service costs incorporated into the Authority's rates and charges to such Local Body) through the assessment of property taxes in excess of the limits imposed by Proposition 2½, subject to certain conditions, without requiring a vote of the municipality.

**Local Aid.** Local aid is the generic term used to describe all distributions made by the Commonwealth to cities and towns, some of which are earmarked for specific programs, the bulk of which are available to the municipality to be applied to any authorized expenditures. Except for amounts distributed to municipalities pursuant to state law from state lottery receipts, all local aid is subject to annual appropriation by the state legislature. The major formula used by the legislature in determining the payment level to each city and town tends to provide proportionately more local aid to communities with relatively lower per capita income and with higher service cost levels in order to compensate for the gap between certain fixed costs incurred by a municipality and its revenue-raising capacity. The bulk of the local aid distributions are, by state law, made quarterly.

From 1999 through 2003, the Commonwealth's direct local aid increased from \$4.3 billion to \$5.1 billion. The appropriation for direct local aid in the Commonwealth budget for Fiscal Year 2004 was \$4.1 billion. The appropriation for direct local aid in the Commonwealth budget for Fiscal Year 2005 is \$4.2 billion.

From time to time legislation and voter initiative petitions are approved which affect the amount of local aid to be distributed by the Commonwealth. These include legislation approved by the Governor in October 1986 (which legislation was repealed as of July 1, 1999) and an initiative petition approved by the voters in November 1986. These two measures, by limiting the annual rate of state tax revenue growth to the average rate of growth in total wages and salaries in the Commonwealth, placed limits on the amount of funds available to be distributed as local aid. Since the Commonwealth's 1989 fiscal year, state tax revenues have been below the allowable limits imposed by law and are expected to be below the limits for the Commonwealth's fiscal year. Additionally, a large portion of local aid has been earmarked for public education to provide more aid to the Commonwealth's poorer communities.

Under the Massachusetts constitution and state finance law, the State Treasurer and the Governor have the authority to withhold or delay local aid payments under certain circumstances. Any available monies in the state treasury, including amounts appropriated for local aid, may be used as a matter of last resort by the State Treasurer if required to pay Commonwealth notes. Moreover, the statute governing the Commonwealth distribution of school aid (which constitutes a portion of the local aid distribution) provides that such payments are due only to the extent that sufficient funds are available therefor.

Although there can be no assurance that local aid will continue to be available at current levels and not reduced in the future, the Authority believes that the availability of its various enforcement mechanisms, including its statutory authority to intercept local aid distributions, will adequately provide for the payment of its rates and charges. For a comparison of the Authority's rates and charges with respect to each Municipal Local Body, see "The Authority and its Service Areas - Charges to Local Bodies." For a discussion of the Authority's enforcement mechanisms and the possible limits on the availability of the local aid intercept, see "Rates and Charges - Enforcement."

## **ECONOMIC FACTORS**

The Authority's service areas are located primarily in eastern Massachusetts and include most of the metropolitan Boston area. Recent economic data specifically with respect to the service areas is not available, as it is for the Commonwealth and the City of Boston. The state of the Massachusetts economy is reflected in, among other things, income and employment statistics. Massachusetts per capita personal income is among the highest in the nation and income levels in Massachusetts as of December 2004 were well above the national average: \$39,408 compared to \$31,459. The Commonwealth unemployment rate for December 2004 (seasonally adjusted) was 4.6%, compared to 5.4% for the nation as a whole.



This data has been presented for informational purposes and does not purport to present all factors which may have a bearing on the fiscal and economic affairs of the Local Bodies or the Commonwealth. The Authority cannot assure that they accurately or completely mirror current economic conditions, and the Authority cannot predict general economic trends on the basis of the information available to it. The Authority expects, however, that the Commonwealth's diversified economic base and its position as the transportation and commercial center for New England will continue to provide sources of economic strength to the service area. See also "Rates and Charges – Future Rates and Charges" herein.

## **SPECIAL ARRANGEMENTS**

Twenty Local Bodies are charged for water services pursuant to contracts between the Local Bodies and the Authority. Of these Local Bodies, 14 pay for water services at the full water rates under contracts renegotiated by the Authority with such Local Bodies in 1990. Of the remaining five, various arrangements are in effect. Bedford pays at the full water rates through an arrangement with a neighboring Local Body. The contract with Southborough expired in January 1997 and a new contract was approved by the Board of Directors in May 1999. Southborough is now part of the rate base, but still receives the first 10.95 million gallons provided at no charge. The three communities which purchase water via the Chicopee Valley Aqueduct – Chicopee, South Hadley, and Wilbraham – pay for water at a rate established by the Board (the "CVA Rate"). These three communities together accounted for 4.0% of calendar year 2004 total consumption. The CVA Rate is set at a level designed to recover all direct operating and debt service costs related to providing service to these communities, as well as a proportional share of the Authority's administrative costs. The Authority has entered into ten-year contracts with South Hadley, which began January 1, 1999 and with Chicopee and Wilbraham which began July 1, 1999. In addition, Clinton, which accounted for 0.8% of calendar year 2004 total consumption, receives its first 800 million gallons of water per year free of charge pursuant to a special act.

Pursuant to Authority Regulations, continuation of water supply services to any Local Body under special acts or contracts shall be made on such reasonable terms and charges as the Authority shall determine, provided in each instance the Authority determines that (i) the safe yield of the DCR Watershed System, on advice of the DCR Division of Water Supply Protection, is sufficient to meet the projected demand (provided that any Local Body previously receiving water supply services on a contract basis shall not be denied continuation of service if it has no other local water supply capable of being developed), (ii) no existing or potential local water supply has been abandoned, (iii) the Local Body has adopted a water management plan approved by the state Water Resources Commission, (iv) the Local Body has adopted effective demand management, leak detection and water system rehabilitation measures, (v) a local water source feasible for development has not been identified by the Local Body or the Massachusetts Department of Environmental Protection ("DEP"), and (vi) a water use survey has been completed identifying all local users in the Local Body consuming in excess of 20 million gallons per year.

The provision of sewer services by the Sewer System, in contrast to the special acts and contractual arrangements governing a portion of the services provided by the Waterworks System, is governed solely by the Act and other applicable federal and state environmental quality laws and regulations.

## **MANAGEMENT AND ORGANIZATION OF THE AUTHORITY**

### **BOARD MEMBERSHIP**

The Authority is governed by an eleven-member Board of Directors (the "Board") chaired by the Secretary of Environmental Affairs for the Commonwealth. The Secretary and four other members are appointed by the Governor -- one resident of a Connecticut River basin community and one resident of a Merrimack River basin community who represent water resources protection interests (terms coterminous with the Governor), one upon recommendation of the Mayor of Quincy and one upon recommendation of the Board of Selectmen of Winthrop (each of the latter two memberships are for four-year terms). At least one of the five gubernatorial appointments must be a representative of a minority group. Three members of the Board are appointed by the Mayor of Boston (terms coterminous with the Mayor), and three are appointed by the Advisory Board (staggered three-year terms). See "Advisory Board" below. Six members of the Board constitute a quorum, and the affirmative vote of six

members is required to approve any matter put to a vote of the Board. The members of the Board continue to serve until a successor is appointed.

The present members of the Board, their occupations, appointment categories, the dates of their original appointment and the dates of expiration of their terms as members of the Board are set forth on the following table.

### BOARD OF DIRECTORS

<u>Member</u>	<u>Occupation</u>	<u>Date and Source of Original Appointment</u>	<u>Current Term Expires</u>
Ellen Roy Herzfelder, <i>Chairperson</i>	Secretary of Environmental Affairs	January 2, 2003 Ex Officio	Coterminous with term as Secretary of Environmental Affairs
John J. Carroll, <i>Vice Chairman</i>	General Manager, Town of Norwood	February 27, 1985; Advisory Board	June 30, 2005
Joseph A. MacRitchie, <i>Secretary</i>	Legal Counsel, City of Quincy	March 8, 1989; Governor (upon recommendation of Quincy)	January 28, 2005*
Rudolph H. Banks	Plumber, Teacher	January 26, 2005 Governor	Coterminous with Governor
Kevin L. Cotter	Business Manager/Treasurer, Plumbers and Gasfitters Local 12	September 3, 2002; Mayor of Boston	Coterminous with Mayor
Joseph C. Foti	Director of Public Works, City of Chelsea	June 21, 2001; Advisory Board	June 30, 2007
Lucile P. Hicks	Environmental Activist	November 3, 1997; Governor	Coterminous with Governor
Vincent G. Mannering	Executive Director, Boston Water and Sewer Commission	June 19, 1995; Mayor of Boston	Coterminous with Mayor
Andrew M. Pappastergion	Director, Town of Brookline Water and Sewer Division	June 25, 1997; Advisory Board	June 30, 2006
Antonia M. Pollak	Commissioner, Boston Parks and Recreation Department	September 25, 2000; Mayor of Boston	Coterminous with Mayor
Marie T. Turner	Former Chairperson, Town of Winthrop Board of Selectmen	December 6, 1996; Governor (upon recommendation of Winthrop)	January 28, 2005*

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\* Continues to serve until reappointed or until a successor is appointed.

## **ORGANIZATION, MANAGEMENT AND STAFF**

The staff of the Authority is headed by an Executive Director who is responsible for the implementation of Authority programs, policies and procedures at the direction of the Board. The Operations Division comprises seven departments, including a department that consolidates field operations for both the Waterworks and Sewer Systems, a department for wastewater treatment, including the Deer Island Treatment Plant, and centralized planning and administrative support units. A Chief Operating Officer (“COO”) heads the Operations Division. Although the Operations Division provides some services on a consolidated basis to more efficiently support both Water and Sewer Systems, the costs for providing water and sewer services are separately tracked in order to comply with the Act.

The Finance Division contains a Treasury Department, a Budget Department, a Controller Department, and a Risk Management Department.

The Law Division addresses legal and regulatory issues involving the Authority.

The Support Services Division is responsible for supervision and coordination of the functions which serve the program divisions, and specifically for the operations of Human Resources, Management Information Systems, Procurement, Security and Emergency Planning, Real Property and Environmental Management, and Facilities Management.

Brief resumes of the Authority’s senior management appear below:

### **Frederick A. Laskey, *Executive Director***

Mr. Laskey was appointed Executive Director in May 2001. Before joining the Authority in June 2001, Mr. Laskey served as Commissioner of the Massachusetts Department of Revenue from 1999 to 2001, managing the Commonwealth’s tax administration, child support enforcement and local services. He served as Secretary of Administration and Finance from 1998 to 1999. As Secretary, he was the Governor’s chief fiscal advisor, with oversight of the state’s \$20 billion annual budget and managed the Cabinet Secretariat that oversees the entire state workforce. Before joining the Cabinet, Mr. Laskey served as Senior Deputy Commissioner of the Massachusetts Department of Revenue from 1994 to 1998, and was designated by the Commissioner to serve on the Board of Bank Incorporation. From 1993 to 1994, he served as Assistant Secretary in the Executive Office for Administration and Finance. Mr. Laskey holds a Bachelor of Arts degree in Political Science and History from University of Massachusetts, Boston. Mr. Laskey has a contract with the Authority that expires in 2007.

### **Laura M. Guadagno, *Chief Financial Officer***

Ms. Guadagno was appointed Chief Financial Officer in February 2004. Prior to joining the Authority, Ms. Guadagno was the Executive Director of the Massachusetts Water Pollution Abatement Trust. Between December 2000 and January 2002, Ms. Guadagno served as Assistant Secretary for Capital Resources and Development in the Commonwealth’s Executive Office of Administration and Finance. Prior to her employment with the Commonwealth, Ms. Guadagno was an attorney at Nixon Peabody LLP in New York, where she served as counsel in municipal financings. Ms. Guadagno also served as the Director of Financial Planning with the Massachusetts Bay Transportation Authority. Ms. Guadagno holds a law degree from Suffolk University Law School, a master’s degree in government administration from the University of Pennsylvania and a bachelor’s degree in economics from Wheaton College.

### **Patricia Filippone, *Treasurer***

Ms. Filippone was appointed Treasurer in June 2004. Prior to this appointment, Ms. Filippone served as Controller/Rates Manager from August 2002 through June 2004, and Accounting/Financial Systems Manager from February 1995 to August 2002. Prior to joining the Authority, Ms. Filippone served as an

Audit Manager with Coopers & Lybrand LLP. Ms. Filippone is a Certified Public Accountant and holds a bachelor's degree in accounting from Babson College.

**Michael Hornbrook**, *Chief Operating Officer*

Mr. Hornbrook was appointed the first Chief Operating Officer of the Authority in June 2000. Prior to this appointment, from 1995 to 2000, Mr. Hornbrook was responsible for the overall management of the Authority's CSO, Infiltration/Inflow, and Wastewater System planning programs. Previously, he directed the development and administration of the Sewerage Division's capital projects (1994-1995), and was responsible for the management of individual wastewater capital projects (1989-1994). From 1980 to 1989, Mr. Hornbrook held various engineering positions within the Massachusetts Department of Environmental Protection, Divisions of Waterways, Water Supply and Water Pollution Control. Mr. Hornbrook received a bachelor's degree in civil engineering from the University of Massachusetts, Amherst.

**Steven Remsberg**, *General Counsel*

Mr. Remsberg was appointed General Counsel in May 2004. Prior to joining the Authority, Mr. Remsberg served in the position of Acting General Counsel with the Massachusetts Department of Revenue from March 2003. Between April 2000 and March 2003, Mr. Remsberg served as the Associate General Counsel and from January 1997 to April 2000 as Chief of the Litigation Bureau at the Department of Revenue. Between 1989 and 1997, Mr. Remsberg practiced law with the Boston firm of Hinckley, Allen & Snyder and between 1979 and 1989 with the Boston firm of Snyder, Tepper & Comen. Mr. Remsberg holds a law degree from the University of Pittsburgh Law School and a bachelor's degree in economics from Dickinson College.

**Kate Murray**, *Managing Director*

Ms. Murray was appointed Managing Director in September 1994. Prior to her appointment, Ms. Murray served as Acting Budget Director from October 1993 through May 1994, and Director of Administration within the Authority's Finance and Development Division from 1986 to October 1993. Prior to joining the Authority, Ms. Murray served as Assistant to the President of S. Medoff Distributors, Inc., a wholesale consumer product concern, where she directed planning, marketing, and automation efforts from 1984 to 1986. Ms. Murray also worked at Massachusetts General Hospital where she served as Special Assistant to the General Director from 1982 to 1984 and Registrar from 1978 to 1982. Ms. Murray holds a master's degree in business administration from Simmons College Graduate School of Management and a bachelor's degree from Boston University.

## **EMPLOYEES**

As of January 1, 2005, the Authority had 1,291 employees, including persons with professional qualifications in the fields of construction, engineering, environmental science, accounting, finance, law and management. The Authority believes that future staffing needs to support facilities constructed under the Capital Program are adequately reflected in the projected revenue requirements established by the Consulting Engineer.

Under Massachusetts law, employees of the Authority have certain organizational and representational rights which include the right to organize, to bargain collectively by representatives of their choosing on questions of wages, hours and other terms and conditions of employment and to engage in lawful concerted activities for bargaining or other mutual aid or protection. The law prohibits strikes by Authority employees.

As of January 1, 2005, 1,224 of the Authority's employees were organized into five collective bargaining units represented by four different unions: two units are represented by an alliance between the National Association of Government Employees ("NAGE") and the United Steelworkers of America (Units 1 and 6); one by the Massachusetts Organization of Engineers and Scientists (Unit 9); one by NAGE (Unit 3); and one by the

American Federation of State, County and Municipal Employees (Unit 2). The Authority has recently entered into collective bargaining agreements with all of its unions.

The Act provides that no collective bargaining agreement entered into by the Authority shall limit inherent management rights including (i) employment, assignment and promotion of employees, (ii) termination and discharge of employees on reasonable grounds, (iii) determination of the Authority's levels of service and staffing and the methods, means and personnel for performing operations, (iv) supervision, evaluation and establishment of productivity standards, and (v) use of part-time regular employees and independent contractors and vendors.

The Authority believes that its relationships with its employees and their representatives are generally good.

## **ADVISORY BOARD**

The Advisory Board to the Authority was established by the Act to serve as a liaison between the Authority and the Local Bodies. It is composed of one representative from 60 of the 61 Local Bodies (Lancaster is not represented on the Advisory Board), one from the Metropolitan Area Planning Council (a legislatively-created, comprehensive regional planning organization), and six persons appointed by the Governor to include an expert in environmental protection, one representative each from the Connecticut River basin, the Quabbin/Ware watershed areas and the Wachusett watershed area, and two persons qualified by membership or affiliation in organizations directly concerned with the recreational or commercial uses of Boston Harbor.

The Advisory Board, whose staff is headed by an executive director and includes a budget analyst and other professionals, is empowered by the Act to do the following:

- Name three members to the Authority's Board;
- Approve, subject to other requirements of the Act, extension of service to additional communities;
- Make recommendations to the Authority on annual expense budgets, capital facility programs and expenditure budgets and user charges;
- Hold hearings on matters relating to the Authority; and
- Make recommendations to the Governor and the legislature regarding the Authority.

The Advisory Board actively monitors the Authority's programs from the perspective of the Authority's rate payers. In addition to participating in the process of formulating the Authority's current expense budgets and capital improvement programs, the Advisory Board has actively pursued legislative support for state debt service assistance, watershed protection and other measures of interest to the Local Bodies. The Advisory Board works with the Authority to enhance community assistance programs and share technical information and resources. In addition, pursuant to the Commonwealth's 1994 fiscal year budget act, the Advisory Board developed a sewer rate methodology to allocate Authority sewer costs among the Local Bodies, which was incorporated by the Authority into the establishment of its rates and charges commencing in Fiscal Year 1996. See "Rates and Charges - General."

The Authority and Advisory Board share the goals of improved service to the Local Bodies and additional financial assistance for the Authority's programs.

## **RETIREMENT SYSTEMS**

All employees of the Authority are members of a contributory retirement system for public employees. The Act provides that all employees transferred to the Authority from the MDC on July 1, 1985 who were members of the State Employees' Retirement System (the "State System") shall remain members of the State System. All other employees of the Authority are members of a separate retirement system established in the Act known as the Massachusetts Water Resources Authority Retirement System (the "Authority System"). The Authority System is managed by a three-member board consisting of the Secretary of the Authority, *ex officio*, a second member elected for a three-year term by the present and retired members of the Authority System and a third member appointed by the Authority for a three-year term. In December 2001, the Acting Governor signed into law legislation enabling the Authority's employees to take part in an early retirement incentive program. The Authority's Board approved such

participation in January 2002. A total of 135 Authority employees participated in the program, of which 81 were members of the Authority System and 54 were members of the State System. In August 2003, The Authority's Board adopted a program that allowed employees with 20 years of service in the retirement system or, if age 55 or older and ten years of service, to add five years to their age or years of service. To participate, employees had to file by October 15, 2003 and retire by June 30, 2004. A total of 70 Authority employees participated in the program, of which 58 were members of the Authority System and 12 were members of the State System.

Neither the Authority nor the Authority System has any liability for retirement benefits paid to those employees who remain members of the State System. For these employees, the total cost of benefits earned while employed by the Authority are paid by the Commonwealth and by the employees' own contributions. As of January 1, 2005, 147 employees of the Authority were members of the State System. While employees of the DCR Division of Water Supply Protection are not members of the Authority System and the Authority is not directly responsible for the payment of benefits, the cost of such benefits can be included in the computation of the expenses of the Division which are reimbursable in part by the Authority. See "The Systems - The Waterworks System."

The retirement benefits of employees of the Authority System are funded in part by employee contributions and in part by the Authority. As of January 1, 2005, there were 1,154 active members, 166 inactive members and 259 retirees in the Authority System. The Act requires the Authority to pay annually to the Authority System any amounts needed to finance any pension benefits earned by its members. In Fiscal Year 2004, the Authority contributed \$3.9 million to the System, pre-funding a portion of its contributions for Fiscal Years 2005 through 2007. The Authority has budgeted \$3.4 million for its contribution due to the Authority System in Fiscal Year 2005 which is net of the amount that the Authority pre-funded for Fiscal Year 2005 in Fiscal Year 2004.

Employee contributions to both the State and Authority Systems range from 5% of salary to not more than 11% of salary depending upon the initial date of becoming a member of a system. Employees of the Authority do not participate in the federal Social Security Administration System.

## **PUBLIC AFFAIRS**

The Authority maintains strong relationships with the various constituencies it serves, including the Local Bodies, the Advisory Board, elected and appointed officials, interest groups, and the public at-large. To these constituencies the Authority communicates its goal to improve, maintain, and operate, in a manner which is cost effective and fully accountable to the public, the Authority's water and sewer infrastructure that is vital to enhancing the quality of life and economic well-being of the region.

Public outreach and education -- critical to building support for the Authority's operational and environmental objectives -- are accomplished through a wide variety of activities. These efforts include community assistance programs, technical assistance to industrial customers, the Authority's web site, rapid response to public inquiries, facility tours, informational publications, school education programs, intergovernmental and media liaisons, and targeted programs for communities impacted by Authority facilities.

## **FINANCIAL OPERATIONS**

### **GENERAL**

As required by the Act, the Authority's operations for sewage collection, treatment and disposal and for delivery of water are treated separately for accounting and billing purposes, and revenues, expenses, assets and funds pertaining to these two operations are segregated by function. Indirect administrative costs and capital costs are allocated to water or sewer operations, as appropriate. The Authority's fiscal year commences on July 1.

The Authority uses a budgetary system of accounting in setting its rates and charges and preparing its annual budget (the "Current Expense Budget") for its current expenses, including operating costs and direct and indirect administrative costs (collectively, "Current Expenses"). Accounting Principles Generally Accepted in the

United States of America (“GAAP”) are used by the Authority in preparing its monthly internal and annual audited financial statements.

**Current and Capital Expense Budgets.** In accordance with the Act, the Authority adopts annually a Current Expense Budget, which may be amended from time to time. While the Authority’s Current Expense Budget must be submitted to the Advisory Board for comment and recommendation not less than 60 days prior to its adoption, and amendments to the budget must be submitted to the Advisory Board no less than 30 days prior to their adoption, the Authority’s Current Expense Budget is not subject to approval by any board (including the Advisory Board), department, agency or other instrumentality of the Commonwealth or any other governmental body.

The Act requires that the Authority adopt and update capital facilities programs for the Systems and capital expense budgets to implement and finance such programs. See “Capital Improvement Program.”

## **MANAGEMENT AND FINANCIAL CONTROLS**

The Authority uses a performance-based budgeting format for its Current Expense Budget which provides a basis for measuring operating activities, strengthens managerial accountability for each of the divisions and provides a framework for the apportionment of resources. The Authority also uses a system of monthly and quarterly reports on key management indicators. Performance targets are set annually by program managers and finalized in the Current Expense Budget, and performance is measured monthly. Presentation formats allow for month-to-month, year-to-date, and year-to-year comparisons. The Authority also compares its performance against nationally-recognized standards when appropriate.

The Authority uses a variety of fiscal management systems to monitor and control Current Expenses. In addition to weekly cash reports, the Authority monitors its spending through monthly variance reports for each of its cost centers. Variance explanations are prepared at the end of the first three quarters of the fiscal year. At the end of the second and third fiscal quarters, the budget variance report includes updated forecasts of year-end expenditures.

The Authority has instituted a set of fiscal controls for the Capital Improvement Program. The Authority prepares monthly and quarterly reports on capital budget performance and semi-annual variance analysis reports on the capital budget. From time-to-time, as necessary, the Authority follows its established budget amendment policy to make adjustments to the capital budget. In addition, procurements are processed by a central department to ensure uniform contract language, standard safeguards and competitive bids for the Authority. Contract amendments and construction change orders are subject to critical review and evaluation by field and budget staff, procurement officers, and legal counsel. The Authority also has instituted audit procedures to examine wage, overhead and profit rates on professional service contracts. Resident inspectors monitor all construction in progress to ensure quality of material and workmanship. Claims by contractors are reviewed and negotiated by the Authority’s inspection and legal staff.

The Authority has an integrated management information system for its financial functions, including general ledger, budget, accounts receivable, debt management, cash management, procurement, accounts payable, and payroll systems. The Authority regularly upgrades and enhances this system to ensure the ongoing efficiency of its operation.

The Authority’s business plan defines critical operational goals and objectives, as well as related activities and improvements in support of these objectives. The Authority also has developed annual performance targets that provide a quantifiable standard against which to measure progress towards achieving these objectives.

## **OUTSTANDING AND PROPOSED INDEBTEDNESS**

The following table sets forth debt service on the Authority’s Outstanding Secured Bonds, including the Series A Bonds, for each fiscal year in which such Secured Bonds will be Outstanding.

## SECURED BOND DEBT SERVICE<sup>1</sup>

(in thousands of dollars)

Fiscal Year	Debt Service On General Revenue Bonds <sup>2</sup>		Debt Service On Subordinated Bonds <sup>3</sup>		Total Secured Bond Debt Service
	Principal	Interest	Principal	Interest	
2005	\$ 21,390	\$ 136,634	\$ 25,184	\$ 83,820	\$ 267,027
2006	36,970	125,092	28,841	89,361	280,264
2007	35,580	138,640	28,369	87,822	290,411
2008	49,875	136,361	31,654	86,576	304,465
2009	60,160	133,373	47,277	84,885	325,694
2010	60,820	130,125	104,013	81,787	376,745
2011	69,795	126,481	132,042	75,510	403,828
2012	79,740	122,033	139,919	69,498	411,190
2013	90,335	117,442	94,907	65,308	367,992
2014	109,880	111,968	99,392	63,374	384,615
2015	102,260	106,065	105,585	60,346	374,256
2016	111,160	100,230	110,024	55,966	377,380
2017	139,475	93,125	87,386	52,521	372,506
2018	164,530	84,575	113,204	48,769	411,078
2019	144,115	76,018	84,358	45,744	350,234
2020	156,805	67,798	88,409	45,910	358,923
2021	107,485	60,904	212,958	41,669	423,016
2022	155,405	54,751	96,192	35,653	342,001
2023	148,060	47,480	133,650	30,134	359,324
2024	111,100	41,072	83,217	25,555	260,943
2025	98,630	35,589	79,225	22,249	235,693
2026	80,410	30,274	78,041	19,067	207,792
2027	78,185	26,301	100,500	14,933	219,919
2028	78,080	22,486	70,091	11,104	181,761
2029	67,135	18,922	53,794	8,495	148,346
2030	50,880	16,046	27,647	7,046	101,619
2031	35,995	13,912	23,163	6,214	79,284
2032	37,920	12,111	20,702	5,478	76,211
2033	31,440	10,412	14,869	4,957	61,678
2034	11,445	9,369	15,839	4,227	40,881
2035	12,330	8,797	15,369	3,393	39,889
2036	13,585	7,790	12,900	2,500	36,775
2037	14,370	6,986	13,800	1,545	36,702
2038	26,365	5,857	14,800	523	47,545
2039	27,795	4,386	-	-	32,181
2040	29,305	2,834	-	-	32,139
2041	12,930	1,715	-	-	14,645
2042	13,575	1,052	-	-	14,627
2043	<u>14,255</u>	<u>356</u>	<u>-</u>	<u>-</u>	<u>14,611</u>
Total	\$ 2,689,570	\$ 2,245,361	\$ 2,387,321	\$ 1,341,939	\$ 8,664,191

<sup>1</sup> Includes debt service on bonds issued to the SRF, but does not include debt service on commercial paper. Does not reflect savings achieved through a refunding of certain SRF debt which occurred in the fall of 2004. SRF debt service is net of subsidy amounts. Totals may not add due to rounding.

<sup>2</sup> Does not include debt service on defeased bonds.

<sup>3</sup> The table assumes a 4% interest rate for the Multi-Modal Subordinated General Revenue Bonds, 1997 Series A, 1997 Series B, 1999 Series C, 1999 Series D, 2001 Series A and 2001 Series B, and the Multi-Modal Subordinated General Revenue Refunding Bonds, 2002 Series C (except for Fiscal Year 2005 which assumes a 3% interest rate). The Authority has entered into interest rate swap contracts in connection with its Multi-Modal Subordinated General Revenue Refunding Bonds, 1998 Series D, 2000 Series B, 2000 Series C, 2002 Series D, 2002 Series E, 2002 Series F, and 2002 Series G and its Multi-Modal Subordinated General Revenue Bonds, 1999 Series A and 1999 Series B pursuant to which the Authority pays interest to the swap counterparty at a fixed rate and receives interest at a variable rate. The Authority's current payment obligations under its swap agreements are secured on a parity basis with its Subordinated Bonds; however, any termination obligations would be payable only from amounts in the Commonwealth Obligation Fund. For these series, the table assumes the fixed rate of interest pursuant to the applicable swap contract for the period in which the swap contract is in effect and assumes a 4% interest rate for the period, if any, in which there is no swap contract in effect.



The Authority's Consulting Engineer currently projects that the Authority will issue approximately \$1.1 billion of additional Secured Bonds from Fiscal Year 2005 through Fiscal Year 2010 to finance the Capital Program. The Consulting Engineer's projection incorporates various assumptions, including assumptions as to interest rates on indebtedness and investments, inflation rates and the size and timing of capital expenditures. For a discussion of these assumptions, see Appendix B. The projection also assumes approval by the state legislature and Governor of adequate and timely increases in the Authority's debt limit. See "Debt Limitation" below. Although this Official Statement does not contain rate projections beyond Fiscal Year 2010, the Authority expects to issue additional Secured Bonds beyond Fiscal Year 2010.

Additionally, the Commonwealth is authorized to issue bonds to finance certain watershed preservation projects. The debt service on such bonds is payable annually by the Authority to the Commonwealth as a charge for the costs of the DCR Division of Water Supply Protection. Such charges would constitute Commonwealth Obligations under the General Resolution. Estimates of such charges, including expected increases, are included in the Authority's estimates of its future rates and charges.

## **DEBT LIMITATION**

As enacted in 1984, the Act contained a \$600 million limit on the total amount of unrefunded bonds and notes of the Authority which may be outstanding at any one time. The Authority periodically has requested and received increases in its debt limit as necessary to allow for issuance of bonds in amounts required to finance the Capital Program. Since 1989, the state legislature has increased the debt limit thirteen times, most recently increasing the debt limit to \$5.8 billion in June 2004. Following the issuance of the Series A Bonds, the Authority will have outstanding approximately \$5.4 billion of bonds and notes. The Authority plans to seek and expects to obtain additional increases in the limit as necessary to issue debt in order to finance its Capital Program. All such increases will be subject to the approval of the state legislature and the Governor. If the state legislature and Governor fail to approve sufficient increases, the Authority will be unable to finance the Capital Program as planned and will be required to adjust its construction plans and schedules and seek alternative sources of funding.

## **REPORTS**

In accordance with the Act, the Authority submits annual reports and five-year progress reports to the Governor, the President of the state Senate, the Speaker of the state House of Representatives, the Advisory Board and the Chairpersons of the state Senate and House Committees on Ways and Means. The annual reports contain financial statements relating to its operations maintained in accordance with accounting principles generally accepted in the United States of America ("GAAP") and audited by independent certified public accountants. The five-year progress report is prepared with the participation of an independent citizen panel, documenting activities of the prior period, and anticipated challenges for the future. The most recent five-year report was prepared in May 2000. The Authority retained Coopers & Lybrand, independent accountants, to audit the financial statements of the Authority for each of the nine fiscal years through and including June 30, 1994, and retained KPMG LLP, formerly KPMG Peat Marwick LLP, independent auditors, to audit the financial statements of the Authority commencing with the fiscal year ending June 30, 1995 to date. Included in Appendix A are the audited financial statements of the Authority at June 30, 2004 and 2003, and for the fiscal years then ended.

Pursuant to the General Resolution, in February 2003 the Authority filed with the Trustee the most recent triennial report of its Consulting Engineer, setting forth a detailed analysis of the Authority's Systems, Current Expense Budget and Capital Program, including recommendations as to reserve requirements and other matters. The next triennial report is expected to be filed in February 2006.

## MANAGEMENT'S REVIEW OF OPERATING RESULTS

### HISTORICAL REVENUES, EXPENSES AND FUND DEPOSITS

The following table is prepared in accordance with the General Resolution and sets forth a summary of the Authority's historical revenues, expenses and fund deposits for Fiscal Years 2000 through 2004. For financial statements prepared in accordance with GAAP regarding Fiscal Years 2003 and 2004, see Appendix A.

#### HISTORICAL REVENUES, EXPENSES AND FUND DEPOSITS (in thousands of dollars)

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY 2004</u>
Revenues					
Rates and Charges	\$ 363,692	\$ 376,342	\$ 389,518	\$ 416,659	\$ 431,767
Investment Income <sup>1</sup>	50,191	48,171	34,967	31,390	29,422
Transfer from Rate Stabilization Fund	3,700	2,000	11,600	14,691	-
Other Income	<u>17,287</u>	<u>17,677</u>	<u>13,964</u>	<u>12,388</u>	<u>15,110</u>
Total Revenues	434,870	444,190	450,049	475,128	476,299
Operating Expenses <sup>2</sup>	215,155	217,609	210,167	208,698	203,318
Capital Lease	<u>0</u>	<u>0</u>	<u>268</u>	<u>3,217</u>	<u>3,217</u>
Net Operating Revenues	219,715	226,581	239,614	263,213	269,764
Debt Service on Bonds <sup>3</sup>	142,028	130,948	149,724	171,332	169,256
Other Debt Service <sup>4</sup>	<u>60,965</u>	<u>75,215</u>	<u>82,398</u>	<u>85,163</u>	<u>93,587</u>
Amount Available After Operations and Debt Service	<u>\$ 16,722</u>	<u>\$ 20,418</u>	<u>\$ 7,492</u>	<u>\$ 6,718</u>	<u>\$ 6,921</u>
Fund Deposits					
Reserve Funds	\$ 0	\$ (640) <sup>5</sup>	\$ 0	\$ 0	\$ (20,000) <sup>5</sup>
CORE Fund	0	0	0	0	0
Construction Fund <sup>6</sup>	0	0	2,819	4,600	5,468

<sup>1</sup> Excludes interest income earned on commercial paper and on the Note Payment and Redemption Funds. Effective in Fiscal Year 2002, interest income earned on Redemption Funds is included in interest income. Unrealized gains or losses recorded on investments are also excluded.

<sup>2</sup> Includes payment of certain Commonwealth Obligations which are paid after Debt Service on Secured Bonds and which are not included in Operating Expenses for purposes of calculating certain Coverage Covenants; excludes depreciation.

<sup>3</sup> State debt service assistance is treated as a reduction of debt service on Bonds for purposes of calculating debt service coverage. Fiscal Year 2000 and Fiscal Year 2004 include \$16.1 million and \$15.8 million, respectively, of deposits to escrow debt maturing in future years.

<sup>4</sup> Includes debt service on Commonwealth debt, variable rate Subordinated Bonds, and bonds issued to the SRF. Excludes amortized issuance expenses, refinanced principal payments and interest on commercial paper.

<sup>5</sup> Transferred to Bond Redemption Fund.

<sup>6</sup> Includes deposits from current revenue to fund capital projects.

For Fiscal Year 2000, Fiscal Year 2001 and Fiscal Year 2003, the Authority ended each such fiscal year with a favorable variance between budgeted revenues and actual revenues, of 2.7%, 1.6%, and 0.5%, respectively. Positive revenue variances have resulted from higher than budgeted revenues from investment income and from

payments on water supply contracts that are based on water actually consumed during a fiscal year rather than in the prior calendar year. In Fiscal Year 2002, the Authority ended the period with an unfavorable variance between budgeted revenues and actual revenues of 0.8%. A negative revenue variance resulted from lower than anticipated investment income. The Authority ended each of the Fiscal Years 1999 through 2003 with favorable variances between actual and budgeted expenditures, ranging from 0.0% to 3.2%.

#### **FISCAL YEAR 2004**

In June 2003, the Board of Directors approved the FY04 CEB, which includes net expenses of \$475.8 million. Of the amounts budgeted, capital financing expenses account for 57%; annual operating and maintenance expenses account for 36%; and indirect expenses account for the remaining 7%.

The Authority's final Fiscal Year 2004 budget did not assume receipt of state debt service assistance from the Commonwealth. The Authority initially established the Fiscal Year 2004 rate revenue requirement at \$435.9 million. Subsequent to the Authority's adoption of the FY04 CEB, the state legislature restored adoption of state debt service assistance in the Commonwealth's budget. On March 1, 2004, the Authority received \$4.1 million in debt service assistance and as a result the Authority was able to reduce its rate revenue requirement by that amount. The final rate revenue requirement for Fiscal Year 2004 was \$431.8 million, an increase of 3.9% over the final Fiscal Year 2003 rate revenue requirement.

In Fiscal Year 2004, total expenses were \$474.8 million, \$950,000 less than budgeted. Direct expenses of \$171.5 million were \$1.4 million or 0.8% less than budgeted, and capital financing expenses of \$271.5 million were \$14,600 less than budgeted. Total revenues in Fiscal Year 2004 were \$476.3 million or 0.1% higher than budgeted and \$1.5 million greater than expenses.

#### **FISCAL YEAR 2005 CURRENT EXPENSE BUDGET AND FIRST HALF RESULTS**

The Fiscal Year 2005 Current Expense Budget was adopted by the Board of Directors on June 23, 2004 after Advisory Board comment and adjustments by staff to the proposed budget. The FY05 CEB totals \$492.6 million. Non-rate revenue totals \$39.6 million, resulting in a rate revenue requirement of \$453 million, an increase of 3.9% compared to the FY04 CEB. As the Board approved the FY05 CEB prior to the approval of the Commonwealth budget, the FY05 CEB did not assume the receipt of any state debt service assistance. The Authority estimated receipt of \$8.7 million of state debt service assistance for Fiscal Year 2005 in the spring of 2005. The Authority reduced the rate revenue installment that was due from the Local Bodies on September 1, 2004 by this amount. After this offset, the increase in the rate revenue requirement as compared to the FY04 CEB rate revenue requirement is 1.9%.

The \$492.6 million in current expenses for Fiscal Year 2005 consist of approximately \$176.1 million in direct expenses, \$34.6 million of indirect expenses and \$281.9 of capital financing expenses after offset.

Total expenses during the first half of Fiscal Year 2005 were \$231.1 million, \$11.6 million or 4.8% less than budgeted. Direct expenses of \$81.3 million were \$3.9 million or 4.6% lower than budgeted, debt service expenses of \$132.8 million were \$7.4 million or 5.3% lower than budgeted and indirect expenses were \$0.3 million or 1.7% lower than budgeted.

Revenues during the first half of Fiscal Year 2005 were \$243.7 million, \$3.2 million or 1.3% less than budgeted. The variance for revenue, and a portion of the variance for debt service expense, is due to the adjustment for the anticipated receipt of state debt service assistance.

#### **DEBT SERVICE COVERAGE**

The Authority has met or exceeded the Coverage Covenants, as required by the General Resolution, in each of the last five fiscal years, as shown in the following table.

**HISTORICAL COVERAGE**  
(in thousands of dollars)

	<u>FY 2000</u>	<u>FY 2001</u>	<u>FY 2002</u>	<u>FY 2003</u>	<u>FY2004</u>
Operating Revenues	\$380,979	\$394,019	\$403,482	\$429,047	\$446,877
Interest Income	50,191	48,171	34,967	31,390	29,422
Swap Income	0	0	3,629	5,318	0 <sup>1</sup>
Transfers from Rate Stabilization Fund <sup>2</sup>	<u>3,700</u>	<u>2,000</u>	<u>11,600</u>	<u>14,691</u>	<u>0</u>
Total Revenues	434,870	444,190	453,678	480,446	476,299
Operating Expenses	(215,155)	(217,609)	(210,167)	(208,698)	(203,318)
Commonwealth Obligations <sup>3</sup>	17,829	21,067	20,481	19,944	17,678
Capital Lease	<u>0</u>	<u>0</u>	<u>(268)</u>	<u>(3,217)</u>	<u>(3,217)</u>
Net Revenues	237,544	247,648	263,724	288,475	287,442
CORE Fund Deposits	0	0	0	0	0
Revenues Available for Primary and SRF Primary Coverage (Before Provision for Transfer to Rate Stabilization Fund)(A)	<u>\$237,544</u>	<u>\$247,648</u>	<u>\$263,724</u>	<u>\$288,475</u>	<u>\$287,442</u>
Provision for Transfer to Rate Stabilization Fund <sup>2</sup>	<u>0</u>	<u>(20,742)</u>	<u>(4,673)</u>	<u>0</u>	<u>0</u>
Revenues Available for Primary and SRF Primary Coverage (After Provision for Transfer to Rate Stabilization Fund)(B)	<u>\$237,544</u>	<u>\$226,906</u>	<u>\$259,051</u>	<u>\$288,475</u>	<u>\$287,442</u>
Required Senior Debt Service Fund Deposits(C) <sup>4</sup>	<u>\$142,028</u>	<u>\$130,948</u>	<u>\$149,695</u>	<u>\$171,764</u>	<u>\$150,563</u>
Required Subordinated Debt Service Deposits(D)	<u>\$ 60,965</u>	<u>\$ 75,215</u>	<u>\$ 85,790</u>	<u>\$ 90,482</u>	<u>\$ 99,080</u>
Coverage:					
Before Provision for Transfer to Rate Stabilization Fund:					
Primary <sup>5</sup>	167%	189%	176%	168%	191%
SRF Primary <sup>6</sup>	117%	120%	112%	110%	115%
After Provision for Transfer to Rate Stabilization Fund:					
Primary <sup>7</sup>	167%	173%	173%	168%	191%
SRF Primary <sup>8</sup>	117%	110%	110%	110%	115%
Required CORE Fund Deposits <sup>9</sup>	\$0	\$0	\$0	\$0	\$0
CORE Fund Deposits	0	0	0	0	0

<sup>1</sup> Beginning in Fiscal Year 2004, Swap Income is included in Interest Income.

<sup>2</sup> Amounts transferred from the Rate Stabilization Fund to the Revenue Fund are included as Revenues for coverage purposes in the year of such transfer up to an amount equal to .1 times Required Debt Service Fund Deposits for such year. Consistent with this treatment, in calculating coverage for a fiscal year, moneys transferred to the Rate Stabilization Fund are not included as Revenues.

<sup>3</sup> Commonwealth Obligations are paid after debt service on Bonds and are, therefore, excluded from Operating Expenses in calculating coverage.

<sup>4</sup> Fiscal Year 2000 and Fiscal Year 2004 do not include \$16.1 million and \$15.8 million respectively, of deposits to escrow debt maturing in future years.

<sup>5</sup> A divided by C.

<sup>6</sup> A divided by the sum of C and D.

<sup>7</sup> B divided by C.

<sup>8</sup> B divided by sum of C and D.

<sup>9</sup> The CORE Fund is required to be funded at the end of each fiscal year in the amount of at least 10% of the Required Debt Service Fund Deposits for all Bonds Outstanding as of the beginning of such fiscal year.

## PROJECTED REVENUES, EXPENSES AND FUND DEPOSITS

The following table sets forth a summary of the Consulting Engineer's projection of revenues, expenses and fund deposits for Fiscal Years 2005 through 2010. The Coverage Covenants are projected to be satisfied in each such fiscal year. For a discussion of the assumptions and methodology underlying these projections and projected coverage levels, see Appendix B.

### PROJECTED REVENUES, EXPENSES AND FUND DEPOSITS<sup>1</sup>

(in thousands of dollars)

	<u>FY 2005</u>	<u>FY 2006</u>	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>	<u>FY 2010</u>
Revenues						
Rates & Charges	\$453,000	\$483,351	\$515,734	\$550,288	\$585,741	\$641,003
Investment Income	28,727	29,101	27,451	27,874	28,081	29,061
Transfers from Rate Stabilization Fund	0	15,684	16,799	5,044	3,919	0
Other Income	<u>10,880</u>	<u>11,570</u>	<u>11,900</u>	<u>12,016</u>	<u>12,354</u>	<u>12,830</u>
Total Revenues	492,607	539,706	571,884	595,223	630,094	682,895
Operating Expenses <sup>2</sup>	191,031	199,635	204,455	208,762	213,081	218,209
Capital Lease	3,217	3,217	3,217	3,217	3,217	3,217
Net Operating Revenues	301,576	340,071	367,428	386,461	417,013	464,686
Debt Service on Bonds <sup>3</sup>	163,669	191,009	203,051	217,398	225,517	239,715
Bond Redemption	0	(11,280)	(9,057)	(13,893)	0	0
Debt Service on Subordinated Bonds <sup>4</sup>	<u>109,886</u>	<u>124,102</u>	<u>128,952</u>	<u>141,937</u>	<u>146,590</u>	<u>177,847</u>
Amount Available After Operations and Debt Service	\$28,021	\$36,240	\$44,482	\$40,019	\$44,906	\$47,124
Fund Deposits						
CORE Fund	\$ 0	\$ 0	\$ 0	\$ 802	\$ 2,105	\$ 1,630
Reserve Funds	1,000	1,000	1,000	101	720	855
Construction Fund	4,960	10,200	11,700	13,200	14,700	16,300
Commonwealth Obligations	21,812	24,297	30,919	26,155	27,236	28,329
Bond Early Redemption Account	0	0	0	0	0	0

<sup>1</sup> Totals may not add due to rounding.

<sup>2</sup> Excludes depreciation.

<sup>3</sup> Assumes issuance of several series of additional Bonds. See Appendix B.

<sup>4</sup> Debt service on current and projected SRF Bonds and other Subordinated Bonds. See Appendix B.

## THE SYSTEMS

### THE WATERWORKS SYSTEM

**History.** Boston and surrounding communities have one of the oldest public water supply systems in the United States, dating to 1652 when the "Water Works Company" was incorporated to construct Boston's first waterworks facility. Facilities were added over the years to meet increasing demand, and by the mid-1800s, a large scale water supply system utilizing cast iron pipes from a series of area reservoirs had been fully developed. In 1895, after a major study of the existing Boston metropolitan water supply and demand forecasts, work was begun on a major expansion project, the Wachusett Reservoir and Aqueduct. Construction of the Wachusett Reservoir, finished in 1908, more than doubled the System's yield. In 1919, after the state legislature commissioned a second major water supply study, planning was begun for the Quabbin Reservoir. Construction of the Quabbin Reservoir, completed in 1939 and filled to capacity by 1946, represented the last major expansion of the System's water supply, increasing the reservoirs' total storage capacity from 78 billion gallons to approximately 490 billion gallons, and the watershed area from approximately 185 square miles to approximately 467 square miles.

**Water Supply.** The right to use, improve and manage the Waterworks System was granted to the Authority by the Act. The Act also granted to the Authority the exclusive right to utilize for water supply purposes all of the water from the existing DCR Watershed System as may be safely yielded. The safe yield is defined to be the average quantity of water that can be supplied on a continuous basis through a drought period. Under present operating rules the Authority's water sources can supply a safe yield of approximately 300 million gallons per day ("mgd"). The Authority's statutory right to utilize water derived from the DCR Watershed System includes the delivery, distribution and sale of water and the receipt by the Authority of revenues from charges relating to such delivery, distribution and sale.

The Act establishes responsibility for management of the Watershed System by the MDC which is now the Department of Conservation and Recreation ("DCR"). DCR continues to have the mandate to construct, maintain and operate a system of watersheds, reservoirs, water rights and rights in sources of water supply, and to supply a sufficient supply of pure water to the Authority. Other DCR responsibilities include forestry and wildlife management; conservation of water, land and other natural resources; preservation of the environment; operation of a visitor's center at the Quabbin Reservoir; and regulation of hydroelectric generation.

Under the Act, the Authority is required to pay to the Commonwealth a charge for the costs of the DCR. Such costs include the cost of debt service on certain bonds which may be issued by the Commonwealth to finance the acquisition of development rights or other interests in land within the Division's watershed. In July 2004, legislation was passed creating a Watershed Supply Pilot Program to be administered by and through a separate trust called the "Water Supply Protection Trust." A Board of Trustees was established to approve an annual budget developed by the Authority and DCR and a separate trust account was established for the receipt of revenues (including the Authority's contribution) and expenditures pursuant to the approved budget. If not reauthorized by the legislature, the pilot program and the trust will expire on January 15, 2007.

The present major sources of water to the Waterworks System are the watersheds of the Quabbin Reservoir, the Ware River and the Wachusett Reservoir. Other standby sources include the Sudbury Reservoir and the Framingham Reservoir No. 3. The Quabbin Reservoir, located approximately 65 miles west of Boston, is one of the largest reservoirs in the world built exclusively for water supply purposes, covering 39 square miles with a capacity of 412 billion gallons. Water for the Quabbin Reservoir is derived from the impounded Swift River, a tributary of the Connecticut River, with a runoff from 186 square miles of watershed. In addition, a limited quantity of the runoff from 98 square miles of the Ware River watershed is diverted to the Quabbin Reservoir.

The Wachusett Reservoir is located in central Massachusetts, approximately 35 miles west of Boston. The Wachusett Reservoir has a capacity of 65 billion gallons and covers 6.5 square miles. The Sudbury Reservoir, in the Sudbury River watershed, has a 8.4 billion gallon capacity and surface area of two square miles. Framingham Reservoir No. 3, also in the Sudbury River watershed, has a capacity of 1.2 billion gallons and an area of approximately one half of a square mile. The Sudbury and Framingham Reservoirs are currently maintained off-line for emergency use only.

In close conjunction with the Authority, the DCR has developed and implemented Watershed Protection Plans for the Quabbin and Wachusett watershed areas to protect water quality in the reservoirs. Components of this program include a \$135 million land acquisition program targeting critical lands over 15 years, a \$70 million sewer project to improve tributary water quality, public access controls around the reservoir, state regulations on development in critical areas along tributaries, and a substantial water quality monitoring and research program. The Authority and the DCR closely coordinate watershed protection, reservoir operations, and water quality monitoring efforts between the two agencies. A five-year protection program for the Wachusett watershed, covering the 1999-2004 period, was approved by DEP in November 1998. The plan focuses protection efforts on minimizing pathogens entering the reservoir. An updated plan was submitted in December 2003.

**Water Transmission and Distribution.** Because of the variety of local conditions and elevations, six water pressure zones are required for the Authority's waterworks service area. These six zones are supplied through tunnels and aqueducts from the two active source water reservoirs and water is distributed through pumping and major transmission and storage facilities, all of which are owned and maintained by the Authority. Major system components include approximately 350 miles of aqueducts, tunnels and mains, eleven active distribution storage reservoirs and standpipes, ten active pumping stations, and two active hydro-electric power stations.

Water from the Quabbin Reservoir, which has an elevation 530 feet above the base elevation of Boston, is delivered to the Wachusett Reservoir by the Quabbin Aqueduct, a 24.6-mile tunnel. From the Wachusett Reservoir, water is delivered through the 8-mile Cosgrove Tunnel, built in the 1960s, and the Wachusett Aqueduct, first used in 1898, to the Hultman Aqueduct intake structure in Marlborough and to the Weston Reservoir via the Weston Aqueduct. The Hultman Aqueduct, in service since the 1940s, connects with the Cosgrove Tunnel and continues the delivery of water 17.8 miles into the Boston area. Water from the Wachusett Reservoir and the back-up Sudbury Reservoir can be delivered in an emergency through the 17.5-mile Sudbury Aqueduct, built in 1878, to the Chestnut Hill Reservoir which is now off-line.

The Hultman Aqueduct is a major component in the water distribution system. In the past the lack of redundancy for the Hultman Aqueduct meant that a significant failure would have resulted in the inability to deliver water in sufficient volume to meet the needs of Authority customers and could have seriously disrupted residential life and ordinary commerce in the service area while repairs were made. In order to provide an appropriate level of redundancy, the Authority constructed and placed in service on November 1, 2003 the 17.6-mile MetroWest Water Supply Tunnel. The tunnel provides full redundancy for the Hultman Aqueduct during either maintenance or emergency situations and is an integral component in the design and engineering of the Authority's proposed capital program to improve the reliability and quality of its water supply services discussed below. In addition to the redundancy offered by the MetroWest Tunnel, the Authority has a contingency plan to expedite repairs and provide emergency water services to the best of its water supply capabilities in the event of a failure of the Hultman Aqueduct. See "Capital Improvement Program - Major Capital Projects -- Waterworks Projects."

The major links of the water supply distribution system in the Boston area are the Authority's 5.4-mile City Tunnel, a 7.1 mile City Tunnel Extension serving communities north of Boston, and the Dorchester Tunnel, a 6.4-mile tunnel providing distribution to communities south of Boston. The Authority provides water supply to each Local Body through one or more metered connections and through certain non-metered connections which are used on an emergency basis only. Less than 5% of monthly water consumption is estimated, rather than metered, due to the necessary use of an emergency connection or to a faulty meter or other system malfunction. The water distribution system has a total of 185 metered connections and approximately 70 non-metered emergency connections. The Authority is responsible for the maintenance of the water distribution system to and including the metered connection or, in the case of an emergency connection, the emergency valve.

**Water Quality.** The Authority is implementing measures to ensure both the level and consistency of water quality throughout the Waterworks System through a ten-year Integrated Water Supply Improvement Program that consists of comprehensive watershed protection, construction of covered storage, modern treatment facilities to meet current engineering and regulatory standards, and improvements to the distribution system. See "Capital Improvement Program – Major Capital Projects – Waterworks Projects."

System improvements already in place to enhance treatment effectiveness include interim disinfection (chlorination) facilities at Wachusett Reservoir's Cosgrove intake and modifications to disinfection systems in Weston to improve the effectiveness of chloramines (chlorine and ammonia) for secondary disinfection. Additionally, in 1996 the Authority commenced operation of an interim corrosion control facility in Marlborough. At the Marlborough facility, chemicals are added to adjust the pH and alkalinity of the water, thereby reducing the corrosivity of the water and the degree to which lead or copper leaches into tap water from indoor plumbing and service connections. Current water treatment also includes fluoridation.

The Authority has received a conditional waiver from DEP of filtration requirements for water supplied to three communities in western Massachusetts by the Chicopee Valley Aqueduct from the Ware River/Quabbin Reservoir supply system. To meet the waiver conditions and improve disinfection and corrosion control to assure water quality and SDWA compliance, the Authority constructed a disinfection facility at Ware, and two 12.5 million gallon concrete water storage tanks to replace the open Nash Hill Reservoir. See "Environmental Regulation and Litigation - Water Supply -- Drinking Water Regulation."

In addition, the Authority also is expanding financial and technical assistance to member communities for rehabilitation of local water systems. Beginning in 1997, the Authority established a \$30 million Local Water Infrastructure Rehabilitation Assistance Program which provided grant and loan packages (a combined 25% grant and 75% interest-free loan) to eligible water communities to replace, rehabilitate, and maintain components of their

waterworks systems. Through this two-year program which covered Fiscal Years 1997 to 1999, the Authority distributed financial assistance for water distribution system improvements to 42 communities. Effective July 1, 2000, the Authority implemented a longer-term program that provides for \$25 million per year in ten-year interest free loans to assist member communities with pipeline rehabilitation. As of January 1, 2005, loans totaling \$85.1 million have been approved.

The Authority also is working with state and local officials to increase awareness of water quality issues affecting the water distribution systems operated by the Authority and the Local Bodies. In addition, the Authority continues to work in collaboration with Local Bodies to deal with local water quality problems as they arise.

**Water Demand.** At the time the Authority assumed responsibility for the Waterworks System in 1985, the average daily withdrawal of water from the system had exceeded the safe yield of 300 mgd in each year since 1969, and a long-range water supply study, begun in 1980, was underway to assess the options for addressing projected shortfalls. To address the problem, the Authority established more than 20 related programs for detecting and repairing leaks, encouraging conservation and reduced water use, preserving and developing local supply sources, and implementing a drought response plan. In large part as a result of the Authority's programs, water use declined steadily from 1987 to 1996, and since 1989 average daily withdrawals have been well within the safe yield. In the opinion of the Authority, barring a drought more severe than any on record and assuming continuing conservation efforts and proper maintenance of the transmission and distribution system, the Authority's existing supplies will be sufficient for its water supply needs through at least the year 2020. The Authority currently has no plans to develop any new sources of water. For a description of certain of the environmental and regulatory constraints involved in the process of augmenting the Authority's water supply, see "Environmental Regulation and Litigation - Water Supply -- Expansion of Water Supplies."

**Extension and Contraction of Waterworks Service Area.** Under the Act, the Authority may extend the Waterworks System to additional communities not currently served on such reasonable terms as the Authority may determine. Such an extension of service requires that the Authority first make certain findings similar to those required to be made in connection with the continuation of water supply services to communities currently served under special acts or contracts. See "Local Bodies - Special Arrangements." Any extension of the Waterworks System is subject to the approval of the Governor, the state legislature, the Advisory Board, and the regulatory bodies within the Commonwealth's Executive Office of Environmental Affairs ("EOEA") having jurisdiction. Extension of the Waterworks System to any community not currently served by the Authority also requires the approval by majority vote of its city council or town meeting, as the case may be. The Authority also is authorized to enter into arrangements not involving an extension of the Waterworks System to provide water supply services to any community or any agency or facility of the Commonwealth or the United States not currently served, provided (i) no such arrangement shall extend for a period greater than six months without the approval of the Advisory Board and (ii) the Authority finds that the arrangement will not jeopardize its ability to service its existing statutory and contractual supply agreements. In cases of water supply emergency, as determined by DEP, the Authority may approve a connection to an adjoining community.

The Authority is aware that certain other communities are considering requesting admission to the Waterworks System's service area in order to receive supplemental water from the Authority for seasonal, occasional, or emergency use of water from the Waterworks System. The Authority does not expect that admission to the service area of any of these communities would result in a substantial increase in the use of water.

The Authority has adopted a policy for the review of requests for water supply which requires a community requesting admission to the Waterworks System to pay an entrance fee for its proportional share of historic investments in the system, a connection fee to cover all costs associated with establishing a connection to the Waterworks System, and the prevailing water rate for all annual water consumption. The policy further requires a community that requests a temporary connection to the Waterworks System to pay a cost per million gallons which includes the prevailing water rate, a proportional asset value contribution, and, in certain recurring cases, a surcharge on the then-prevailing water rate (as well as the asset value contribution), of up to 10%. Should such a community ultimately seek admission to the Waterworks System, any asset value contribution would be credited to its entrance fee, but the surcharge would be non-refundable and would not be credited to other costs.



A Local Body specified in the Act as eligible for receiving water supply services could seek to withdraw from the Waterworks System by state legislative action or with the Authority's approval. However, in the opinion of the Authority and its Consulting Engineer, the cost and time required to implement adequate alternative water supply sources in accordance with existing and anticipated state and federal environmental laws and regulations generally would preclude this course of action as a practical matter for any substantial portion of the Waterworks System's service area.

## **THE SEWER SYSTEM**

**History.** The Authority's existing wastewater facilities include certain components constructed as early as 1884, when the Boston Main Drainage System was originally placed in operation. At that time, combined sewage was pumped by a pump station constructed in 1884 to Moon Island in Boston Harbor, where sewage was held in storage tanks before being released on the outgoing tides. In 1898, the Neponset Valley Sewer System was completed, with flows sent to Moon Island through the Boston Main Drainage System. Also in 1898, a pump station was constructed on Deer Island in Boston Harbor to pump sewage from the metropolitan area north of Boston to Deer Island, where it was held in storage tanks before being released on the outgoing tides. In 1904, the original South Sewerage System was completed, conveying flow from the Charles River Watershed, the Neponset River Watershed and areas south of the Boston Main Drainage System. After screening at Nut Island, flows from the South Sewerage System were discharged into Boston Harbor. Some flow from the Boston Main Drainage System also was redirected to Nut Island. In response to concerns about water pollution, a primary wastewater treatment plant was constructed on Nut Island in 1952 to treat the discharge from the South Sewerage System and, in 1968, a second primary wastewater treatment plant at Deer Island was completed and flow from the Boston Main Drainage System began to be diverted to Deer Island.

**Wastewater Collection.** The 43 communities within the Authority's sewer service area own and operate approximately 5,400 miles of local sewers which connect to the Authority's approximately 240 miles of large interceptor sewers located to parallel the natural drainage patterns of the Mystic, Charles and Neponset River Watersheds. Approximately one-third of the sewage treated by the Authority originates in the BWSC's wastewater conveyance system. The Authority operates and maintains the wastewater transport and treatment system, including the interceptor sewer, 11 pumping stations, five headworks, five CSO facilities and the treatment plants at Deer Island and Clinton. The Local Bodies' sewer collection systems, some of which are combined sanitary and storm sewers, connect to the Authority's wastewater transport system through more than 1,800 connections.

The Sewer System is divided into a northern system and southern system. The northern system serves 26 communities with a total population of approximately 1.3 million, of which all but 40,000 contribute to the Sewer System. The four pumping stations in the northern system serve to pump wastewater into interceptors which carry the wastewater to four headworks where large debris is screened out and grit is removed. From the headworks, the wastewater flows down vertical shafts into one of two deep rock tunnels 300 feet under Boston Harbor, through which the wastewater is carried to Deer Island. Flow also is conveyed to Deer Island by means of a 10-foot diameter interceptor through Winthrop. At Deer Island a large pumping station, constructed in 1995, lifts the flow from the tunnels into the treatment plant.

The southern system serves communities with a total population of approximately 775,000, of which 700,000 contribute to the Sewer System. The wastewater is pumped by seven pumping stations into interceptors which carry the wastewater to the High Level Sewer and ultimately to the Nut Island Headworks. At Nut Island, the headworks facility removes grit and screenings before the flow enters the Inter-Island Tunnel for transport to Deer Island, where it is lifted by pumps at the South System Pump Station to the treatment plant.

**Wastewater Treatment.** At Deer Island, the treatment facilities built as part of the Deer Island Project provide primary treatment and secondary treatment for most of the flows received at Deer Island. Primary treatment design capacity at the Deer Island Treatment Plant allows for an average daily flow of approximately 361 mgd and a peak hourly flow of 1,270 mgd. Since February 1996, following startup of the new primary treatment facilities at Deer Island, the Authority has consistently been in compliance with the discharge limitations specified in its National Pollutant Discharge Elimination System ("NPDES") permit issued under the Clean Water Act. Effluent wastewater is disinfected and discharged into Massachusetts Bay through a series of diffusers located at the end of the 9.5 mile effluent outfall tunnel. The maximum discharge capacity of the effluent outfall tunnel is 1,270 mgd.

Sludge resulting from the treatment process is anaerobically digested and then transported by barge to and processed at the dewatering and pelletization facility located at the Fore River Shipyard in Quincy. See “Residuals Management,” below.

The Authority’s Toxics Reduction and Control (“TRAC”) Department administers a permitting and inspection effort that allows for control and limitation of the volume and type of industrial waste discharged into the Sewer System so that both sludge and effluent from the treatment plants meet applicable environmental standards. This program serves as the enforcement mechanism for federal, state and Authority wastewater discharge regulations. Through strict limitations and prohibitions, the TRAC program requires the control of pollutants at their sources through industrial process modifications, pretreatment of contaminated wastewater, measurements and sampling of wastes, certification of industrial waste treatment operators and strict management controls. TRAC also is initiating programs to minimize the discharge of toxic pollutants at the source.

The Authority’s sewer use regulations, which give the Authority the ability to assess civil and financial penalties directly against violators of its regulations and permits, have been coupled with vigorous enforcement measures. Through January 1, 2005, the Authority has assessed penalties against industrial dischargers to its Sewer System in an aggregate amount of approximately \$9.1 million. In many instances, following a penalty assessment, the Authority and the violator have entered into a settlement agreement which contains a payment schedule for the penalty. As of January 1, 2005, the Authority had collected approximately \$5.7 million in penalties.

**Clinton.** Legislation enacted in 1987 transferred the ownership of the wastewater treatment plant in Clinton, Massachusetts to the Authority from the MDC. The plant serves an area adjoining the Wachusett Reservoir watershed lands in central Massachusetts made up of the towns of Clinton and Lancaster (served by the Lancaster Sewer District). The Authority constructed an advanced secondary treatment facility at Clinton with a design capacity for an average flow of 3 mgd. The new plant commenced operations in Fiscal Year 1992.

**Residuals Management.** The Authority operates sludge dewatering and pelletization facilities located on a portion of the site of the former Fore River Shipyard in Quincy, constructed as part of the Deer Island Project. Digested liquid sludge is shipped to the site from Deer Island and is processed for use as fertilizer in agriculture, horticulture and turf management. Sludge cake or pellets that are not used as fertilizer are landfilled. The Authority has entered into a contract with New England Fertilizer Company for both the operation and management of the plant and the disposition, through sale or otherwise, of the sludge. The current contract expires in 2015.

The Authority has a long-term contract to provide an out-of-state landfill for back-up residuals disposal as an alternative to the construction of an in-state back-up landfill. In addition to preparing an emergency preparedness plan to identify on an on-going basis additional out-of-state landfills in the event such access were ever required, the Authority has retained ownership of a site in Walpole for an in-state landfill.

**Combined Sewer Overflows; Infiltration and Inflow.** Many areas in Boston, Cambridge, Chelsea and Somerville are served by combined sewers, which are pipes that carry both sanitary flow and storm water run-off. These sewers, built for the most part prior to 1910, were designed to discharge combined wastewater and stormwater overflows (“CSOs”) into nearby waterways during heavy rainstorms to protect the system, as well as homes and businesses connected to it, from flooding. The Authority’s and communities’ interceptors, trunk sewers, and pumping systems serving the combined sewer areas are not capable of fully handling wet weather flows generated by large storm events. Combined flows in excess of the Sewer System’s capacity are currently diverted and discharged through overflow conduits into Boston Harbor, Dorchester Bay, Mystic River, Charles River Basin, Neponset River, and Alewife Brook. At many outfalls, overflow events result in the discharge of diluted, but untreated, sewage, although the Authority operates facilities that provide screening and disinfection to the majority of CSO discharge volumes. These overflows are a source of pollution in Boston Harbor and its tributary rivers. Since 1987, the Authority’s investments in the Sewer System have reduced the average annual volume of CSO discharges by approximately 76%, from 3.3 billion gallons to 0.8 billion gallons in a typical year. The Authority is designing and implementing remedial actions for CSOs in connection with the federal enforcement action brought against the Authority and others under the federal Clean Water Act (the “Clean Water Act Case”). See “Capital Improvement Program - Major Capital Projects -- Wastewater Projects.”

Further increasing the burden on the Sewer System are infiltration of groundwater into the Sewer System through leaks in pipes, joints and connections, and inflow of storm water from a number of sources into otherwise separate, local sewer systems (“infiltration and inflow”). The Authority has developed programs, including an Infiltration/Inflow Local Financial Assistance Program (a combined grant and interest-free loan program) that can provide more than \$140 million in funding for local sewer improvements, to encourage and assist efforts to reduce infiltration and inflow within the local collection systems of the Local Bodies. As of January 1, 2005, the Authority has entered into loan and grant agreements with 43 Local Bodies, representing \$109 million in loans and grants.

**Extension and Contraction of Wastewater Service Area.** The Act authorizes the Authority to provide sewer service for a limited term to any person within its service area not currently connected to the Sewer System, provided any such arrangement does not entail an extension of the Sewer System or have a term in excess of six months (unless a longer term is approved by the Advisory Board). The Act also authorizes the Authority to extend the Sewer System to additional local bodies, provided such extension is approved by the Governor, the state legislature, the Advisory Board and DEP. Extension of the Sewer System to any community not currently served by the Authority also requires the approval by majority vote of its city council or town meeting, as the case may be. Prior to extending the Sewer System to any new local body, the Authority must determine that (i) the safe capacity of the Sewer System as so extended will be sufficient to meet ordinary wet weather demand, (ii) all feasible measures have been taken by the local body to limit infiltration and inflow of surface and ground waters into the Sewer System, and (iii) the local body has adopted an industrial pretreatment program in accordance with applicable law. At the present time, the Authority does not anticipate adding any communities to the Sewer System.

Although a Local Body could withdraw from the Sewer System by state legislative action or with the Authority’s approval, in the opinion of the Authority and its Consulting Engineer, existing and anticipated state and federal environmental laws and regulations would cause any alternative to the Authority’s wastewater collection services for a Local Body to be prohibitively expensive as a practical matter since it would require the construction of new treatment facilities in accordance with state and federal environmental laws.

## **SECURITY**

In response to the events of September 11, 2001, the Authority immediately took action to increase protection of potentially vulnerable water and wastewater facilities and sites. On September 17, 2001, the Authority’s Executive Director appointed a Task Force on Security and Emergency Preparedness. The Task Force prepared a report for the Authority’s Board and the Authority has implemented a number of specific measures to limit access to Authority facilities and heighten overall security. The Authority also initiated a Water Systems terrorism vulnerability assessment (conducted by the U.S. Department of Energy’s Sandia National Laboratories) and is reviewing and implementing recommendations received from security consultants. State Police patrols continue at critical water and wastewater locations as appropriate.

## **CAPITAL IMPROVEMENT PROGRAM**

### **CAPITAL IMPROVEMENT PLANNING**

The Act requires the Authority to adopt and update capital facilities programs for the Systems and capital expense budgets to implement and finance such programs. In June 2003, the Board of Directors adopted a five-year capital spending cap that limits total expenditures for Fiscal Years 2004 through 2008 to \$1.13 billion. The cap policy requires that a new cap for Fiscal Years 2009 through 2013 be set by the Board before the end of the current cap period. The Authority annually prepares and updates its capital improvement program (“CIP”), and in December 2004 the Board of Directors approved the Proposed Fiscal Year 2006 Capital Improvement Program and transmitted it to the Advisory Board for its review and comment. As a result of the Authority’s ongoing efforts to manage rate increases to its member communities, while continuing to upgrade and maintain the System, the Proposed FY06 CIP reflects a spending reduction of approximately \$420 million as compared to the FY05 CIP but equal to the spending level approved in Fiscal Year 2004. This reduction reflects a proposed shift forward of CSO spending and a reduction in infrastructure improvements to the System largely in Fiscal Years 2009 through 2013. However, as part of its discussions with the Board of Directors to establish a five-year cap for the Fiscal Years 2009 through 2013 cap period (expected to begin with the Fiscal Year 2007 capital budget discussions; it must be set by

the end of Fiscal Year 2008), the Authority expects to review its project prioritization process in conjunction with its master planning efforts. The Proposed FY06 CIP includes spending for Fiscal Years 2004 through 2008, the cap period, and projections through Fiscal Year 2015.

The CIP describes all capital projects ongoing at the time of its adoption and new projects to be initiated during a ten-year planning period. Completed projects are not included in the CIP. The costs shown for each project in the CIP include any payments made on such project prior to the commencement of the ten-year planning period, the expected costs for such project for each year of the CIP budget period, and the expected balance of such costs through completion of the project. Capital project spending is forecast annually over the ten-year planning period. The scope and anticipated cost of the projects included in the CIP are reviewed periodically during the course of the fiscal year by the Authority, and revised as necessary. In addition, the CIP has been updated and readopted on an annual basis and rolled forward for an additional year each time. The CIP also contains projected expenses to operate and maintain the capital facilities upon completion of construction.

During the course of the fiscal year, the Authority's financial information system produces monthly statements of capital spending compared to the budget plan. The Authority reports on capital program progress in its monthly management indicators report and dollar variances in its monthly financial update. At mid-year and at year-end progress, project schedules and variances are summarized and reported.

## **SUMMARY OF CAPITAL INVESTMENT**

The Authority has completed or substantially completed several major capital projects, including the Deer Island Project. The results of the Authority's efforts to date are apparent in improvements to the environment as well as in better delivery of services. Significant steps taken in the environmental restoration of Boston Harbor include the end of sludge discharges into Boston Harbor in December 1991, the commencement of operations of the new primary treatment facilities at Deer Island in January 1995, the start-up of operations of the first, second and third batteries of the new secondary treatment facilities at Deer Island in July 1997, January 1998 and January 2001, respectively, the transfer of flows from the south portion of the Sewer System to Deer Island for treatment in July 1998 and the commencement of operation of the effluent outfall tunnel in September 2000. In addition, the final contract with respect to the Deer Island Project was declared substantially complete in November 2001. Together with the operation of CSO screening and disinfection facilities and improvements to the Sewer System and certain of the Local Bodies' local systems, reductions have been achieved in the frequency, volume and severity of CSOs with corresponding substantial reductions in the bacterial contamination to Boston Harbor. According to information developed by or available to the Authority, the Authority believes that measurements of bacterial contamination in Boston Harbor since 1990, on average, have been the lowest on record since the 1930s; most beaches have experienced fewer closings in recent summers; fish living in Boston Harbor are less contaminated and healthier; and the appearance of Boston Harbor has improved. The Authority also has completed several sewer interceptor projects, including projects at New Neponset, Wellesley and Framingham, which have further improved the performance of the Sewer System.

The Authority continues to advance with its Integrated Water Supply Improvement Program and has recently placed into service the MetroWest Water Supply Tunnel. The new tunnel began operating in November 2003. This 17.6-mile long deep rock tunnel from Marlborough to Weston will connect the new water treatment plant at Walnut Hill and aqueducts from the Wachusett and Quabbin Reservoirs to the greater Boston area. Construction of the tunnel began in 1996. It was completed on schedule and under its \$700 million budget.

In addition, the Authority has completed certain other capital projects within the Waterworks System, including a water meter modernization program, a domestic device retrofit program, a leak detection survey, a local source of supply analysis and protection program, and a long-range water supply study, which have enabled the Authority to eliminate the near-term prospect for very expensive and potentially controversial projects for large-scale water supply augmentation. The Authority also has constructed a new disinfection facility and an interim corrosion control facility, providing improved water quality, and has completed projects that have enhanced pumping and pipe capacity, including the recently completed pump station and storage tanks at the Spot Pond Reservoir that allowed the reservoir to be taken off-line.

## MAJOR CAPITAL PROJECTS

### Proposed Fiscal Year 2006 CIP

The Proposed FY06 CIP includes 91 ongoing and new projects. Total costs of the projects are approximately \$7.8 billion in Fiscal Year 2005 dollars ("FY05 dollars"), of which approximately \$6.3 billion was expended through the end of Fiscal Year 2004. Projected expenditures during Fiscal Years 2004 through 2008 are estimated to be approximately \$1.1 billion, \$508.2 million for Fiscal Years 2009 through 2013, and \$14 million for beyond Fiscal Year 2013. Actual expenditures for Fiscal Year 2004 were \$194.1 million. The Proposed FY06 CIP contains all expenditures currently estimated by the Authority as necessary to carry out its major capital projects. However, the Proposed FY06 CIP does not include expenditures for CSO projects beyond those that are recommended in the Authority's long term CSO Control Plan. If the District Court requires spending on CSO projects beyond those recommended by the Authority (for example, at the behest of EPA, DEP or others, without regard to the degree of water quality improvements to be achieved), the costs for these CSO projects could be significant.

### Waterworks Projects

Capital projects for the Waterworks System are designed to upgrade and extend the useful life of the water supply, transmission and distribution system in order to assure a satisfactory and consistent level of water quality and distribution throughout the Waterworks System. Certain of these projects also are mandated by federal regulatory requirements. The total estimated expenditures for the Waterworks projects for Fiscal Years 2004 through 2008, as contained in the Proposed FY06 CIP, are approximately \$421.1 million. Approximately \$259.3 million in additional expenditures is forecast through Fiscal Year 2013, reflecting significant capital investment in the Waterworks System. The major projects in the program are summarized below.

**Drinking Water Quality Improvements.** The Authority is implementing an Integrated Water Supply Improvement Program for drinking water improvement. This program consists of aggressive watershed protection, modernized treatment facilities, and distribution system improvements including construction of covered storage facilities and pipeline rehabilitation. This program is based on current engineering practices, up-to-date technology and drinking water standards resulting from state and federal laws. See "Environmental Regulation and Litigation - Water Supply." Pursuant to an administrative consent order entered into with DEP and DCR with respect to the enforcement of the SDWA and the rules promulgated thereunder, the Authority is constructing the new Walnut Hill Water Treatment Plant. The plant will treat water delivered from the Wachusett Reservoir (including water transferred to the Wachusett Reservoir from the Quabbin Reservoir) through ozonation and chloramination. Construction of the treatment plant began in November 2000. When construction and testing are completed in 2005, the Walnut Hill Water Treatment Plant will be able to treat 405 mgd of drinking water.

Because existing uncovered distribution reservoirs are vulnerable to airborne contaminants and allow the growth of bacteria plants and algae, the Authority is eliminating the use of open distribution reservoirs by constructing covered storage facilities. These projects, which have been completed, replace active distribution storage of approximately 2.4 billion gallons of open reservoirs with more than 200 million gallons of covered storage downstream of the Walnut Hill Water Treatment Plant.

Total estimated costs of the projects in the Proposed FY06 CIP related to water treatment improvements, provision of covered storage facilities, and aggressive protection of source water quality are approximately \$578.6 million, of which \$435 million is for water treatment, and \$143.6 million is for covered storage facilities and watershed protection. Approximately \$444.3 million was expended through Fiscal Year 2004 for these projects, and approximately \$137.1 million is expected to be expended during Fiscal Years 2004 through 2008.

**Transmission.** Critical needs of the Authority's aqueduct system include correction of structural conditions to reduce leakage and provision of redundancy for critical sections of the transmission system, such as the Hultman Aqueduct and the Southborough Tunnel, where transmission has depended on a single conduit. The estimated costs for transmission projects included in the Proposed FY06 CIP total \$752.1 million, of which approximately \$629.9 million was expended through Fiscal Year 2004, and approximately \$83.1 million is expected to be expended during Fiscal Years 2004 through 2008.

The most significant of the Authority's transmission projects is the construction of the MetroWest Water Supply Tunnel, a 17.6-mile long, 14-foot diameter deep rock tunnel running from Marlborough to Weston. The MetroWest Water Supply Tunnel is critical to provide an appropriate level of transmission redundancy and is a key element of the planning, design and eventual operation of the water treatment plant and covered distribution storage projects described above. Construction of the tunnel, which began in June 1996, is complete and the tunnel was placed in service in November 2003.

**Distribution and Pumping.** The Proposed FY06 CIP identifies 23 separate projects for rehabilitation, upgrade or new construction of pipelines, pumping facilities, valves and meters. These projects total approximately \$506.1 million, of which approximately \$227.1 million was expended through Fiscal Year 2004, and approximately \$149.6 million is expected to be expended during Fiscal Years 2004 through 2008. Over the next 30 years, approximately 200 miles of unlined pipe will be rehabilitated or replaced at a rate of approximately seven miles of pipe each year. These projects will provide improved reliability and safety of water delivery.

**Other Waterworks Projects.** These projects include expansion of the Waterworks System's central monitoring system, various system rehabilitation projects and two local community waterworks assistance programs. The total cost of these projects as contained in the Proposed FY06 CIP is approximately \$29.9 million.

### **Wastewater Projects**

**Combined Sewer Overflows.** Discharges of combined wastewater and stormwater runoff from 63 remaining CSO outfalls in the Authority's system and four of the service area community systems (Boston, Cambridge, Chelsea and Somerville) can impact water quality in Boston Harbor, Dorchester Bay, the Charles, Mystic and Neponset Rivers and Alewife Brook. Pursuant to a 1987 stipulation entered in the Clean Water Act Case, the Authority has responsibility for developing and implementing a long-term plan for CSO control at all locations. The Authority first proposed the current long-term plan in its CSO Conceptual Plan and Sewer System Master Plan in 1994. The CSO Conceptual Plan incorporated then-current information about the volume of CSO flows and water quality impacts, and was developed in accordance with EPA's National CSO Policy (April 1994).

In 1997, the Authority completed its Final CSO Facilities Plan and Environmental Impact Report based on the CSO Conceptual Plan. The Final CSO Facilities Plan comprises 25 site-specific projects, including such measures as sewer separation, interceptor improvements, upgrades of existing CSO treatment facilities, new CSO facilities and storage. Schedule Six in the Federal Court Order includes more than 50 milestones directing the design and construction of the projects. The Proposed FY06 CIP includes \$747 million for planning, design and construction costs of these projects.

Fourteen of the 25 projects are complete, six additional projects are well into construction, and two more are scheduled to commence construction by the end of March 2005. The remaining three projects are associated with the Authority's revised plan for North Dorchester Bay and the Reserved Channel and are in the design phase or are scheduled to commence the design phase by 2007.

The Authority filed a Supplemental Facilities Plan/Environmental Impact Report in April 2004, which presented a revised recommended plan for North Dorchester Bay and the Reserved Channel. In July 2004, following a public review and comment period, the Massachusetts Secretary of Environmental Affairs issued a certificate on the recommended plan allowing the project to move forward.

DEP and EPA have approved most of the CSO facilities plan and have made most of the regulatory determinations necessary for the long-term plan to comply with state water quality standards. Approval of the plans for CSOs affecting the Charles River, Upper Mystic River, Alewife Brook and the East Boston shoreline areas are pending the outcome of various studies being conducted to determine whether additional controls will be required. Negotiations with the regulatory agencies are also ongoing with respect to these receiving waters. Federal and state regulatory agencies may require higher levels of CSO control for these receiving waters and achieving these higher levels of control could result in increases to the CIP. Depending on the outcome of these regulatory determinations, increases in the cost of the Authority's CSO control program could be significant. The Authority believes that any additional significant expenditures should be justified by the prospect for significant, as opposed to marginal, improvements in water quality, and further believes that additional significant expenditures beyond those

recommended in its long-term CSO Control Plan would not result in significant improvements in overall water quality. However, the Authority cannot predict whether or to what extent such additional expenditures may be required.

**Interceptor Sewers and Pumping.** The Authority is undertaking, and in some cases has completed, several major projects to extend, enlarge and rehabilitate large sewer interceptors. These projects are necessitated by the age of the systems and their inadequate capacity to serve existing or projected populations. As they are completed, the new facilities alleviate sewer surcharging and overflow problems. The interceptor sewer and pumping projects total approximately \$500 million, of which approximately \$342.5 million was expended through Fiscal Year 2003 and approximately \$151 million is expected to be expended during Fiscal Years 2004 through 2008. The most significant project is the Braintree-Weymouth Relief Facilities project, which includes a deep rock tunnel, two new pump stations, and new interceptors. The tunnel is complete and overall the project is 80.8% complete as of January 1, 2005. When major portions of the project are completed in Fiscal Year 2005, the project will provide capacity for peak flows from Braintree, Hingham, Holbrook, Randolph, Weymouth, and sections of Quincy. The entire project is expected to be completed in Fiscal Year 2007.

**Treatment and Residuals.** As the new Deer Island treatment facilities have become operational, plant staff have assumed responsibility for maintenance and ongoing capital improvements. The Proposed FY06 CIP includes \$139.3 million for these improvements, including \$56 million for equipment and system replacement and upgrades over the next ten years through the Deer Island Treatment Plant Asset Protection project. The \$56 million amount is an estimate that is refined annually, as additional operational and maintenance information becomes available. The Authority has completed modification of four existing processing trains and added two new trains to its sludge processing facilities in Quincy to accommodate the increased sludge volumes generated by secondary treatment and to increase efficiency. Final construction work at the processing plant was completed in December 2001.

**Deer Island Project and Related Facilities.** The construction of the Deer Island Project, the cornerstone of the environmental protection program for Boston Harbor and the largest project in the Authority's Capital Program, is complete. The third and final battery of secondary treatment was placed in operation in January 2001. Completion of this battery represented the final milestone in the Clean Water Act Case relating to the Deer Island Project. The plant is one of the largest public works project ever undertaken in New England and is the second largest sewage treatment plant in the nation. Total estimated costs of the Deer Island Treatment Plant are approximately \$3.52 billion.

The Deer Island Project includes, at Deer Island, new pumping, headworks, odor control, disinfection, primary and secondary treatment and residual facilities and utilities (including a hydropower plant), a 4.8-mile deep rock inter-island tunnel that brings south system flows from Nut Island to Deer Island for treatment, a 9.5-mile deep rock outfall tunnel that carries treated effluent from Deer Island to Massachusetts Bay, and a headworks facility at Nut Island.

### **Business and Operations Support and Contingency**

**Business and Operations Support.** Business and operations support projects are generally directed to improvement of the Authority's centralized services. The Proposed FY06 CIP includes funds for leasehold improvements to the new Chelsea Facilities, which houses personnel and equipment servicing the metropolitan Boston portion of the Systems. Total capital costs for this project are estimated at \$10.2 million, of which \$9.1 million has been expended. The Proposed FY06 CIP also includes funds for technical assistance contracts and for the upgrade of the Authority's Management Information Systems to meet the changing needs of planning and managing the Systems to respond to new regulatory requirements. Security improvements to protect Authority facilities are also funded through business and operations support. Total business and operations support costs in the Proposed FY06 CIP are approximately \$60.9 million.

**Contingencies.** The Proposed FY06 CIP provides for contingencies for the ten-year period in the amount of approximately \$121.2 million. The contingency is established as a percentage of the expected capital expenditure cash outlays in each of the fiscal years: 15% for tunnel construction for the North Dorchester Bay CSO Conduit project, and approximately 10% for all other projects. According to the Consulting Engineer, these contingency

levels are prudent and well-proportioned and properly recognize that many large scale construction projects are now underway that have potential for significant cost changes due to unanticipated circumstances.

## **FACTORS AFFECTING THE CAPITAL PROJECTS**

The following is not intended as a complete summary, but describes some, of the uncertainties which may affect the Authority's capital programs. Unforeseen circumstances affecting the projects may result in delays or cost escalations not currently provided for in the Authority's projections.

The Authority must complete its capital projects in a complex legal and political environment. For example, performing large and complicated projects under court-ordered and administrative deadlines has required special coordination among engineering, legal, and regulatory activities. Many of the Authority's projects also involve impacts on surrounding communities and important concerns for environmental mitigation. Political sensitivities arising in these community contexts cannot be fully foreseen. Another consideration is the highly regulated public construction process in Massachusetts. A further important concern is the complexity of applying for and processing environmental construction and occupancy permits required for facility construction and operation. Many aspects of the permitting process require the assistance and cooperation of other federal, state and local governmental agencies. If the Authority's permit needs are not expeditiously handled by these other federal, state and local governmental agencies, critical project delays may result.

The scope and complexity of many of the Authority's capital projects makes the timetable and expenditure forecasts for the Capital Program subject to change. Such factors as future environmental mandates, as well as traditional construction risks such as unknown site conditions could alter the Authority's forecasts. In preparing estimates of future revenue requirements for the Capital Program, the Authority has included inflation assumptions for the purposes of projecting the level of project expenditures when expected to be made or contracted for in accordance with each project's cash flow projections. Actual future inflation rates which are lower than the assumed rate could permit the Authority to proceed with portions of the Capital Program at costs lower than those used in developing its current revenue requirements projections. Actual future inflation rates higher than the assumed rate would require upward adjustment of construction cost and revenue requirement projections.

## **SOURCES AND USES OF CAPITAL FUNDS**

The Authority expects to finance its capital expenditures principally from the proceeds of revenue bonds issued under the General Resolution. Certain capital improvements are eligible for federal grants and loans under the Clean Water Act and the Authority expects that certain waterworks projects will be eligible for loans under the SDWA's revolving fund program. The Authority also plans a gradual increase in the use of current revenues to fund certain capital projects.

## **ENVIRONMENTAL REGULATION AND LITIGATION**

The Authority's Waterworks System and Sewer System are subject to significant regulation under federal and state environmental laws.

## **WATER SUPPLY**

In the maintenance and expansion of water supply, the Authority is subject to environmental and regulatory oversight chiefly in the following respects:

**Drinking Water Regulation.** Under the SDWA, amended in 1986 and reauthorized and amended in 1996, EPA regulates the level of contaminants allowed in drinking water of most water supply systems in the United States by establishing national drinking water standards so that drinking water will be protected against microbiological or chemical contaminants. Standards include maximum levels for contaminants or treatment techniques and other performance standards. Enforcement of drinking water standards in Massachusetts under the SDWA has been delegated to DEP which also acts under authority of state law and has adopted Massachusetts



Drinking Water Standards. The state and federal rules implementing the 1986 amendments to the SDWA impose additional treatment requirements for surface water sources, including criteria, procedures and timetables for state determinations of whether filtration measures are required, maximum permissible levels of coliform bacteria occurrence in distribution systems, and the testing and control of lead and copper in water at the customers' taps.

When the SDWA was amended and reauthorized in 1996, the water quality standard setting process was revised, a revolving loan fund for drinking water projects was established, water suppliers were required to issue consumer confidence reports and a timetable was established for further regulation of microbial pathogens in drinking water and potentially harmful disinfection by-products. As part of such further regulation, the first set of rules, the Interim Enhanced Surface Water Treatment Rule ("ESWTR") and Stage 1 Disinfectants and Disinfection By-products Rule ("DBPR") were issued in December 1998, and became effective in November 2001. These rules specify further treatment requirements for filtered systems to protect against pathogens and revise the maximum contaminant levels for potentially harmful disinfection by-products.

Since June 1993, the Authority has been working under an administrative consent order entered into with MDC and DEP to comply with the SDWA's 1989 Surface Water Treatment Rule ("SWTR") and other rules under the 1986 amendments which include obligations to construct a new water treatment plant and covered storage to replace Norumbega Reservoir. The Authority reports quarterly to DEP in accordance with the administrative consent order. The Authority, DCR and DEP recently executed an amendment to the schedule for construction, testing and start-up sequencing of the new water treatment plant. The order also required the Authority to eliminate uncovered distribution storage at Weston Reservoir, Spot Pond and Fells Reservoir. The Authority has eliminated all uncovered distribution storage. Based on an annual review, DEP continues to find that the Authority's water supply meets federal criteria for unfiltered sources.

In 1992, DEP issued a conditional waiver of filtration for the Quabbin Reservoir, which directly serves three Local Bodies located in western Massachusetts. The conditions of the waiver required the Authority to develop a schedule for selecting and implementing a treatment technology to achieve current drinking water standards for the water provided to the three Local Bodies and for providing covered storage of the Nash Hill Reservoir. The Authority has completed the construction of covered storage facilities at Nash Hill and a primary disinfection facility at Ware. The Authority has established a separate water rate to recover the costs of constructing and operating these facilities. See "Local Bodies - Special Arrangements."

The new water treatment facilities at Walnut Hill and Ware are also expected to comply with the ESWTR and DBPR. Future regulations issued in draft form in August 2003, and scheduled to be finalized in late summer of 2005, are likely to impose additional requirements. A staged compliance schedule for capital improvements ending in 2013 is anticipated. Based on preliminary reviews, the Authority believes that the treatment processes at the Walnut Hill and Ware facilities can be modified to meet the anticipated new regulatory requirements. All expected necessary additions and modifications to the water treatment plants for the Quabbin and Wachusett Reservoirs are included in the Proposed FY06 CIP.

Under the Lead and Copper Rule, water suppliers must conduct sampling and testing programs, identify and implement optimal corrosion control treatment, and provide information to the public on ways to further reduce the risk of lead exposure. The presence of lead results from corrosion of home plumbing materials and service lines historically used by certain Local Bodies and certain of their retail users; the Authority's water distribution system has no lead pipes. The Authority treats its source water to reduce the corrosivity of the water towards lead so that lead concentrations at consumers' taps are decreased. The Authority operates an interim corrosion control facility located in Marlborough that is providing corrosion control until the Walnut Hill Water Treatment Plant for the Wachusett reservoir is completed. Similar corrosion control facilities are included in the Walnut Hill plant which is expected to go on-line in June 2005.

Under the Lead and Copper Rule, the Authority is required to conduct sampling in conjunction with the Local Bodies to detect the presence of lead in their customers' tap water. In 2002, the samples collected by the Local Bodies were below the action levels set by the rule. As a result of the sampling in September 2003, it was determined that the Authority's water system exceeded the lead action level. This triggered a series of required actions under the Lead and Copper Rule, including conducting a public education program and the implementation of a lead service replacement program in the 14 communities which exceeded the action level locally. These

programs are underway. Results of sampling during two rounds of sampling in 2004 were both below the lead action level, and the Authority's system has returned to compliance with the Lead and Copper Rule.

**Water Resources Management.** Pursuant to the state Water Management Act (the "WM Act"), water users whose withdrawals from a particular ground or surface water source exceed 100,000 gallons per day must file a registration statement with DEP. In 1997, the Authority applied for and received a renewal of its registered withdrawals for each river basin from which its water is delivered through 2008.

**Expansion of Water Supplies.** In addition to the provisions of the WM Act, other state laws and regulations would govern any substantial structural augmentations to the Waterworks System's water supply. These include legislative approval for diversion of any river or stream for water supply purposes outside its own basin or for any structural action by the Authority in any water donor basin, including any capital improvement, which is expected to create a new interbasin transfer or increase the rate of any existing interbasin transfer. Approval by the state Water Resources Commission, an interagency policy management group within the EOE, is also required for any increase over the present rate of interbasin transfers of surface or groundwater. The Commonwealth's existing policies regarding water supply and management mandate that all economically feasible local sources of supply be developed before diversion of a major river source be considered. Environmental impact assessment and mitigation requirements under the Massachusetts Environmental Policy Act ("MEPA") and, in certain circumstances, the National Environmental Policy Act ("NEPA"), also must be met.

## WASTEWATER MANAGEMENT

**Sewage Collection, Treatment and Disposal.** The Clean Water Act imposes several permit and regulatory requirements on wastewater treatment systems. Public sewage treatment plant owners and operators such as the Authority are required to provide secondary treatment as established by federal regulation for all wastewater discharge from treatment plants into waters of the United States. Under the Clean Water Act, states also establish water quality standards classifying water body uses and pollutant control criteria to protect those uses. All sewage system discharges require National Pollutant Discharge Elimination System ("NPDES") permits specifying applicable technology based requirements, as well as any more stringent controls required to achieve the water quality standards established by the state pursuant to federal regulations. Under state law, the Commonwealth also requires treatment plants to hold state surface water discharge permits, which, in the discretion of EPA and DEP, may be issued jointly with the NPDES permit. Major wastewater treatment systems also must adopt and enforce pretreatment regulations for industries and other non-domestic sources discharging into sewers. Treatment plants are also subject to Clean Water Act and state regulations governing sludge use and disposal.

The Clean Water Act is enforced by EPA and DEP through administrative orders and procedures. Violations also may be the basis for federal law suits brought on EPA's behalf by DOJ or by private citizens. DOJ brought such an action against the Authority and others, referred to herein as the Clean Water Act Case, as described below.

**Boston Harbor: NPDES Permit.** The Authority operates its sewage system, including the treatment plant and CSO outfalls, under a NPDES permit (the "Permit"), which became effective in August 2000. The Permit incorporates federal secondary treatment requirements, other technology based requirements, and other limits necessary for discharges to meet water quality standards established by the Commonwealth. The Permit includes extensive water quality monitoring, a contingency plan (the "Contingency Plan") to identify and respond to water quality changes that could potentially be related to effluent discharges from the new outfall, and numerous other requirements for pollution prevention, facility best management practices, management of infiltration/inflow, and restrictions on dry day flow.

The quality of wastewater effluent discharged from the treatment plant is continuously monitored by the Authority to assess compliance with water quality standards and pollutant limits set forth in the Permit. The Deer Island Treatment Plant generally operates reliably in compliance with the requirements of the Permit. Reliable compliance with water quality standards applicable to CSO discharges depends on completion of the CSO control plan. Because of the intermittent operation of CSO treatment facilities, and ongoing upgrades and improvements in the collection system, from time to time excursions from effluent limits applicable to treated CSO discharges under the Permit have occurred.

In September 2000, the Authority placed the new effluent outfall tunnel at Deer Island on-line, ending discharges to Boston Harbor. With this milestone, the Contingency Plan went into effect. The Contingency Plan and an Ambient Monitoring Plan are attached to the Permit. The Contingency Plan had been developed as a result of the Authority's agreement with the National Marine Fisheries Service ("NMFS") and EPA to implement certain recommendations regarding activities that will provide additional information to help to ensure that there are no adverse impacts to endangered species or critical habitats under NMFS jurisdiction. The Contingency Plan relies on data obtained through the Authority's extensive Ambient Monitoring Plan. Both the Contingency Plan and the Ambient Monitoring Plan are subject to recommendations made by an Outfall Monitoring Scientific Advisory Panel, advisory to EPA and DEP, and are to be reviewed annually and revised as necessary based upon information from the monitoring program and new scientific information.

The Authority recently submitted its renewal application for its NPDES Permit. The current Permit expires in August 2005, but will remain in effect until the new Permit becomes final. In addition, EPA issued a draft Permit modification in January 2003, which generally establishes numerical limitations and monitoring requirements for CSOs based on current state water quality standards. The Authority expects that EPA will issue the final Permit modification prior to August 2005.

**Boston Harbor: Clean Water Act Case.** The Authority continues to be a defendant, along with BWSC and the Commonwealth, in the Clean Water Act Case, a consolidated lawsuit brought by the United States, acting at the request of EPA, and certain citizen groups, suing the Authority and other defendants for violations of NPDES permit conditions and certain terms of outstanding administrative orders previously issued by EPA. In 1987, the Authority stipulated to accept responsibility to undertake corrective actions necessary to meet wastewater treatment, discharge and CSO control requirements, with Court oversight. With the completion of the last battery of secondary treatment at the Deer Island Treatment Plant, the Court allowed the Authority's motion to reduce Court oversight, for the most part, to CSO related requirements under a CSO compliance schedule requiring the Authority to undertake CSO controls by specified dates, which has been modified from time to time as the CSO control plan has developed. See "Capital Improvement Program - Major Capital Projects -- Wastewater Projects -- Combined Sewer Overflows." The Authority has notified EPA and the District Court that further modifications to the control plan and schedule will be required to take into account changes in projects in Cambridge and Boston resulting from environmental review under the MEPA process or other regulatory determinations.

The BWSC has certain responsibilities under its own NPDES permit for CSO corrective actions. Since 1988, no penalties have been assessed against the Authority and there are no pending requests for assessments of penalties against the Authority with respect to the Clean Water Act Case.

**Related Litigation.** The Authority's activities as operator of the Sewer System, and in connection with the construction of the Deer Island Project and related facilities, have given rise to several other lawsuits in federal and state courts. To date, none of these actions have led to a judicial determination adverse to the Authority or materially affecting the Authority's programs or its ability to proceed in accordance with schedules mandated in the Clean Water Act Case. The Authority believes that actions of this nature may continue to arise from time to time and cannot predict the outcome of future proceedings, if any.

In April 1998, the Authority received a Notice of Enforcement Action from DEP regarding the Braintree-Weymouth Relief Facilities project. This project, which the Authority has been planning for some time, is expected to provide increased capacity for transporting sewage flows from six communities south of Boston to remedy overflows that occur during wet weather. See "Major Capital Projects -- Wastewater Projects -- Interceptor Sewer and Pumping." In February 1999, the Authority reached agreement with DEP on the terms of an administrative consent order which established a schedule for the project from 1999 to 2004 and required certain additional measures to manage and reduce overflows. In particular, it required the Authority to enter into a further agreement with DEP to address reductions of infiltration/inflow. On December 21, 2004, the Authority commenced operation of the Intermediate Pump Station and is now providing the required relief to the Braintree-Weymouth Sewer System. The Authority has advised DEP that it will be seeking to amend the administrative consent order by deleting a rehabilitation contract not related to the relief project and by extending the completion date of the final construction contract to 2007.

**Other Clean Water Act Requirements and Administrative Regulation of Sewage Sludge Reuse.** In addition to program requirements of the Clean Water Act already reflected in the Permit and the Clean Water Act Case, other regulatory requirements under federal and state law may impose additional operating requirements on the Authority.

EPA has promulgated regulations covering the treatment and handling of sewage sludge, which provide aggressive protection of the environment and public health while permitting beneficial sludge reuse. In addition to the federal standards, the Authority's sewage sludge products must comply with regulations where such products are used, including Massachusetts. Sewage sludge regulations adopted by DEP also govern permissible application and distribution of sludge as fertilizer in Massachusetts. The Authority has signed a memorandum of understanding with the Commonwealth to promote the beneficial reuse of its sludge within Massachusetts.

**Other Regulatory and Compliance Matters.** In common with most water and wastewater operating agencies, the Authority's operations and improvements for its Systems are subject to numerous environmental regulatory requirements in addition to the SDWA and the Clean Water Act. These include environmental impact assessment requirements under NEPA and MEPA, permitting requirements under various federal and state laws for construction projects, and various requirements affecting the Authority's properties and operations under the Federal Resource Conservation and Recovery Act of 1976 and the Federal Comprehensive Environmental Response, Compensation and Liabilities Act of 1980, the Clean Air Act, federal and related state laws and regulations regarding the handling, treatment and storage of oil, hazardous materials and other waste, water quality standards, and air pollution control requirements.

## LEGISLATIVE DEVELOPMENTS

From time to time legislation has been introduced in the Massachusetts legislature proposing to affect the Authority, including adding to its responsibility certain capital projects, increasing the Authority's debt authorization, providing financial assistance for its programs, and requiring it to make payments to other governmental entities in the Commonwealth. Some of these legislative proposals have been enacted, but it is not possible to predict whether any such legislative proposals will be enacted in the future.

## LITIGATION

There is no threatened or pending litigation against or affecting the Authority that, to the knowledge of the Authority, seeks to restrain or enjoin the issuance, sale or delivery of the Series A Bonds, or to in any way contest or affect the validity of the Series A Bonds, the General Resolution, or any proceedings of the Authority taken with respect to the issuance or sale of the Series A Bonds or with respect to the General Resolution, or in any way contesting the existence or powers of the Authority.

The Authority is a defendant in a number of suits arising out of its operations and activities. These actions include contract claims arising from the Authority's capital projects as well as personal injury and property damage claims. To the best knowledge of the Authority's General Counsel, no litigation is pending or threatened which, in the opinion of the Authority's General Counsel, if decided adversely to the Authority, would be likely to result, either individually or in the aggregate, in final judgments against the Authority which would materially adversely affect its ability to meet debt service payments on the Series A Bonds, when due, or its obligations under the General Resolution, or materially adversely affect its financial condition.

In addition, due to the nature and scope of the Capital Program, the substantial number of Authority construction projects may result from time to time in the bringing of material claims for damages in tort or contract against the Authority. While the outcome of such litigation cannot be predicted, the Authority believes that it has made adequate provision through insurance, indemnification, performance bonds, construction monitoring, contingencies and reserves, among other measures, to limit its exposure to liability as a result of such claims.

## TAX EXEMPTION

Bond Counsel is of the opinion that, under existing law, except as described below, interest on the Series A Bonds is not included in gross income for federal income tax purposes. Interest on obligations such as the Series A Bonds is not an item of tax preference for the purpose of computing the alternative minimum tax imposed on individuals and corporations under the Internal Revenue Code of 1986, as amended (the "Code"), but such interest is taken into account in determining adjusted current earnings for the purpose of computing the alternative minimum tax imposed upon certain corporations. See Appendix D - "Proposed Form of Opinion of Bond Counsel."

The Code imposes certain requirements and restrictions on the use and investment of proceeds of state and local governmental obligations, including the Series A Bonds, and a requirement for payment to the federal government (called a "rebate") of certain proceeds derived from the investment thereof. Failure to comply with the Code's requirements subsequent to the issuance of the Series A Bonds could cause interest on the Series A Bonds to become subject to federal income taxation, retroactive to the date of their issuance. On or before delivery of the Series A Bonds to the original purchasers, the Authority will provide covenants or certificates evidencing that it will take all lawful action necessary to comply with those provisions of the Code that, except for such compliance, would affect adversely the excludability of interest on the Series A Bonds from gross income for federal income tax purposes. Bond Counsel has not opined as to the other federal tax consequences resulting from holding the Series A Bonds.

Potential purchasers should be aware, however, of other collateral consequences that may result under the federal tax law for certain holders of the Series A Bonds. Interest on the Series A Bonds is included in the measure of the foreign branch profits tax imposed upon corporations and may be included in passive investment income subject to federal income taxation under provisions of the Code applicable to certain S corporations. The Code further provides that interest on the Series A Bonds may be includable in the modified adjusted gross income of certain recipients of Social Security and Railroad Retirement benefits for the purpose of determining whether a portion of such benefits shall be included in the taxable income of such recipients. In addition, certain otherwise deductible underwriting losses of property and casualty insurance companies will be reduced by a portion of the interest received by such companies on the Series A Bonds, and no deduction will be allowed for interest on indebtedness incurred or continued to purchase or carry the Series A Bonds or, in the case of a financial institution, that portion of such institution's interest expense that is allocated to interest on the Series A Bonds.

In the opinion of Bond Counsel, the Series A Bonds, their transfer and the income therefrom, including any profit made on the sale thereof, are exempt from Massachusetts personal income taxes and the Series A Bonds are exempt from Massachusetts personal property tax, although the Series A Bonds and the interest thereon are included in the measure of estate and inheritance taxes and of certain corporation excise and franchise taxes. Bond Counsel has not opined as to other Massachusetts tax consequences or as to the taxability of the Series A Bonds, their transfer and the income therefrom, including any profit made on the sale thereof, under the laws of jurisdictions other than The Commonwealth of Massachusetts.

For federal and Massachusetts tax purposes, interest includes original issue discount, which with respect to a Series A Bond is equal to the excess, if any, of the stated redemption price at maturity of such Series A Bond over the initial offering price thereof to the public, excluding underwriters and other intermediaries, at which price a substantial amount of all Series A Bonds with the same maturity was sold. Original issue discount accrues actuarially over the term of a Series A Bond. Holders should consult their own tax advisers with respect to the computations of original issue discount on such accruals of interest during the period in which any such Series A Bond is held.

The excess, if any, of the tax basis of the Series A Bonds to a purchaser (other than a purchaser who holds such Series A Bonds as inventory, stock in trade or for sale to customers in the ordinary course of business) over the amount payable at maturity is "bond premium." For federal income tax purposes, bond premium is amortized over the term of such Series A Bonds, is not deductible and reduces the purchaser's adjusted tax basis. Bond purchasers should consult their tax advisers with respect to the consequences of such bond premium.

On the date of delivery of the Series A Bonds, the Underwriters will be furnished with an opinion of Bond Counsel substantially in the form attached hereto as Appendix D - "Proposed Form of Opinion of Bond Counsel."

## **FINANCIAL ADVISORS**

Lamont Financial Services Corporation and P.G. Corbin & Company, Inc. serve as financial advisors to the Authority for issuance of the Series A Bonds, debt management and other financial matters.

## **INDEPENDENT AUDITORS**

The financial statements of the Authority as of June 30, 2004 and 2003 and for the Fiscal Years then ended, included in Appendix A of the Official Statement, have been audited by KPMG LLP, independent auditors, as set forth in their report, dated August 16, 2004, which report is also included in Appendix A.

## **CONSULTING ENGINEER**

Camp Dresser & McKee Inc. serves as the Authority's engineering consultant in connection with the issuance of the Series A Bonds. The Engineering and Financial Feasibility Report prepared by Camp Dresser & McKee Inc. is attached hereto as Appendix B. The Report provides an independent engineering analysis of the Authority's Systems and a financial feasibility analysis of the Authority's current operations and Capital Program.

## **CERTAIN LEGAL MATTERS**

All legal matters incident to the authorization, issuance, sale and delivery of the Series A Bonds are subject to the approval of Ropes & Gray LLP, Boston, Massachusetts, Bond Counsel to the Authority. Certain legal matters will be passed upon for the Authority by its Disclosure Counsel, Palmer & Dodge LLP, Boston, Massachusetts, and for the Underwriters by their counsel, Mintz, Levin, Cohn, Ferris, Glovsky and Popeo, P.C., Boston, Massachusetts.

## **UNDERWRITING**

The Series A Bonds are being purchased by the Underwriters, for whom Bear, Stearns & Co. Inc. is acting as Representative. The Underwriters have agreed, subject to certain conditions, to purchase all of the Series A Bonds from the Authority at an aggregate underwriters' discount from the initial public offering prices or yields set forth on the cover page of this Official Statement equal to \$2,334,091.37 and to reoffer such Series A Bonds at public offering prices not higher than or at yields not lower than those set forth on the cover page of this Official Statement. The Underwriters are obligated to purchase all such Series A Bonds, if any are purchased, the obligation to make such purchase being subject to certain terms and conditions set forth in the purchase contract, the approval of certain legal matters by counsel and certain other conditions. Such Series A Bonds may be offered and sold by the Underwriters to certain dealers (including dealers depositing such Series A Bonds in unit investment trusts or mutual funds, some of which may be managed by the Underwriters) and certain dealer banks and banks acting as agents at prices lower (or yields higher) than the public offering prices (or yields) set forth on the cover page of this Official Statement. Subsequent to such initial public offering, the Underwriters may change the public offering prices (or yields) as they may deem necessary in connection with the offering of such Series A Bonds.

## **RATINGS**

The Series A Bonds, other than the Insured Series A Bonds, have been rated "AA" by Fitch Ratings ("Fitch"), One State Street Plaza, New York, New York, "Aa2" by Moody's Investors Service, Inc. ("Moody's"), 99 Church Street, New York, New York, and "AA" by Standard & Poor's ("Standard & Poor's"), 55 Water Street, New York, New York.

The Insured Series A Bonds have been rated "AAA" by Fitch, "Aaa" by Moody's and "AAA" by Standard & Poor's based on MBIA's policy. See "Bond Insurance."

The ratings express only the views of the rating agencies. The explanation of the significance of the ratings may be obtained from Fitch, Moody's and Standard & Poor's, respectively. There is no assurance that any rating will continue for any period of time or that it will not be revised or withdrawn. Any revision or withdrawal of ratings on the Series A Bonds may have an effect on the market price thereof.

### VERIFICATION OF MATHEMATICAL COMPUTATIONS

The arithmetical accuracy of certain computations included in the schedules provided by Bear, Stearns & Co. Inc. on behalf of the Authority relating to the computation of forecasted receipts of principal and interest on the securities on deposit in the Refunding Trust Fund and the forecasted payments of principal and interest to redeem the Refunded Bonds was examined by The Arbitrage Group, Inc. The Arbitrage Group, Inc. has restricted its procedures to examining the arithmetical accuracy of certain computations and has not made any study or evaluation of the assumptions and information upon which the computations are based and, accordingly, has not expressed an opinion on the data used, the reasonableness of the assumptions, or the achievability of the forecasted outcome.

### CONTINUING DISCLOSURE

**General.** The Authority has undertaken for the benefit of the owners of the Series A Bonds to provide certain continuing disclosure pursuant to the provision of Rule 15c2-12(b)(5) under the Securities Exchange Act of 1934 (as amended, the "Rule"). Specifically, the Authority and State Street Bank and Trust Company, predecessor in interest to U.S. Bank National Association, as Dissemination Agent (the "Dissemination Agent") have executed and delivered a Continuing Disclosure Agreement dated November 21, 1995 (the "Continuing Disclosure Agreement") for the benefit of the owners of all bonds (including the Series A Bonds) issued by or on behalf of the Authority which are designated by resolution of the Authority as subject to and having the benefits of the Continuing Disclosure Agreement. As of the date hereof, the Authority is in full compliance with the terms of the Continuing Disclosure Agreement.

**Annual Filings.** Pursuant to the Continuing Disclosure Agreement, not later than January 1 of each year, commencing January 1, 1998, the Authority will, or will cause the Dissemination Agent to, provide an Annual Filing (as described below) to each nationally recognized municipal securities information repository (the "National Repositories") and any public or private repository or entity designated by the Commonwealth as a state information depository for the purpose of the Rule (a "State Depository" and, collectively with the National Repositories, the "Repositories"). The Annual Filing may be submitted as a single document or as separate documents comprising a package, and may cross-reference other information as provided in the Continuing Disclosure Agreement. If the Dissemination Agent determines that the Authority has failed to comply with the undertaking regarding the Annual Filing, the Dissemination Agent will send a notice to that effect in a timely manner to the Municipal Securities Rulemaking Board (the "MSRB") and the State Depository, if any.

The Authority's Annual Filing will contain or incorporate by reference the following:

(a) quantitative information for, or as of the end of, the preceding fiscal year of the type presented in the Authority's most recent official statement, including (i) a summary table of revenues, expenses and fund deposits, (ii) the amount of outstanding indebtedness of the Authority, and the debt limit as of the end of the fiscal year, (iii) a summary table with respect to the coverage covenants in the Authority's General Resolution and (iv) a summary table showing the Authority's capital investments by major category during the preceding fiscal year;

(b) quantitative information for the current fiscal year of the type presented in the Authority's most recent official statement, including (i) a table of the Authority's current water and wastewater charges by Local Body, (ii) the current expense budget's rate revenue requirement and the percentage increases for water and wastewater over the prior fiscal year and (iii) executive summaries of the Authority's most recently adopted current expense budget and capital improvement program; and

(c) the most recently available audited financial statements of the Authority, prepared in accordance with accounting principles generally accepted in the United States of America. (If audited financial statements for the preceding fiscal year are not available when the Annual Filing is submitted, the Annual Filing will include unaudited financial statements for the preceding fiscal year.)

Any or all of the items listed above may be incorporated by reference from other documents, including official statements of debt issues of the Authority or related public entities, which have been submitted to each of the Repositories or the Securities and Exchange Commission. If the document incorporated by reference is a final official statement, it must be available from the MSRB.

**Reporting of Material Events.** Pursuant to the Continuing Disclosure Agreement, whenever the Authority obtains knowledge of the occurrence of any of the following events with respect to the Series A Bonds (each a “Listed Event”), if material under applicable federal securities laws, the Authority will promptly notify the Dissemination Agent. The Dissemination Agent shall file a notice of such occurrence promptly with the MSRB and the State Depository, if any.

1. Principal and interest payment delinquencies.
2. Non-payment related defaults.
3. Unscheduled draws on debt service reserves reflecting financial difficulties.
4. Unscheduled draws on credit enhancements reflecting financial difficulties.
5. Substitution of credit or liquidity providers, or their failure to perform.
6. Receipt by the Authority of an adverse tax opinion or the occurrence of an event affecting the tax-exempt status of the Series A Bonds.
7. Modifications to rights of any owners of the Series A Bonds.
8. Bond calls.
9. Defeasance of the Series A Bonds or any portion thereof.
10. Release, substitution or sale of property securing repayment of any Series A Bonds.
11. Rating changes.

**Termination of Reporting Obligation.** The Authority’s and Dissemination Agent’s obligations under the Continuing Disclosure Agreement will terminate upon the defeasance, prior redemption or payment in full of all of the bonds (including the Series A Bonds) designated as subject to the agreement.

**Amendment; Waiver.** Notwithstanding any other provision of the Continuing Disclosure Agreement, the Authority and the Dissemination Agent may amend the Continuing Disclosure Agreement, and any provision of the Continuing Disclosure Agreement may be waived, if such amendment or waiver is permitted by the Rule, as evidenced by an opinion of counsel expert in federal securities laws, acceptable to both the Authority and the Dissemination Agent, to the effect that such amendment or waiver would not, in and of itself, cause the Authority’s undertakings to violate the Rule if such amendment or waiver had been effective on the date hereof but taking into account any subsequent change in or official interpretation of the Rule.

If the amendment provides for a change in the accounting principles to be followed in preparing financial statements, the Annual Filing for the year in which the change is made shall present a comparison between the financial statements or information prepared on the basis of the new accounting principles and those prepared on the basis of the former accounting principles. The comparison shall include a qualitative discussion of the differences in



the accounting principles and the impact of the change in the accounting principles on the presentation of the financial information in order to provide information to investors to enable them to evaluate the ability of the Authority to meet its obligations. To the extent reasonably feasible, the comparison shall also be quantitative. A notice of the change in the accounting principles shall be sent to each Repository.

**Default.** In the event of a failure of the Authority or the Dissemination Agent to comply with any provision of the Continuing Disclosure Agreement, the Dissemination Agent may (and, at the request of any of the Underwriters or the owners of at least 25% aggregate principal amount outstanding of the Series A Bonds, shall), or any owner of the Series A Bonds may, seek a court order for specific performance by the Authority or Dissemination Agent, as the case may be, of its obligations under the Continuing Disclosure Agreement. A default under the Continuing Disclosure Agreement shall not be deemed an Event of Default under the General Resolution, and the sole remedy under the Continuing Disclosure Agreement in the event of any failure of the Authority or the Dissemination Agent to comply with the Continuing Disclosure Agreement shall be an action to compel performance of the defaulting party's obligations thereunder and not for money damages in any amount.

### **BONDS AS LEGAL INVESTMENTS**

Under Section 14 of the Act, bonds and notes of the Authority are made securities in which all public officers and agencies of the Commonwealth and its political subdivisions, all insurance companies, trust companies in their commercial departments, savings banks, cooperative banks, banking associations, investment companies, executors, administrators, trustees and other fiduciaries may properly invest funds, including capital in their control or belonging to them.

### **BONDS AS SECURITY FOR DEPOSIT**

Under Section 14 of the Act, bonds and notes of the Authority are made securities which may properly be deposited with and received by any state or municipal officer of any agency or political subdivision of the Commonwealth for any purpose for which the deposit of bonds or other obligations of the Commonwealth is now or may hereafter be authorized by law.

## MISCELLANEOUS

The summaries or descriptions herein of provisions of the Act, the Series A Bonds, the General Resolution and the Continuing Disclosure Agreement, and all references to other materials not purporting to be quoted in full, are only brief outlines of some of the provisions thereof and do not purport to summarize or describe all of the provisions thereof. So far as any statements are made in this Official Statement involving matters of opinion, whether or not expressly so stated, they are intended merely as such and not as representations of fact. Copies of the documents mentioned in this paragraph are on file at the offices of the Authority and the Trustee.

The execution and delivery of this Official Statement have been duly authorized by the Massachusetts Water Resources Authority.

### MASSACHUSETTS WATER RESOURCES AUTHORITY

By: */s/ Frederick A. Laskey*  
Executive Director

By: */s/ Laura M. Guadagno*  
Chief Financial Officer

March 15, 2005



**MASSACHUSETTS WATER RESOURCES AUTHORITY**  
Financial Statements,  
Required Supplementary Information and Supplemental Schedules  
June 30, 2004 and 2003  
(With Independent Auditors' Report Thereon)

# MASSACHUSETTS WATER RESOURCES AUTHORITY

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## **Independent Auditors' Report**

The Board of Directors  
Massachusetts Water Resources Authority:

We have audited the balance sheets of the Massachusetts Water Resources Authority (the Authority) as of June 30, 2004 and 2003, and the related statements of revenues, expenses and changes in net assets, and cash flows for the years then ended. These financial statements are the responsibility of the Authority's management. Our responsibility is to express an opinion on these financial statements based on our audits.

We conducted our audits in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States. Those standards require that we plan and perform the 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 financial statements referred to above present fairly, in all material respects, the financial position of the Authority as of June 30, 2004 and 2003, and the changes in its financial position and its cash flows for the years then ended in conformity with accounting principles generally accepted in the United States of America.

The Management's Discussion and Analysis on pages 3 through 10 and the historical pension required supplementary information on page 37 are not a required part of the financial statements but are supplementary information required by accounting principles generally accepted in the United States of America. We have applied certain limited procedures, which consisted principally of inquiries of management regarding the methods of measurement and presentation of the required supplementary information. However, we did not audit the information and express no opinion on it.

Our audits were made for the purpose of forming an opinion on the financial statements taken as a whole. The supplemental schedules listed in the accompanying table of contents are presented for purposes of additional analysis and are not a required part of the financial statements. Such information has been subjected to the auditing procedures applied in the audits of the financial statements and, in our opinion, is fairly stated, in all material respects, in relation to the financial statements taken as a whole.

In accordance with *Government Auditing Standards*, we have also issued our report on pages 43 and 44, dated August 16, 2004, on our consideration of the Authority's internal control over financial reporting and on our tests of its compliance with certain provisions of laws, regulations, contracts and grant agreements and other matters. The purpose of that report is to describe the scope of our testing of internal control over financial reporting and compliance and the results of that testing, and not to provide an opinion on the



internal control over financial reporting or on compliance. That report is an integral part of an audit performed in accordance with *Government Auditing Standards* and should be considered in assessing the results of our audit.

KPMG LLP

August 16, 2004  
Boston, Massachusetts

## MASSACHUSETTS WATER RESOURCES AUTHORITY

### Required Supplementary Information Management's Discussion and Analysis

This section of the Authority's annual financial report presents our discussion and analysis of the Authority's financial performance during the fiscal years ended June 30, 2004 and 2003. Please read it in conjunction with the Authority's financial statements, which immediately follow this section.

#### **Financial Highlights – Fiscal 2004**

The 2004 rate revenues were approximately \$432 million and were \$15.1 million higher than fiscal 2003 rate revenues, due to an increase in assessments. This was offset by a decrease in revenues from other user charges of \$1.3 million or 16%. This decrease was primarily due to Marlborough and Southborough becoming rate base communities in fiscal 2004.

Total operating expenses, excluding depreciation, were approximately \$203.3 million in fiscal 2004. The 2.6% decrease in total operating expenses over 2003 is the result of lower salaries and wages caused by the Authority's early retirement program and staff reductions. Operating expenses for fiscal 2004 were 0.4% less than the annual operating budget.

Net nonoperating expenses increased \$28 million or 15% primarily due to a \$24 million change in unrealized losses recorded on the Authority's investments.

Total assets at June 30, 2004 were approximately \$7.9 billion, a \$171 million or 2.2% increase over total assets at June 30, 2003.

Total capital assets (net of depreciation) were approximately \$6.6 billion at June 30, 2004, a \$1.6 million or 0.03% increase over June 30, 2003. The increase in total capital assets is primarily the result of the ongoing water system construction projects, including the MetroWest Water Supply Tunnel, the Walnut Hill Water Treatment Plant and the Norumbega Covered Storage Project.

#### **Financial Highlights – Fiscal 2003**

During fiscal year 2003, the Commonwealth of Massachusetts eliminated funding for the debt service assistance program. Debt service assistance has been available to all cities, towns and authorities in the Commonwealth to offset capital financing expenses for sewer (and some water) related improvements. In its fiscal year 2003 budget adopted by the board of directors in June 2002, the Authority estimated that its share of the statewide debt service assistance appropriation would be \$47.1 million. In response to the mid-year elimination of this expected assistance, the Authority implemented a three-part plan to cover the \$47.1 million revenue loss:

- (1) Assessment of a 4% mid-year rate increase to raise \$15.7 million, bringing the overall fiscal 2003 increase to 6.97%.
- (2) Use of rate stabilization and bond redemption funds to increase revenue and reduce expenses by \$15.7 million.
- (3) \$15.7 million in reductions to operating and debt service expenses. As part of the operating reductions, MWRA reduced its workforce by 50 positions (about 3.6%), through attrition and layoffs.

The 2003 rate revenues were approximately \$417 million and were 6.97% higher than fiscal 2002 rate revenues, due to an increase in assessments. This was offset by a decrease in other customer services revenues of

## MASSACHUSETTS WATER RESOURCES AUTHORITY

### Required Supplementary Information Management's Discussion and Analysis

\$1.9 million or 19%. This decrease was primarily due to a reduction in water services provided to the City of Cambridge in fiscal 2003 as compared to fiscal 2002.

Total operating expenses, excluding depreciation, were approximately \$208.7 million in fiscal 2003. The 0.7% decrease in total operating expenses over 2002 is the result of lower salaries and wages caused by the Authority's early retirement program and staff reductions. Operating expenses for fiscal 2003 were 4% greater than the annual operating budget.

Net nonoperating expenses increased \$53.6 million or 41% primarily due to a \$50 million decrease in debt service assistance from the Commonwealth of Massachusetts.

Total assets at June 30, 2003 were approximately \$7.7 billion, a \$40.7 million or 0.5% increase over total assets at June 30, 2002.

Total capital assets (net of depreciation) were approximately \$6.6 billion at June 30, 2003, a \$109 million or 1.7% increase over June 30, 2002. The increase in total capital assets is primarily the result of the ongoing water system construction projects, including the MetroWest Water Supply Tunnel, the Walnut Hill Water Treatment Plant and the Norumbega Covered Storage Project.

#### **Overview of the Financial Statements**

The financial section of this annual report consists of three parts: management's discussion and analysis (this section), the financial statements and related notes to the financial statements, and other supplementary information.

The financial statements provide both long-term and short-term information about the Authority's overall financial status. The financial statements also include notes that explain some of the information in the financial statements and provide more detailed data. The statements are followed by a section of other supplementary information that further explains and supports the information in the financial statements.



# MASSACHUSETTS WATER RESOURCES AUTHORITY

## Required Supplementary Information Management's Discussion and Analysis

### Financial Analysis of the Authority

#### *Net Assets*

The Authority's total net assets at June 30, 2004 were approximately \$2.2 billion, a \$49 million decrease from June 30, 2003. Total assets increased \$171 million or 2.2% to \$7.9 billion, and total liabilities increased 4.1% to \$5.6 billion.

The Authority's total net assets at June 30, 2003 were approximately \$2.3 billion, a \$49 million decrease from June 30, 2002. Total assets increased \$40.7 million or 0.5% to \$7.7 billion, and total liabilities increased 1.7% to \$5.4 billion.

#### Net Assets

(Dollars in thousands)

	<u>2004</u>	<u>2003</u>	<u>2002</u>	<b>Percentage change 2004-2003</b>	<b>Percentage change 2003-2002</b>
Current assets	\$ 97,914	106,813	102,393	(8.3)%	4.3%
Restricted assets	750,454	655,613	756,572	14.5%	(13.3)%
Capital assets	6,552,821	6,551,209	6,441,861	0.0%	1.7%
Other assets	482,228	398,513	370,591	21.0%	7.5%
Total assets	7,883,417	7,712,148	7,671,417	2.2%	0.5%
Current liabilities	419,787	413,848	481,091	1.4%	(14.0)%
Payable from restricted assets	89,515	108,840	101,648	(17.8)%	7.1%
Long-term debt	4,884,943	4,607,288	4,386,967	6.0%	5.0%
Long-term lease	36,436	36,785	37,108	(0.9)%	100.0%
Other liabilities	204,311	247,607	317,801	(17.5)%	(22.1)%
Total liabilities	5,634,992	5,414,368	5,324,615	4.1%	1.7%
Net assets:					
Invested in capital assets, net of related debt	1,805,352	1,956,432	2,005,980	(7.7)%	(2.5)%
Restricted	169,348	123,409	128,190	37.2%	(3.7)%
Unrestricted	273,725	217,939	212,632	25.6%	2.5%
Total net assets	\$ 2,248,425	2,297,780	2,346,802	(2.1)%	(2.1)%

# MASSACHUSETTS WATER RESOURCES AUTHORITY

## Required Supplementary Information Management's Discussion and Analysis

### Changes in Net Assets

The decrease in net assets at June 30, 2004 was \$49 million or 2.1% as compared to June 30, 2003. The Authority's total operating revenues increased by 4.2% to \$447 million and total operating expenses increased 0.3% to \$365 million.

The decrease in net assets at June 30, 2003 was \$49 million or 2.1% as compared to June 30, 2002. The Authority's total operating revenues increased by 6.3% to \$429 million and total operating expenses decreased 0.4% to \$364 million.

### Change in Net Assets

(Dollars in thousands)

	<u>2004</u>	<u>2003</u>	<u>2002</u>	<u>Percentage change 2004-2003</u>	<u>Percentage change 2003-2002</u>
Operating revenues:					
Customer services revenues	\$ 440,949	426,666	401,391	3.3%	6.3%
Other revenue	5,928	2,381	2,091	149.0%	13.9%
Total operating revenue	<u>446,877</u>	<u>429,047</u>	<u>403,482</u>	<u>4.2%</u>	<u>6.3%</u>
Operating expenses:					
Operations	77,344	78,417	80,907	(1.4)%	(3.1)%
Maintenance	18,611	17,214	16,346	8.1%	5.3%
Payments in lieu of taxes	5,029	4,966	4,911	1.3%	1.1%
Engineering, general, and administrative	102,334	108,101	108,003	(5.3)%	0.1%
Depreciation	161,492	155,159	155,258	4.1%	(0.1)%
Total operating expenses	<u>364,810</u>	<u>363,857</u>	<u>365,425</u>	<u>0.3%</u>	<u>(0.4)%</u>
Operating income	82,067	65,190	38,057	25.9%	71.3%
Nonoperating items:					
Regulatory accounting provisions	74,255	63,124	27,953	17.6%	125.8%
Net nonoperating expenses	(211,344)	(183,256)	(129,685)	15.3%	41.3%
Capital grants and contributions	5,667	5,920	5,853	(4.3)%	1.1%
Change in net assets	<u>(49,355)</u>	<u>(49,022)</u>	<u>(57,822)</u>	<u>0.7%</u>	<u>(15.2)%</u>
Total net assets, beginning of year	<u>2,297,780</u>	<u>2,346,802</u>	<u>2,404,624</u>	<u>(2.1)%</u>	<u>(2.4)%</u>
Total net assets, end of year	<u>\$ 2,248,425</u>	<u>2,297,780</u>	<u>2,346,802</u>	<u>(2.1)%</u>	<u>(2.1)%</u>

During fiscal 2004, the increases in customer services revenues were primarily due to the increase in the rate revenue requirement (\$15.1 million). This was offset by a decrease in other customer services revenues of \$1.3 million or 16%. This decrease was primarily due to the towns of Marlborough and Southborough becoming rate base communities in fiscal 2004.

## MASSACHUSETTS WATER RESOURCES AUTHORITY

### Required Supplementary Information Management's Discussion and Analysis

During fiscal 2003, the increases in customer services revenues were primarily due to the 6.97% increase in the rate revenue requirement (\$25.3 million). This was offset by a decrease in other customer services revenues of \$19 million or 19%. This decrease was primarily due to a reduction in water services provided to the City of Cambridge in fiscal 2003 as compared to fiscal 2002.

Total operating costs in fiscal 2004 were \$5.4 million or 2.6% less than in fiscal 2003. This decrease is the total of \$3.6 million in lower direct operating costs and \$1.8 million in lower indirect expenses. Total wages and salaries expenses were \$1.9 million less than in fiscal 2003, primarily because of lower staffing levels resulting from staff reductions. Overall operating expense decreases are also attributable to a directed slowdown in all areas of spending resulting from the loss of debt service assistance.

Total operating costs in fiscal 2003 were \$1.5 million or 0.7% less than in fiscal 2002. This decrease is the net of \$3.1 million in lower direct operating costs offset by \$1.5 million in greater indirect expenses. Total wages and salaries expenses were \$5.8 million less than in fiscal 2002, primarily because of lower staffing levels resulting from the early retirement program implemented in fiscal 2002 and the fiscal 2003 staff reductions. Overall operating expense decreases are also attributable to a directed slowdown in all areas of spending resulting from the loss of debt service assistance.

Fiscal 2004 net nonoperating expenses increased \$28 million or approximately 15%. This was attributable to a \$24 million change in the unrealized losses of the Authority's investments.

Fiscal 2003 net nonoperating expenses increased \$53.6 million or 41% primarily due to the decrease of \$50 million in debt service assistance from the Commonwealth of Massachusetts.

#### Operating Costs by Functionality

(Dollars in thousands)

	<u>2004</u>	<u>2003</u>	<u>2002</u>	<u>Percentage change 2004-2003</u>	<u>Percentage change 2003-2002</u>
Wastewater treatment and transport	\$ 79,492	78,064	78,559	1.8%	(0.6)%
Water treatment and transport	20,505	18,087	18,571	13.4%	(2.6)%
Water and wastewater quality	8,209	9,356	9,101	(12.3)%	2.8%
Metering and monitoring	3,791	3,778	3,501	0.3%	7.9%
Facilities planning, design, and construction	10,116	10,133	12,308	(0.2)%	(17.7)%
MIS	9,356	8,710	9,418	7.4%	(7.5)%
Administration and support	40,040	46,981	46,754	(14.8)%	0.5%
Total direct operating costs	<u>171,509</u>	<u>175,109</u>	<u>178,212</u>	<u>(2.1)%</u>	<u>(1.7)%</u>
Indirect operating costs	<u>31,809</u>	<u>33,589</u>	<u>31,955</u>	<u>(5.3)%</u>	<u>5.1%</u>
Total operating costs	<u>\$ 203,318</u>	<u>208,698</u>	<u>210,167</u>	<u>(2.6)%</u>	<u>(0.7)%</u>

Expenses for wages and salaries decreased in almost all functional areas due to lower staffing levels, largely as a result of early retirement.

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Required Supplementary Information  
Management's Discussion and Analysis

This increase in water treatment and transport is due to increased maintenance for purchases of pipeline materials, services, and specialized services. The increase in MIS is for the purchase of additional computer hardware and equipment, which had been deferred from the prior year.

The decrease in water and wastewater quality is due to less lab and testing analysis due to reductions in the Authority's National Pollutant Discharge Elimination System (NPDES) permit required monitoring. The decrease in administration and support is due to consolidation of space leased by the Authority and the change in health care contribution paid by the Authority.

The decrease in indirect costs is due to lower operating and debt services costs associated with watershed protection provided by the Commonwealth and funded by the Authority.

**Capital Asset and Debt Administration**

***Capital Assets***

As of June 30, 2004 and 2003, the Authority had approximately \$6.6 billion of capital assets (net of depreciation). This includes land, construction in progress, plant and equipment for the water and sewer systems, furniture and fixtures, leasehold improvements and motor vehicles and equipment. The Authority's net capital assets increased approximately \$1.6 million or 0.03% during fiscal 2004 and \$109 million or 1.7% during fiscal 2003.

**Capital Assets**

(Net of depreciation, dollars in thousands)

	<u>2004</u>	<u>2003</u>	<u>2002</u>	<b>Percentage change 2004-2003</b>	<b>Percentage change 2003-2002</b>
Land	\$ 13,932	16,806	16,806	(17.1)%	0.0%
Construction in progress	868,639	822,349	1,177,074	5.6%	(30.1)%
Plant and equipment, water, and sewer systems	5,659,271	5,699,757	5,245,583	(0.7)%	8.7%
Furniture and fixtures	9,065	9,917	21	(8.6)%	47,123.8%
Leasehold improvements	1,310	1,756	1,734	(25.4)%	100.0%
Motor vehicles and equipment	604	624	643	(3.2)%	(3.0)%
Total net assets	\$ <u>6,552,821</u>	<u>6,551,209</u>	<u>6,441,861</u>	<u>0.0%</u>	<u>1.7%</u>

Increases in construction in progress are primarily due to ongoing CIP work, including the Braintree/Weymouth Relief Facilities, the Walnut Hill Treatment Plant, the Norumbega Covered Storage facility, and the Combined Sewer Overflow (CSO) Program.

***Debt Administration***

The Authority's bond sales must be approved by the board of directors and must comply with rules and regulations of the United States Treasury Department and United States Securities and Exchange Commission. Neither the Commonwealth of Massachusetts (the Commonwealth) nor any political subdivision thereof shall be

## MASSACHUSETTS WATER RESOURCES AUTHORITY

### Required Supplementary Information Management's Discussion and Analysis

obligated to pay the principal of, premium or interest on any debt outstanding and neither faith and credit nor taxing power of the Commonwealth or any political subdivision thereof is pledged to such payment.

#### ***Bond Resolutions***

Under the General Bond Resolution rate covenant, the Authority is required to maintain revenues sufficient to pay: current expenses; debt service on indebtedness; required deposits to reserves; costs of maintenance, replacement and/or improvement to the wastewater and water systems that are considered current expenses; and additional amounts the Authority may be required to pay by any law or contract.

In addition to the rate covenant the Authority is required to meet two covenants with respect to debt service coverage. The primary debt service coverage requires that the Authority fix and adjust rates and charges to provide revenues available for bond debt service in an amount equal to 1.2 times that required for debt service on all outstanding bonds, not including subordinated bonds. The subordinated debt service coverage requires that the Authority fix and adjust rates and charges to provide revenues available for bond debt service in an amount equal to 1.1 times that required for debt service on all outstanding bonds, including subordinated bonds.

#### ***Credit Rating***

Of the \$5.1 billion of revenue bonds the Authority currently has outstanding, \$3.7 billion is credit enhanced by a combination of bond insurance, liquidity, or letters of credit. The Authority's enhanced revenue bonds are rated "AAA" by FITCHRATINGS, "Aaa" by Moody's Investors Service, and "AAA" by Standard and Poor's. The Authority's unenhanced \$0.7 billion long-term, senior debt is rated "AA-" by FITCHRATINGS, "Aa3" by Moody's Investors Service, and "AA" by Standard and Poor's.

#### ***Economic Factors and Next Year's Budget***

In June 2004, the Board of Directors (the Board) approved the fiscal 2005 Current Expense Budget (CEB), which totals \$501.5 million in expenses before debt service offsets of \$8.9 million, for a net expense total of \$492.6 million. The \$8.9 million in debt service offsets is comprised of \$1.6 million in variable rate debt savings rolled forward from prior fiscal years and \$7.3 million in variable rate savings assumed for fiscal 2005.

The \$501.5 million expense total (before debt service offsets) is comprised of \$290.8 million (58%) in capital financing costs and \$210.7 million (42%) in operating expenses, of which \$176.1 million (84%) is for direct expenses and \$34.6 million (16%) is for indirect expenses. The total represents an increase of \$17.7 million from fiscal 2004 spending; comprised of \$7.3 million in higher operating costs and \$10.4 million higher debt service.

The fiscal 2005 rate revenue requirement approved by the Board is \$453.0 million; an increase of 3.9% compared to the fiscal 2004 budget. Subsequent to the Board's approval, the Authority learned that it expects to receive approximately \$8.7 million of state debt service assistance in fiscal 2005. The Authority has since reduced the rate revenue requirement by this amount, reducing the increase in rate revenue requirement to 1.9% as compared to the fiscal 2004 budget.

Fiscal 2005 nonrate revenue totals \$39.6 million, a decrease of \$4.9 million from actual fiscal 2004 nonrate revenue. The decrease is due to continued lower interest rates resulting in less investment income and one-time other revenue recognized in fiscal 2004. The nonrate revenue budget is comprised of \$28.7 million in investment income, including swap receipts, \$10.5 million in other user charges and other revenue, and \$0.4 million in entrance fees.

## MASSACHUSETTS WATER RESOURCES AUTHORITY

### Required Supplementary Information Management's Discussion and Analysis

#### ***CIP 10 Year Plan***

The Authority's planned spending for capital improvements in future years reflects the continuation and completion of projects now underway. These include:

- Completion of the Walnut Hill Water Treatment Plant to ensure continued provision of high quality drinking water to all customers.
- Completion of covered storage facilities, including Norumbega and Blue Hills Covered Storage, to provide safe, reliable storage for water treated at Walnut Hill and transported through the MetroWest Tunnel and Hultman Aqueduct.
- Rehabilitation of the Wachusett and Hultman Aqueducts as well as rehabilitation of top shaft structures on the Quabbin Tunnel, Dorchester Tunnel, City Tunnel, Southborough Tunnel, and City Tunnel Extension.
- Rehabilitation of a significant portion of the West Roxbury Tunnel.
- Completion of the long-term Combined Sewer Overflow (CSO) control plan, resulting in closing of 36 of 84 CSO outfalls and reducing CSO discharges to Boston Harbor and the Mystic, Charles, and Neponset River systems by 88% from 1987, when MWRA accepted responsibility for CSO control, with 95% of remaining discharges receiving treatment.
- Construction of new interceptor facilities to serve Braintree, Hingham, Holbrook, Randolph, Weymouth, and sections of Quincy, and to reduce sewage overflows into the Weymouth Fore River.
- Continued rehabilitation of the water distribution system at a rate of seven to ten miles per year (2.5% to 3% of the total 265 miles of MWRA pipeline).
- Improvement and replacement of equipment on Deer Island to ensure that the plant continues to operate efficiently and effectively.
- Security improvements to protect MWRA facilities.

#### **Contacting the Authority's Financial Management**

This report is designed to provide our bondholders, member communities and other interested parties with a general overview of the Authority's finances and to demonstrate the Authority's accountability for the revenue it receives. If you have questions about this report or need additional information, contact the Massachusetts Water Resources Authority, Finance Division, 100 First Avenue, Boston, MA 02129.

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Balance Sheets

June 30, 2004 and 2003

(Dollars in thousands)

Assets	2004	2003
Unrestricted current assets:		
Cash and cash equivalents (note 4)	\$ 30,930	30,249
Investments (note 4)	53,059	53,920
Intergovernmental loans (note 7)	12,248	12,767
Accounts receivable	1,677	9,877
Total unrestricted current assets	97,914	106,813
Restricted assets:		
Cash and investments (note 4)	741,499	646,662
Interest receivable	6,526	6,580
Grants receivable:		
Billed	2,221	2,163
Unbilled	208	208
Total restricted assets	750,454	655,613
Capital assets, not being depreciated (note 8)	882,571	839,155
Capital assets, being depreciated, net (note 8)	5,670,250	5,712,054
Deferred charges (notes 3 and 9)	292,088	239,280
Other assets, net (note 7)	190,140	159,233
Total assets	\$ 7,883,417	7,712,148
<b>Liabilities and Net Assets</b>		
Current liabilities:		
Accounts payable and accrued expenses (note 13)	\$ 60,259	54,422
Commercial paper notes (note 6)	307,000	311,000
Current portion of long-term debt (note 6)	52,528	48,426
Total current liabilities	419,787	413,848
Payable from restricted assets:		
Accounts payable for construction	21,478	41,956
Accrued interest on bonds payable	68,037	66,884
Total payable from restricted assets	89,515	108,840
Retainage on construction in progress	19,412	41,261
Long-term debt, less current portion (note 6)	4,884,943	4,607,288
Long-term capital lease (note 10)	36,436	36,785
Reserves (note 5)	99,184	119,184
Deferred credits (note 3)	85,715	87,162
Total liabilities	5,634,992	5,414,368
Net assets		
Invested in capital assets, net of related debt	1,805,352	1,956,432
Restricted	169,348	123,409
Unrestricted	273,725	217,939
Total net assets	2,248,425	2,297,780
Commitments and contingencies (notes 10, 12, and 13)		
Total liabilities and net assets	\$ 7,883,417	7,712,148

See accompanying notes to financial statements.

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Statements of Revenues, Expenses and Changes in Net Assets

Years ended June 30, 2004 and 2003

(Dollars in thousands)

	<u>2004</u>	<u>2003</u>
Operating revenues (note 2):		
Customer services	\$ 440,949	426,666
Other	5,928	2,381
	<u>446,877</u>	<u>429,047</u>
Operating expenses:		
Operations	77,344	78,417
Maintenance	18,611	17,214
Payments in lieu of taxes	5,029	4,966
Engineering, general, and administrative	102,334	108,101
	<u>203,318</u>	<u>208,698</u>
Income from operations before depreciation	243,559	220,349
Depreciation and amortization	<u>161,492</u>	<u>155,159</u>
Operating income	<u>82,067</u>	<u>65,190</u>
Regulatory accounting provisions:		
Decrease in reserves	20,000	—
Increase in deferrals, net (note 3)	54,255	63,124
	<u>74,255</u>	<u>63,124</u>
Nonoperating revenues (expense):		
Debt service grants	4,063	—
Investment income	14,107	40,263
Interest expense	(229,514)	(223,519)
	<u>(211,344)</u>	<u>(183,256)</u>
Net loss before capital contributions	(55,022)	(54,942)
Capital grants and contributions	<u>5,667</u>	<u>5,920</u>
Decrease in net assets	(49,355)	(49,022)
Total net assets, beginning of year	<u>2,297,780</u>	<u>2,346,802</u>
Total net assets, end of year	<u>\$ 2,248,425</u>	<u>2,297,780</u>

See accompanying notes to financial statements.



**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Statements of Cash Flows

Years ended June 30, 2004 and 2003

(Dollars in thousands)

	<u>2004</u>	<u>2003</u>
Cash flows from operating activities:		
Cash received from customers	\$ 446,209	418,589
Cash paid to suppliers for goods and services	(92,639)	(112,896)
Cash paid to employees for services	(96,580)	(81,382)
Cash paid in lieu of taxes	(5,029)	(4,966)
Other operating receipts	5,895	2,381
	<u>257,856</u>	<u>221,726</u>
Cash flows from capital and related financing activities:		
Proceeds from sale of revenue bonds, loans and notes	369,222	331,109
Capital grants for construction	5,684	8,770
Capital contributions	—	432
Debt service grant	4,063	—
Capital lease principal payments	(349)	(323)
Capital lease interest payments	(2,868)	(2,894)
Repayment of debt	(103,787)	(206,146)
Interest paid on debt	(213,185)	(190,220)
Plant expenditures	(236,140)	(304,286)
	<u>(177,360)</u>	<u>(363,558)</u>
Cash flows from investing activities:		
Purchases of short-term investments	(69,066)	(132,713)
Sales and maturities of short-term investments	47,271	298,030
Increase in restricted cash and investments, net	(87,542)	(55,696)
Interest received	29,522	28,402
	<u>(79,815)</u>	<u>138,023</u>
Net increase (decrease) in cash and cash equivalents	681	(3,809)
Cash and cash equivalents, beginning of year	<u>30,249</u>	<u>34,058</u>
Cash and cash equivalents, end of year	\$ <u>30,930</u>	\$ <u>30,249</u>
Reconciliation of operating income to net cash provided from operating activities:		
Operating income	\$ 82,067	65,190
Adjustments to reconcile operating income to net cash provided by operating activities:		
Depreciation and amortization	161,492	155,159
Decrease (increase) in other accounts, net	5,486	(7,490)
Increase in accounts payable	8,811	8,867
Net cash provided by operating activities	\$ <u>257,856</u>	\$ <u>221,726</u>

Noncash financing activities:

In August 2002, general revenue refunding bonds in the aggregate principal amount of \$430,000 were issued to refinance outstanding 1992 Series B bonds. In December 2002, general revenue refunding bonds in the aggregate principal amount of \$400,410 were issued to refinance outstanding 1993 Series B bonds.

In June 2004, general revenue bonds in the aggregate principal amount of \$130,000 were issued to defease \$10,860 of bonds outstanding.

See accompanying notes to financial statements.

# MASSACHUSETTS WATER RESOURCES AUTHORITY

Notes to Financial Statements

June 30, 2004 and 2003

(Dollars in thousands)

## (1) Organization

The Massachusetts Water Resources Authority (the Authority) was established in January 1985 pursuant to Chapter 372 (the Enabling Act) of the Act of 1984 of the Commonwealth of Massachusetts (the Commonwealth). The Authority, a successor agency to certain functions of the Metropolitan District Commission (the MDC) (which had become part of the Department of Conservation and Recreation (the DCR) in July 2003), is a public instrumentality and, effective July 1, 1985, provides water supply services and sewage collection, treatment, and disposal services to areas of the Commonwealth.

The Authority is governed by an eleven-member board of directors (the Board) chaired by the Secretary of Environmental Affairs for the Commonwealth. The Secretary and four other members are appointed by the Governor, one upon recommendation of the Mayor of Quincy and one upon recommendation of the Selectmen of Winthrop. Three members of the Board are appointed by the Mayor of Boston and three are appointed by the Authority's Advisory Board.

## (2) Summary of Significant Accounting Policies

The accounting policies of the Authority conform to accounting principles generally accepted in the United States of America as applicable to government enterprises. The following is a summary of the Authority's significant accounting policies:

### (a) Basis of Presentation

The Authority is required by the Enabling Act to establish user rates for its water and sewer services which provide sufficient funds to recover the costs of operations (excluding depreciation), debt service, maintenance, replacements, and improvements to its facilities, and appropriate reserves. The Authority's financial statements are reported on the accrual basis of accounting and the economic measurement focus as specified by the Governmental Accounting Standards Board's requirements for an enterprise fund.

The Authority distinguishes operating revenues and expenses from nonoperating items. Operating revenues and expenses generally result from providing water and sewer services to its member communities. All revenues and expenses not meeting this definition are reported as nonoperating revenues and expenses. All operating revenues are pledged for repayment of outstanding debt service.

Under the Governmental Accounting Standards Board (GASB) Statement No. 20, *Accounting and Reporting for Proprietary Funds and Other Governmental Entities That Use Proprietary Fund Accounting*, the Authority has adopted the option to apply all Financial Accounting Standards Board (FASB) Statements and Interpretations issued before November 30, 1989, except for those that conflict with or contradict GASB pronouncements.

In addition, the Authority has adopted the provisions of FASB No. 71, *Accounting for the Effects of Certain Types of Regulation*, to provide a better matching of revenues and expenses. The effect of this policy has been to defer certain costs, which will be recovered through future revenues in accordance with the Authority's rate model, and to record deferred credits for revenue collected

# MASSACHUSETTS WATER RESOURCES AUTHORITY

## Notes to Financial Statements

June 30, 2004 and 2003

(Dollars in thousands)

through current rates for costs expected to be incurred in the future. The effects of the Authority's accounting policies under Statement No. 71 are discussed further in notes 3 and 9.

**(b) Capital Assets**

On July 1, 1985, ownership of the MDC's sewer and waterworks personal property was transferred to the Authority. Pursuant to the Enabling Act, ownership of the real property of the MDC sewer and waterworks systems was not transferred from the Commonwealth to the Authority; however, the Authority has the right to use, improve, maintain, and manage that property. In addition, ownership of the real and personal property of the watershed system remains with the Commonwealth; however, the Authority has the right to utilize the water therefrom for water supply purposes.

The personal property, together with the rights to the real property and watershed system, was recorded at its estimated fair market value of \$2,331,465 (including certain construction projects which were in progress as of July 1, 1985) based upon an appraisal performed by valuation specialists. Property, plant, and equipment acquired or constructed since July 1, 1985, is stated at historical cost, and includes the expenditure of capital grants in aid of construction.

Betterments and major renewals are capitalized and included in capital asset accounts, while expenditures for maintenance and repairs are charged to expense when incurred. The cost of depreciable assets and related accumulated depreciation are eliminated from the accounts when such items are disposed of or otherwise retired.

**(c) Interest Cost and Principal Payments on Construction**

During fiscal 2004 and 2003, none of the Authority's interest expense was capitalized to construction in progress, in accordance with its current policy of recovering such costs through rates as incurred. Rates collected for principal payments on debt related to assets under construction are deferred until the related asset is completed and depreciation commences.

**(d) Depreciation**

The Authority provides for depreciation by use of the straight-line method. Depreciation is intended to distribute the cost of depreciable properties, including those financed by capital grants in aid of construction, over the following estimated average useful lives:

	<u>Years</u>
Plant and equipment, water and sewerage systems	5-100
Motor vehicles and equipment	5
Furniture and fixtures	7
Leasehold improvements	3-5

# MASSACHUSETTS WATER RESOURCES AUTHORITY

## Notes to Financial Statements

June 30, 2004 and 2003

(Dollars in thousands)

**(e) Revenue Recognition**

The Authority recognizes revenue as amounts become collectible from its customers for water and sewer services provided. The majority of the Authority's billings to cities and towns are subject to, in the event of nonpayment, the local aid intercept allowed by the Enabling Act.

**(f) Cash and Cash Equivalents**

The Authority's policy is to treat unrestricted investments with a maturity date of three months or less when purchased as cash equivalents for purposes of the cash flow statements. Restricted cash and cash equivalents are combined with investments on the balance sheets, and shown separately on the statements of cash flows as an investing activity.

**(g) Payments in Lieu of Taxes**

The Enabling Act authorizes and directs the Authority to pay to the DCR (formerly the MDC) Division of Watershed Management an amount for payment to each city or town in which land of the Quabbin watershed and Ware River watershed is located. Each such payment is equal to the amount which the respective city or town would receive in property taxes, based upon the fair value of such land if such land were not tax exempt.

**(h) Investments**

Investments are recorded at fair value. Fair value is determined based on quoted market price. The Authority recorded unrealized losses of \$15,375 in fiscal 2004 and unrealized gains of \$8,776 in 2003 as part of investment income.

**(i) Use of Estimates**

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

**(j) Reclassifications**

Certain reclassifications were made to the fiscal year 2003 financial statements to conform to the fiscal year 2004 presentation.

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Notes to Financial Statements

June 30, 2004 and 2003

(Dollars in thousands)

**(3) Deferred Charges and Credits**

In accordance with FASB No. 71, deferred charges and credits result primarily from differences between depreciation on property, plant, and equipment not financed by grants or capital contributions, which is recovered through rates as principal payments on debt service and from amounts determined by the Board to be utilized in a subsequent year to reduce customer billings (rate stabilization).

A summary of the activity of FASB No. 71 charges (credits) for fiscal 2004 and 2003 is as follows:

	<u>Sewer</u>	<u>Water</u>	<u>Total</u>
Balance, June 30, 2002, net	\$ 39,547	49,447	88,994
Difference between depreciation of capital assets not financed by grants or capital contributions, and debt service in excess of interest expense	32,130	5,188	37,318
Bond redemption, net	41,442	(2,136)	39,306
Rate stabilization: current year usage	14,691	—	14,691
Other, net	<u>(30,969)</u>	<u>2,778</u>	<u>(28,191)</u>
Balance, June 30, 2003, net	96,841	55,277	152,118
Difference between depreciation of capital assets not financed by grants or capital contributions, and debt service in excess of interest expense	51,725	8,655	60,380
Bond redemption, net	13,408	(7,289)	6,119
Other, net	<u>(11,780)</u>	<u>(464)</u>	<u>(12,244)</u>
Balance, June 30, 2004, net	\$ <u>150,194</u>	<u>56,179</u>	<u>206,373</u>

The net balance at June 30, 2004 and 2003 is presented on the balance sheets as follows:

	<u>2004</u>	<u>2003</u>	<u>Current year change</u>
Deferred charges	\$ 292,088	239,280	52,808
Deferred credits	<u>(85,715)</u>	<u>(87,162)</u>	1,447
Net change in deferrals	\$ <u>206,373</u>	<u>152,118</u>	<u>54,255</u>

The balance in the rate stabilization reserve which is included in deferred credits was \$41,445 at June 30, 2004 and 2003.

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Notes to Financial Statements

June 30, 2004 and 2003

(Dollars in thousands)

**(4) Deposits and Investments**

The Authority is authorized by its general bond resolution to invest in obligations of the U.S. Treasury, its agencies and instrumentalities, bonds, or notes of public agencies or municipalities, bank time deposits, guaranteed interest contracts, money market accounts, interest rate swap agreements, and repurchase agreements. These investments are recorded at fair value.

**(a) Deposits**

The Authority's deposits are classified as follows: those deposits that are fully insured or collateralized with securities held by the Authority or its agent in the Authority's name (Category 1), those deposits that are collateralized with securities held by the pledging financial institution's trust department or agent in the Authority's name (Category 2), and those deposits that are not collateralized (Category 3). Money market mutual funds are not categorized. A summary of these deposits as of June 30, 2004 and 2003 is as follows:

	<b>2004</b>				
	<b>Category</b>			<b>Total bank balance</b>	<b>Carrying amount</b>
	<b>1</b>	<b>2</b>	<b>3</b>		
Cash and cash equivalents	\$ 200	—	34,614	34,814	34,030
Not categorized:					
Money market mutual funds				400,449	400,449
Total				\$ 435,263	434,479
	<b>2003</b>				
	<b>Category</b>			<b>Total bank balance</b>	<b>Carrying amount</b>
	<b>1</b>	<b>2</b>	<b>3</b>		
Cash and cash equivalents	\$ 200	—	35,262	35,462	33,349
Not categorized:					
Money market mutual funds				312,907	312,907
Total				\$ 348,369	346,256

Outstanding checks largely account for the difference between the bank balance and the carrying amount of deposits.

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Notes to Financial Statements

June 30, 2004 and 2003

(Dollars in thousands)

**(b) Investments**

The Authority's investments are categorized according to the level of risk assumed by the Authority. Category 1 includes investments that are insured, registered, or held by the Authority's trustee in the Authority's name. Category 2 includes uninsured and unregistered investments held by the counterparty's trust department or agent in the Authority's name. Category 3 includes uninsured or unregistered investments held by the counterparty, its trust department or agent but not in the Authority's name. A summary of these investments as of June 30, 2004 and 2003 is as follows:

		<b>2004</b>			
		<b>Category</b>			
		<b>1</b>	<b>2</b>	<b>3</b>	<b>Fair value</b>
U.S. Government obligations	\$	23,926	—	—	23,926
U.S. Government Agency obligations		285,960	—	—	285,960
Guaranteed interest contracts		81,123	—	—	81,123
Total	\$	<u>391,009</u>	<u>—</u>	<u>—</u>	<u>391,009</u>
		<b>2003</b>			
		<b>Category</b>			
		<b>1</b>	<b>2</b>	<b>3</b>	<b>Fair value</b>
U.S. Government obligations	\$	50,223	—	—	50,223
U.S. Government Agency obligations		253,229	—	—	253,229
Guaranteed interest contracts		81,123	—	—	81,123
Total	\$	<u>384,575</u>	<u>—</u>	<u>—</u>	<u>384,575</u>

**(5) Bond Resolution Reserves**

The components of the reserves required by the general and supplemental bond resolutions are as follows at June 30:

<b>Reserves</b>		<b>Sewer</b>	<b>Water</b>	<b>2004 Total</b>	<b>2003 Total</b>
Renewal and replacement	\$	17,300	11,701	29,001	44,001
Insurance		9,000	9,000	18,000	18,000
Operating		24,221	7,846	32,067	37,067
Community obligation and revenue enhancement		18,399	1,717	20,116	20,116
Total	\$	<u>68,920</u>	<u>30,264</u>	<u>99,184</u>	<u>119,184</u>

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Notes to Financial Statements

June 30, 2004 and 2003

(Dollars in thousands)

A renewal and replacement reserve of \$6,000 was established through grant receipts transferred from the Commonwealth in 1985 and is included in restricted net assets at June 30, 2004 and 2003.

**(6) Notes Payable and Long-Term Debt**

Long-term debt at June 30, consisted of the following:

	<u>2004</u>	<u>2003</u>
General Revenue Bonds:		
1990 Series A, 7 1/2%, issued February 15, 1990, due 2006	\$ 22,293	20,721
1992 Series A, 6 1/2%, issued April 8, 1992, due 2007 to 2019	387,845	387,845
1993 Series C, 4 3/4% to 6%, issued December 2, 1993, due 2006 to 2023	272,810	285,485
1994 Series A, 5 1/10% to 5 6/10%, issued August 16, 1994, due 2004	3,255	17,210
1995 Series B, 4% to 6 1/4%, issued January 4, 1996, due 2004 to 2024	217,705	223,630
1996 Series A, 5 1/10% to 6%, issued November 5, 1996, due 2004 to 2010	25,295	25,295
1998 Series A, 4 1/2% to 5 1/2%, issued January 27, 1998, due 2004 to 2032	190,445	193,710
2000 Series A, 4 1/2% to 6 1/8%, issued March 1, 2000, due 2004 to 2039	277,315	281,020
2002 Series B, 5% to 5 1/2%, issued March 15, 2002, due 2004 to 2027	175,875	179,365
2002 Series J, 3% to 5 1/2%, issued December 18, 2002, due 2008 to 2042	591,395	600,410
2003 Series D, 2% to 5%, issued January 7, 2004, due 2004 to 2028	165,000	—
2004 Series A, 2% to 5 1/8%, issued June 10, 2004, due 2005 to 2022	130,000	—
	<u>2,459,233</u>	<u>2,214,691</u>
General Revenue Refunding Bonds:		
1997 Series D, 4 1/4% to 6%, issued December 15, 1997, due 2004 to 2020	133,135	134,095
1998 Series B, 4 1/4% to 5 1/2%, issued January 27, 1998, due 2005 to 2022	104,545	104,545
	<u>237,680</u>	<u>238,640</u>



**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Notes to Financial Statements

June 30, 2004 and 2003

(Dollars in thousands)

	<u>2004</u>	<u>2003</u>
Subordinated debt:		
General Revenue Bonds with the Massachusetts Water Pollution Abatement Trust:		
1993 Series A, 4 5/8% to 5 1/2%, issued March 18, 1993, due 2004 to 2013	7,840	9,190
1993 Series D, 4 1/2% to 5 1/4%, issued January 6, 1994, due 2004 to 2014	6,230	7,060
1995 Series A, 4 1/2% to 6%, issued November 21, 1995, due 2004 to 2015	7,460	8,355
1998 Series C, 4% to 5 3/8%, issued July 9, 1998, due 2004 to 2018	14,300	15,655
1999 Series E Sewer, 4% to 5 3/8%, issued October 6, 1999, due 2004 to 2029	9,777	10,016
1999 Series E Water, 4% to 5 3/8%, issued October 6, 1999, due 2004 to 2029	10,158	10,646
1999 Series F, 4 2/10% to 6%, issued November 3, 1999, due 2004 to 2029	368,435	376,570
2000 Series E Sewer, 4 1/2% to 5 5/8%, issued November 1, 2000, due 2004 to 2030	70,377	71,869
2000 Series E Water, 4 1/2% to 5 5/8%, issued November 1, 2000, due 2004 to 2030	11,228	11,724
2001 Series C Water, 3% to 5 1/4%, issued July 26, 2001, due 2004 to 2021	4,839	5,056
2001 Series D Sewer, 4% to 5 3/4%, issued July 26, 2001, due 2004 to 2019	7,347	7,689
2001 Series D Water, 4% to 5 3/4%, issued July 26, 2001, due 2004 to 2019	1,435	1,504
2002 Series H Sewer, 3% to 5 1/4%, issued October 31, 2002, due 2004 to 2032	89,790	91,665
2002 Series H Water, 3% to 5 1/4%, issued October 31, 2002, due 2004 to 2032	31,905	33,135
2002 Series I Sewer, 4 1/4% to 5 5/8%, issued October 31, 2002, due 2004 to 2030	2,586	2,645
2002 Series I Water, 4 1/4% to 5 5/8%, issued October 31, 2002, due 2004 to 2030	29	30
2003 Series A Water, 3% to 5 1/4%, issued October 31, 2002, due 2004 to 2020	1,474	1,532
2003 Series B Water, 3% to 5 1/4%, issued July 24, 2003, due 2004 to 2021	4,368	—
2003 Series C Sewer, 2% to 5 1/2%, issued November 6, 2003, due 2004 to 2033	29,806	—
2003 Series C Water, 2% to 5 1/2%, issued November 6, 2003, due 2004 to 2023	21,630	—
	<u>701,014</u>	<u>664,341</u>

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

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June 30, 2004 and 2003

(Dollars in thousands)

	<u>2004</u>	<u>2003</u>
General Revenue Bonds (variable rate):		
1997 Series A, 0.55% to 1.18%, issued June 18, 1997, due 2004 to 2028	80,400	81,600
1997 Series B, 0.7% to 1.2%, issued June 18, 1997, due 2004 to 2028	80,400	81,600
1999 Series A, 0.65% to 1.15%, issued January 14, 1999, due 2004 to 2028	91,700	93,000
1999 Series B, 0.55% to 1.18%, issued January 29, 1999, due 2004 to 2028	91,700	93,000
1999 Series C, 0.6% to 1.0%, issued June 8, 1999, due 2004 to 2029	70,800	71,700
1999 Series D, 0.85% to 1.2%, issued June 8, 1999, due 2004 to 2029	70,800	71,700
2001 Series A, 0.55% to 1.16%, issued September 26, 2001, due 2004 to 2023	91,200	93,100
2001 Series B, 0.65% to 1.2%, issued September 26, 2001, due 2023 to 2031	85,000	85,000
	<u>662,000</u>	<u>670,700</u>
General Revenue Refunding Bonds (variable rate):		
1998 Series D, 0.7% to 1.2%, issued December 22, 1998, due 2008 to 2026	198,895	198,895
2000 Series B, 0.7% to 1.2%, issued March 22, 2000, due 2004 to 2037	134,200	134,600
2000 Series C, 0.7% to 1.2%, issued March 22, 2000, due 2004 to 2037	134,200	134,600
2002 Series C, 0.64% to 1.14%, issued August 15, 2002, due 2020	80,000	80,000
2002 Series D, 0.60% to 1.21%, issued August 15, 2002, due 2008 to 2017	76,450	76,450
2002 Series E, 0.75% to 1.0%, issued August 15, 2002, due 2010 to 2011	83,400	83,400
2002 Series F, 0.62% to 1.0%, issued August 15, 2002, due 2012 to 2013	90,900	90,900
2002 Series G, 0.61% to 1.0%, issued August 15, 2002, due 2014 to 2015	99,250	99,250
	<u>897,295</u>	<u>898,095</u>

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Notes to Financial Statements

June 30, 2004 and 2003

(Dollars in thousands)

	<u>2004</u>	<u>2003</u>
General Revenue Bonds (fixed rates):		
2000 Series D, 5 1/2%, issued October 1, 2000, due 2009 to 2011	\$ 150,000	150,000
	<u>5,107,222</u>	<u>4,836,467</u>
Less:		
Unamortized issuance and discount costs	(30,175)	(32,599)
Unamortized excess of reacquisition price over net carrying amount of defeased bonds	(139,576)	(148,154)
Current portion of long-term debt	<u>(52,528)</u>	<u>(48,426)</u>
	<u>(222,279)</u>	<u>(229,179)</u>
Long-term debt, net	\$ <u>4,884,943</u>	<u>4,607,288</u>

Long-term debt at June 30, 2004 and 2003 consisted of the following:

	<u>2003 Beginning balance</u>	<u>Additions</u>	<u>Reductions</u>	<u>2004 Ending balance</u>	<u>Due within one year</u>
General Revenue Bonds	\$ 3,035,391	296,572	60,730	3,271,233	29,190
General Revenue Refunding Bonds	1,136,735	—	1,760	1,134,975	1,900
General Revenue Bonds with the Massachusetts Water Pollution Abatement Trust	<u>664,341</u>	<u>56,002</u>	<u>19,329</u>	<u>701,014</u>	<u>21,438</u>
	\$ <u>4,836,467</u>	<u>352,574</u>	<u>81,819</u>	<u>5,107,222</u>	<u>52,528</u>
	<u>2002 Beginning balance</u>	<u>Additions</u>	<u>Reductions</u>	<u>2003 Ending balance</u>	<u>Due within one year</u>
General Revenue Bonds	\$ 2,508,194	601,872	74,675	3,035,391	27,536
General Revenue Refunding Bonds	1,607,380	430,000	900,645	1,136,735	1,760
General Revenue Bonds with the Massachusetts Water Pollution Abatement Trust	<u>591,368</u>	<u>129,007</u>	<u>56,034</u>	<u>664,341</u>	<u>19,130</u>
	\$ <u>4,706,942</u>	<u>1,160,879</u>	<u>1,031,354</u>	<u>4,836,467</u>	<u>48,426</u>

The Authority is required to establish water and sewer rates and charges at a level sufficient to provide, among other things, primary and subordinated debt service coverage ratios of 110% and 120%, respectively. For the year ended June 30, 2004, the Authority had primary and subordinated debt service coverage ratios of 191% and 115%, respectively.

The Act of 1984 imposes a limitation of \$600,000 on the total amount of bonds and notes which may be outstanding at any one time. The Authority has requested increases in its debt limit as necessary to allow

# MASSACHUSETTS WATER RESOURCES AUTHORITY

## Notes to Financial Statements

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(Dollars in thousands)

for issuances of bonds in amounts required to finance the capital program. The state legislature increased the debt limit to \$5,800,000.

On January 7, 2004, the Authority issued General Revenue Bonds, 2003 Series D in the principal amount of \$165,000. The proceeds from these bonds will be used to fund ongoing capital projects. The interest rate on these bonds range from 2% to 5%.

On June 10, 2004, the Authority issued General Revenue Bonds, 2004 Series A in the principal amount of \$130,000. The proceeds from these bonds will be used to fund ongoing capital projects and to defease \$10,860 of bonds outstanding. The interest rate on these bonds range from 2% to 5 1/8%. The cash flow required to make principal and interest payments on the refunding bonds is approximately \$478 less than the debt service requirements for the defeased bonds. The economic gain (the difference between the present value of the debt service payments on the old and new debt) obtained from this refunding was \$470.

On August 15, 2002, the Authority issued Multi-Modal Subordinated General Revenue Refunding Bonds, 2002 Series C, 2002 Series D, 2002 Series E, 2002 Series F and 2002 Series G in the principal amounts of \$80,000, \$76,450, \$83,400, \$90,900 and \$99,250, respectively. The proceeds from these bonds were used to defease \$446,155 of bonds outstanding. Series C and D bonds have variable interest rates, which are currently reset daily. The interest rate for these bonds outstanding during fiscal 2004 ranged from 0.6% to 1.21%. Series E, F and G bonds have variable interest rates which are reset and payable on a weekly basis. The interest rate for these bonds outstanding during fiscal 2004 ranged from 0.61% to 1.0%.

The cash flow required to make principal and interest payments on the Refunding bonds is approximately \$14,484 less than the debt service requirements for the defeased bonds. The economic gain (the difference between the present values of the debt service payments on the old and new debt) obtained from this refunding was \$26,729.

On December 18, 2002, the Authority issued General Revenue Bonds, 2002 Series J in the principal amount of \$600,410. The proceeds from these bonds were used to defease \$428,090 of bonds outstanding. These bonds have a variable interest rate ranging from 3% to 5.5% per annum. The cash flow required to make principal and interest payments on the Refunding bonds is approximately \$13,383 less than the debt service requirements for the defeased bonds. The economic gain (the difference between the present values of the debt service payments on the old and new debt) obtained from this refunding was \$23,760.

In connection with several of its bond issues, the Authority has entered into various interest rate swap agreements to reduce the impact of changes in interest rates on its variable rate debt. Under these agreements, the Authority pays a fixed interest rate (ranging from 3.9% to 6.9%) and receives interest from the swap counterparties at a variable rate (either Bond Market Association (BMA) rate or 67% LIBOR). The BMA rate is based on the seven-day, high grade market index of tax-exempt, variable rate demand obligations. The Authority also has one swap where it receives a fixed rate of 4.9% and pays the BMA rate. Under these agreements the Authority incurred net interest expense of \$32,174 and \$28,562 in fiscal 2004 and fiscal 2003, respectively.

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

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**Summary of Swap Transactions by Category**

*Synthetic Fixed Rate Swap Transactions*

<u>Date of execution</u>	<u>Notional amount</u>	<u>Termination date</u>	<u>Associated bonds</u>	<u>Fixed payable swap rate</u>	<u>Variable receivable swap rate</u>	<u>Lump-sum payment from counterparty</u>	<u>Counterparty credit rating at June 30, 2004</u>	<u>Fair value at June 30, 2004</u>
03/15/00	\$ 268,400	08/01/30	2000 Series B & C	5.130%	BMA	N/A	Aaa	\$ (28,330)
03/15/00	70,400	08/01/37	2000 Series B & C	6.935	BMA	N/A	Aaa	(1,418)
01/14/99	91,700	08/01/06	1999 Series A	3.947	BMA	N/A	Aaa	(2,764)
01/14/99	91,700	08/01/06	1999 Series B	3.949	BMA	N/A	Aaa	(2,847)
12/22/98	198,895	11/01/26	1998 Series D	3.994	BMA	N/A	Aaa	2,706
08/15/02	350,000	08/01/15	2002 Series D, E, F, G	4.127	67% LIBOR	N/A	A+	(21,793)

*Synthetic Variable Rate Swap Transactions*

<u>Date of execution</u>	<u>Notional amount</u>	<u>Termination date</u>	<u>Associated bonds</u>	<u>Fixed receivable swap rate</u>	<u>Variable payable swap rate</u>	<u>Lump-sum payment from counterparty</u>	<u>Counterparty credit rating at June 30, 2004</u>	<u>Fair value at June 30, 2004</u>
10/26/00	\$ 150,000	08/01/11	2000 Series D	4.906%	BMA	N/A	A+	\$ 12,335

*Risk Disclosure*

*Credit Risk.* Because all of the Authority's swaps rely upon the performance of the third parties who serve as swap counterparties, the Authority is exposed to credit risk, or the risk that a swap counterparty fails to perform according to its contractual obligations. The appropriate measurement of this risk at the reporting date is the fair value of the swaps, as shown in the columns labeled fair value in the tables above. All fair values have been calculated using the mark to market or par value method. To mitigate credit risk, the Authority maintains strict credit standards for swap counterparties. All swap counterparties for longer term swaps are rated in the A+ category or higher by at least two of the three rating agencies (FITCHRATINGS, Moody's Investors Service and Standard and Poor's).

*Basis Risk.* The Authority is exposed to basis risk if the relationship between the floating index the Authority receives on the swaps (BMA or 67% of LIBOR) falls short of the variable rate on the associated bonds. Should this occur, the expected savings may not be realized.

*Rollover Risk:* Because the swaps for the 1999 A and B bonds terminate prior to the maturity of such bonds, the Authority is exposed to rollover risk. Upon the termination of the swaps, the Authority will no longer realize the synthetic rate on these bonds and will be exposed to the floating rate risk on the underlying bonds if no new swap is put in place.

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(Dollars in thousands)

At June 30, 2004, the following bonds outstanding are considered defeased in substance:

<b>Description</b>	<b>Redemption date</b>	<b>Redemption price</b>	<b>Outstanding principal amount</b>
1990 Series A	2005-2020	102%	\$ 626,980
1991 Series A	2004-2021	100% to 102%	239,620
1992 Series A	2012-2022	100% to 102%	283,500
1992 Series B	2004-2020	100%	442,140
1993 Series A	2004-2013	100% to 102%	73,415
1993 Series B	2005-2022	100% to 102%	402,050
1993 Series C	2017-2020	100% to 102%	96,885
1993 Series D	2004-2014	100% to 102%	49,375
1994 Series A	2005-2024	101.5%	124,005
1995 Series A	2004-2015	100% to 102%	52,845
1995 Series B	2005	100%	5,925
1996 Series A	2011-2026	100% to 102%	109,085
1998 Series C	2004-2018	100% to 102%	89,720
2000 Series A	2005	100%	1,940
2002 Series B	2005	100%	1,795

The proceeds and available funds were deposited in an irrevocable trust with an escrow agent in an amount which will provide for payment of interest due to the redemption date and redemption of the defeased bonds outstanding on such date. The defeased portion of such debt, accrued interest thereon, and related unamortized issuance and discount costs were removed from the balance sheet in an in-substance defeasance transaction.

Outstanding bonds that are redeemable before their scheduled due dates are as follows at June 30, 2004:

<b>Description</b>	<b>Redemption date</b>	<b>Redemption price</b>	<b>Outstanding principal amount</b>
1993 Series C	December 2004	100% to 102%	\$ 120,245
1995 Series B	December 2005	100% to 102%	179,730
1996 Series A	November 2006	100% to 101%	15,625
1997 Series D	August 2008	100% to 101%	113,375
1998 Series A	August 2008	100%	141,290
1998 Series B	August 2008	100%	72,945
2000 Series A	August 2010	100% to 101%	246,655
2002 Series B	August 2011	100% to 101%	161,885
2002 Series J	August 2012	100%	200,000
2003 Series D	August 2013	100%	77,995
2004 Series A	August 2014	100%	21,800

# MASSACHUSETTS WATER RESOURCES AUTHORITY

## Notes to Financial Statements

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The variable rate general revenue bonds are subject to redemption prior to maturity at the option of the Authority in whole or in part, on any interest payment date.

During fiscal 2004, the Authority executed loan agreements with Massachusetts Water Pollution Abatement Trust (MWPAT) providing for 2003 Series B Water and 2003 Series C Sewer and Water loans in the principal amounts of \$4,566, \$29,806, and \$21,630, respectively. All proceeds of these loans were received by June 30, 2004, except \$2,386 and \$661, principal and premium, respectively, for 2003 Series C Sewer.

During fiscal 2003, the Authority executed loan agreements with MWPAT providing for 2002 Series H Sewer and Water, 2002 Series I Sewer and Water, and 2003 Series A Water loans in the principal amounts of \$91,665, \$33,135, \$2,645, \$30, and \$1,532, respectively. All proceeds for these loans were received by June 30, 2003.

Federal and Commonwealth subsidies for purposes of offsetting principal payments aggregating \$141,850 will be recognized as capital grants in aid of construction over the term of the loans.

Interest is payable semiannually on all debt, except on the commercial paper and capital appreciation bonds, on which interest is payable upon maturity and the General Revenue Bonds with variable interest rates on which interest is payable monthly. The Senior General Revenue Bonds and the General Revenue Refunding Bonds are collateralized equally and ratably by a lien and pledge on substantially all of the Authority's cash and revenues, except the operating fund. The subordinated debt series, including the commercial paper are collateralized equally and ratably by a subordinated pledge on substantially all of the Authority's revenues and cash and investments, except the operating, debt service and debt service reserve funds. Discounts, issuance costs, and the excess of reacquisition price over the carrying amount of the defeased debt are being amortized over the lives of the respective issues.

The amounts of long-term debt, principal and interest, payable in future fiscal years are as follows:

	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
Year ending June 30:			
2005	\$ 52,528	224,348	276,876
2006	65,924	229,047	294,971
2007	67,503	226,387	293,890
2008	86,528	222,851	309,379
2009	113,358	218,035	331,393
2010-2014	1,003,150	962,334	1,965,484
2015-2019	1,173,428	721,619	1,895,047
2020-2024	1,298,552	447,895	1,746,447
2025-2029	769,577	209,475	979,052
2030-2034	258,044	90,087	348,131
2035-2039	148,565	41,530	190,095
2040-2044	70,065	5,958	76,023
Total	<u>\$ 5,107,222</u>	<u>3,599,566</u>	<u>8,706,788</u>

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The Authority issued commercial paper notes of \$307,000 to finance capital expenditures, which are secured by \$102,466 and \$224,000 irrevocable direct-pay letters of credit which expire on September 8, 2004 and March 14, 2008, respectively. These letters of credit carry a fee of 0.25% and 0.28% per annum, respectively, on the amount available.

The maximum aggregate principal amount of commercial paper which may be outstanding at any one time is \$350,000. At June 30, 2004 and 2003, the amounts outstanding were \$307,000 and \$311,000, respectively. The weighted average interest rate on commercial paper outstanding at June 30, 2004 and 2003 was 0.97% and 1.5%, respectively.

### **(7) Accounts Receivable/Intergovernmental Loans**

The Authority has entered into various interest-free loan agreements with certain member communities. Under these agreements, the Authority loaned these communities \$23,365 and \$26,965 in fiscal 2004 and 2003, respectively, to be received in five or ten equal annual installments.

The long-term portion of these loans at June 30, 2004 and 2003 is \$64,472 and \$53,637, respectively, and is included in other assets. This program is designed to assist member communities with sewer and water systems rehabilitation.



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Notes to Financial Statements

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**(8) Capital Assets**

Capital assets consisted of the following at June 30:

	<u>2003</u>	<u>Additions</u>	<u>Disposals/ transfers</u>	<u>2004</u>
Capital assets, not being depreciated:				
Land	\$ 16,806	22	(2,896)	13,932
Construction in progress	<u>822,349</u>	<u>194,124</u>	<u>(147,834)</u>	<u>868,639</u>
Total capital assets, not being depreciated	<u>839,155</u>	<u>194,146</u>	<u>(150,730)</u>	<u>882,571</u>
Capital assets, being depreciated:				
Plant and equipment, water and sewage system	7,207,416	107,830	—	7,315,246
Furniture and fixtures	29,151	3,081	—	32,232
Leasehold improvements	5,081	—	—	5,081
Motor vehicles and equipment	<u>1,595</u>	<u>—</u>	<u>—</u>	<u>1,595</u>
Total capital assets, being depreciated	<u>7,243,243</u>	<u>110,911</u>	<u>—</u>	<u>7,354,154</u>
Less accumulated depreciation for:				
Plant and equipment, water and sewage system	1,507,659	148,316	—	1,655,975
Furniture and fixtures	19,234	3,933	—	23,167
Leasehold improvements	3,325	446	—	3,771
Motor vehicles and equipment	<u>971</u>	<u>20</u>	<u>—</u>	<u>991</u>
Total accumulated depreciation	<u>1,531,189</u>	<u>152,715</u>	<u>—</u>	<u>1,683,904</u>
Total capital assets, being depreciated, net	<u>5,712,054</u>	<u>(41,804)</u>	<u>—</u>	<u>5,670,250</u>
Capital assets, net	<u>\$ 6,551,209</u>	<u>152,342</u>	<u>(150,730)</u>	<u>6,552,821</u>

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Capital assets consisted of the following at June 30:

	<u>2002</u>	<u>Additions</u>	<u>Disposals/ transfers</u>	<u>2003</u>
Capital assets, not being depreciated:				
Land	\$ 16,806	—	—	16,806
Construction in progress	<u>1,177,074</u>	<u>297,021</u>	<u>651,746</u>	<u>822,349</u>
Total capital assets, not being depreciated	<u>1,193,880</u>	<u>297,021</u>	<u>651,746</u>	<u>839,155</u>
Capital assets, being depreciated:				
Plant and equipment, water and sewage system	6,608,337	599,079	—	7,207,416
Furniture and fixtures	19,234	9,917	—	29,151
Leasehold improvements	4,614	467	—	5,081
Motor vehicles and equipment	<u>1,595</u>	<u>—</u>	<u>—</u>	<u>1,595</u>
Total capital assets, being depreciated	<u>6,633,780</u>	<u>609,463</u>	<u>—</u>	<u>7,243,243</u>
Less accumulated depreciation for:				
Plant and equipment, water and sewage system	1,362,754	144,905	—	1,507,659
Furniture and fixtures	19,213	21	—	19,234
Leasehold improvements	2,880	445	—	3,325
Motor vehicles and equipment	<u>952</u>	<u>19</u>	<u>—</u>	<u>971</u>
Total accumulated depreciation	<u>1,385,799</u>	<u>145,390</u>	<u>—</u>	<u>1,531,189</u>
Total capital assets, being depreciated, net	<u>5,247,981</u>	<u>464,073</u>	<u>—</u>	<u>5,712,054</u>
Capital assets, net	<u>\$ 6,441,861</u>	<u>761,094</u>	<u>651,746</u>	<u>6,551,209</u>

Depreciation and amortization for fiscal 2004 and 2003 was \$161,492 and \$155,159, respectively.

**(9) Other Assets**

On December 17, 1997, the Authority sold to Massachusetts Heavy Industries, Inc. (MHI) certain land, buildings, machinery, equipment, and other items located within a former shipbuilding facility, known as

# MASSACHUSETTS WATER RESOURCES AUTHORITY

## Notes to Financial Statements

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(Dollars in thousands)

the Fore River Shipyard, for a total purchase price of \$10,000. The Authority received \$3,000 in December 1997. The remaining balance of \$7,000 was due to be received beginning in December 1999. In accordance with FASB No. 71, the original loss of \$28,303 was accounted for as a deferred charge and is expected to be recovered through future rates. During fiscal 2000, the \$7,000 receivable was determined to be uncollectible increasing the deferred loss on the original sale to \$35,303.

### (10) Leases

#### (a) Operating

The Authority leases electrical power assets, office space in Boston, and other property under long-term operating leases. Future minimum rental payments required under operating leases having initial or remaining noncancelable lease terms in excess of one year are as follows at June 30, 2004:

Year ending June 30:	
2005	\$ 9,665
2006	9,486
2007	6,824
2008	5,705
2009	5,533
2010-2014	25,322
2015-2019	7,268
	<u>\$ 69,803</u>

The Authority has the option to extend the lease agreements on the Boston offices for a subsequent five-year period at costs ranging from the current market rent at the extension date to an 18% increase.

Rental expense was \$14,177 and \$17,265 in fiscal years 2004 and 2003, respectively.

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

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June 30, 2004 and 2003

(Dollars in thousands)

**(b) Capital**

In fiscal 2003, the Authority entered into a 30-year capital lease agreement for the new maintenance facility. The interest rate for the capital lease is 7.83%. Future minimum lease payments for the capital lease are as follows at June 30, 2004:

	<u>Principal</u>	<u>Interest</u>	<u>Total</u>
Year ending June 30:			
2005	\$ 377	2,840	3,217
2006	408	2,809	3,217
2007	441	2,776	3,217
2008	477	2,740	3,217
2009	516	2,701	3,217
2010-2014	3,279	12,806	16,085
2015-2019	4,844	11,241	16,085
2020-2024	7,157	8,929	16,086
2025-2029	10,572	5,513	16,085
2030-2032	8,365	1,019	9,384
Total	\$ <u>36,436</u>	<u>53,374</u>	<u>89,810</u>

Under this lease, the Authority is also responsible for "Additional Rent," as defined in the lease. The Additional Rent includes real estate taxes, assessments and other government charges.

**(11) Retirement Benefits**

**(a) Plan Description**

The Enabling Act provided for the establishment of the Massachusetts Water Resources Authority Employees' Retirement System (the Plan), a contributory single-employer retirement system that is separate from the State Employees Retirement System. The Plan is a defined benefit pension plan covering those employees not employed by the MDC prior to July 1, 1985. Total payroll and covered payroll for all Authority employees in the Plan were \$68,241 and \$64,884, respectively, for the year ended June 30, 2004.

Under the provisions of the Plan, pension benefits vest after 10 years of full-time employment. An employee may retire after 20 years of service or at age 55 and completion of 10 years of service. At age 65, annual pension benefits equal 2 1/2% of the employee's average regular compensation earned during the last three years of employment or any three consecutive years when compensation was higher, multiplied by each year of creditable service. The benefit is reduced if retirement occurs before age 65 or if survivor's benefits are elected. The Plan also provides death and disability benefits. Ordinary disability benefits are available only to employees under age 55 with at least ten years of service. Complete financial statements for the Plan can be obtained from the Authority's administrative offices at Charlestown Navy Yard, 100 First Avenue, Boston, Massachusetts 02129.

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

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**(b) Funding Policy**

Contributions made by employees are based upon a percentage of employee base pay (5% for employees hired before December 31, 1974, 7% for employees hired between January 1, 1975 and December 31, 1983, 8% for employees hired between December 31, 1983 and June 30, 1996, and 9% for employees hired after July 1, 1996). Additionally, certain employees earning in excess of \$30 contribute an extra 2% of their salary effective January 1, 1979. Employees receive full payment of contributions upon withdrawal from the Plan and 50% of interest earned for employees with five to nine years of service or 100% of interest earned for employees with ten or more years of service.

The 2004 and 2003 contributions to the plan were based on an amount approved by the Retirement Board and the Authority's board of directors. The Authority's Enabling Act requires funding to be made in accordance with the Retirement Board's recommendation. In 2003, the Authority contributed an amount equal to the Annual Pension Cost (APC). In 2004, the Authority contributed \$1,194 more than the APC or \$3,882.

**(c) Annual Pension Cost**

The annual required contribution for the current year was determined as part of the January 1, 2001, actuarial valuation using the entry age normal cost method. The actuarial assumptions included (a) 8% investment rate of return and (b) projected salary increase of 5.5% per year. Liabilities for cost of living increases have been assumed at an annual increase of 3%, on the first \$12 of benefit payments. Assets are valued at market value.

**(d) Three-Year Trend Information**

	<u>Annual pension cost (APC)</u>	<u>Percentage of APC contributed</u>	<u>Net pension obligation</u>
Fiscal year ending:			
2004	\$ 2,688	144%	\$ —
2003	2,560	100%	—
2002	2,438	100%	—

**(e) Other Benefits**

All MDC personnel who became employees of the Authority on July 1, 1985, and were members of the State Employees Retirement System, retained their membership in that system. The Authority is not liable for retirement allowances paid to or on account of these employees. Funding of the pension liability of the State Employees Retirement System is the obligation of the Commonwealth. Employees covered by this plan become 100% vested after ten years of service. The Authority's covered payroll for members of this plan for the year ended June 30, 2004 was \$8,324.

The Authority's policy is to provide certain health care and life insurance benefits for retired employees. Substantially all of the Authority's employees may become eligible for those benefits if

# MASSACHUSETTS WATER RESOURCES AUTHORITY

## Notes to Financial Statements

June 30, 2004 and 2003

(Dollars in thousands)

they reach normal retirement age while working for the Authority. Those and similar benefits for active employees are provided through an insurance company whose premiums are based on the benefits paid during the year. Premiums for retired employees were \$992 and \$935 in fiscal 2004 and 2003, respectively.

### **(12) Commitments and Contingencies**

A major capital improvement program is currently in progress. As part of this program, the Authority has entered into a number of contracts for the design and construction of facilities. Commitments under these contracts aggregated approximately \$388,127 at June 30, 2004.

The Authority continues to be a defendant, along with the Boston Water and Sewer Commission (BWSC) and the Commonwealth, in an action brought by the United States on behalf of the Environment Protection Agency (EPA) and by certain citizens groups in the Federal District Court of Massachusetts for Clean Water Act violations. Under an Order of the Federal District Court, the Authority is required to undertake corrective actions necessary to meet wastewater treatment, discharge and CSO control requirements, with Court oversight. With the completion of the last battery of secondary treatment at the Deer Island Treatment Plant, the last major construction milestone related to the wastewater treatment plant, the Court allowed the Authority's motion to reduce Court oversight, for the most part, to CSO related requirements under a CSO compliance schedule requiring the Authority to undertake CSO controls by specified dates, currently ending in 2008. The Authority has notified the Federal District Court and the Court parties that modifications to the current CSO control plan and schedule will be required to take into account changes in projects in Cambridge and Boston resulting from the environmental review process under the Massachusetts Environmental Policy Act (MEPA) or under other regulatory review. Despite these modifications, the Authority is in substantial compliance with the schedule requirements for its CSO control plan and has completed 14 of the 25 CSO projects in its CSO control plan while the remainder are either in design or under construction.

As a result of a finding of liability for a Clean Water Act violation by the MDC's sewerage operations, a substantial part of the Authority's construction programs, as successor to the MDC, have been subject to court supervision. In addition, the Court has reserved the right to order further remedial action and assess penalties. The Authority cannot predict whether penalties will be requested by litigants or assessed by the Courts in the future. The Court has assessed no penalties to date. On September 30, 2004, the Authority received from the Massachusetts Department of Environmental Protection (DEP) a Notice of Enforcement Conference and, on October 20, 2004, a Draft Administrative Order with Penalty, the latter of which proposed a penalty of \$90 for discharges alleged to be in violation of the Massachusetts Clean Waters Act resulting from two power failures at the Authority's Deer Island Treatment Plant in April 2004. The Authority is reviewing these recent submittals from DEP and will consult with the agency concerning an appropriate resolution of the proposed enforcement action.

The Authority's operating and construction plans are designed to comply with the Federal District Court's schedule of actions. The Authority has incurred capital expenditures of approximately \$6,339,000 from fiscal 1986 through fiscal 2004, including those projects required to comply with the Federal District Court's schedule. The Authority anticipates spending an additional \$1,775,000 on these projects through fiscal 2014. These capital expenditures have been forecasted based upon certain preliminary assumptions

# MASSACHUSETTS WATER RESOURCES AUTHORITY

## Notes to Financial Statements

June 30, 2004 and 2003

(Dollars in thousands)

and estimates, which may change significantly as design and construction of the necessary facilities proceed. Funding is expected to come from various federal and state grants, as available and approved, and from the Authority's debt proceeds. To date, federal appropriations for the Boston Harbor Project have aggregated \$810,000.

The Authority is also a defendant in several legal actions arising out of the operations of the water and sewer systems. It is the opinion of management that any judgments that may result from these actions will not have a materially adverse effect upon the Authority.

### **(13) Risk Management**

The Authority is exposed to various risks of loss. The risk management program involves insurance and self insurance related to property, general liability, automobile liability, marine liability, public officials' errors and omissions, workers' compensation, unemployment liability, and employee health care and life insurance.

On July 1, 2001, the Authority renewed a three-year Alternative Risk Transfer insurance program, which combines the Authority's various insurance coverages into one program with a per occurrence deductible of \$2,500. The Authority reimburses the Commonwealth on a paid-claims basis for unemployment claims. Claims expensed during fiscal 2004 and 2003 were \$417 and \$1,039, respectively. The Authority is a licensed self-insurer for workers' compensation. Excess loss insurance is carried on workers' compensation as required by law in excess of \$500 per occurrence retention, with a limit of \$25,000 per occurrence.

The Authority participates in and pays premiums to the Commonwealth's Group Insurance Contract for employee health benefits. The Authority pays 80% of these health premiums, with employees paying the balance.

Insurance claims have not exceeded insurance coverage in any of the last three fiscal years.

The MetroWest Water Supply Tunnel is being insured under an Owner's Controlled Insurance Program (OCIP). The Authority provides workers' compensation, general liability, and pollution coverage for operations of the contractors on this project. There is a \$500 self-insurance retention for each coverage with a total aggregate self-insurance retention of \$1,250 for a combined claim under the OCIP.

The Authority also instituted a second OCIP for the Walnut Hill Water Treatment Plant. The Authority provides workers' compensation, general liability, and pollution coverage for operations of the contractors on this project. There is a \$500 self-insured retention per occurrence for each coverage.

GASB Statement No. 10 requires that liabilities for self insured claims be reported if it is probable that a loss has been incurred and the amount can be reasonably estimated. These losses include an estimate of claims that have been incurred but not reported. The Authority records such liabilities in accrued expenses.

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Notes to Financial Statements

June 30, 2004 and 2003

(Dollars in thousands)

Changes in the claims liability insurance reserves in fiscal 2004 and 2003 were as follows:

	<b>General liability and property</b>	<b>Workers' compensation</b>	<b>OCIP projects</b>
Liability balance, June 30, 2002	\$ 1,460	167	5,789
Provision to record estimated losses	3,826	3,195	3,198
Payments	<u>(1,623)</u>	<u>(1,352)</u>	<u>(4,633)</u>
Liability balance, June 30, 2003	3,663	2,010	4,354
Provision to record estimated losses	3,192	1,687	307
Payments	<u>(1,656)</u>	<u>(1,817)</u>	<u>(4,156)</u>
Liability balance, June 30, 2004	\$ <u>5,199</u>	<u>1,880</u>	<u>505</u>

**(14) Subsequent Events**

On September 29, 2004, the Authority issued General Revenue Refunding Bonds 2004 Series B in the principal amount of \$65,255. Proceeds from these bonds will be used to refund \$68,350 of bonds outstanding.



**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Required Supplementary Information

June 30, 2004

(Dollars in thousands)

Schedule of Funding Progress

<b>Actuarial valuation</b>	<b>Assets (a)</b>	<b>Actuarial accrued liability (AAL) – entry age (b)</b>	<b>Unfunded AAL (UAAL) (b-a)</b>	<b>Funded ratio (a/b)</b>	<b>Covered payroll (c)</b>	<b>UAAL as a percentage covered payroll ((b-a)/(c))</b>
1/1/2003	\$ 146,188	146,188	—	100%	\$ 66,711	—
1/1/2002	141,069	141,069	—	100	66,322	—
1/1/2001	128,385	128,385	—	100	65,955	—
1/1/1999	96,318	96,318	—	100	66,782	—
1/1/1998	77,712	77,712	—	100	63,579	—
1/1/1997	58,185	58,185	—	100	60,120	—

See accompanying independent auditors' report.

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Supplemental Schedule of Accounts Established  
by the General Revenue Bond Resolution

For the year ended June 30, 2004 and  
comparative totals as of June 30, 2003

(Dollars in thousands)

	<u>Construction</u>	<u>Revenue</u>	<u>Debt service</u>	<u>Reserves</u>	<u>Total</u>
Balance at June 30, 2003	\$ 90,431	54,105	430,490	71,636	646,662
Proceeds from:					
Revenue bonds and loans	267,859	—	101,363	—	369,222
Cash received from customers	—	452,104	—	—	452,104
Debt service grant	—	—	4,063	—	4,063
Interest income	774	6,912	11,942	(5,254)	14,374
Grant receipts	18	—	5,667	—	5,685
Construction payments	(236,140)	—	—	—	(236,140)
Capital lease payments	(349)	—	(2,868)	—	(3,217)
Debt service payment	(1,452)	—	(315,520)	—	(316,972)
Other Commonwealth payments	—	(18,924)	—	—	(18,924)
Interfund transfers	7,768	(244,188)	256,426	(20,006)	—
Transfers (to) from operating account	167	(178,393)	2,868	—	(175,358)
Balance at June 30, 2004	\$ <u>129,076</u>	<u>71,616</u>	<u>494,431</u>	<u>46,376</u>	<u>741,499</u>

	<u>Sewer</u>	<u>Water</u>	<u>2004 Total</u>	<u>2003 Total</u>
Restricted cash and investments:				
Construction	\$ 106,672	22,404	129,076	90,431
Debt service reserves	182,015	61,363	243,378	230,288
Debt service	105,117	93,142	198,259	171,627
Revenue redemption	22,602	9,414	32,016	6,805
Revenue	36,615	35,001	71,616	54,105
Renewal and replacement reserve	18,087	10,292	28,379	53,639
Insurance	8,999	8,998	17,997	17,997
Community obligation and revenue enhancement	17,794	2,984	20,778	21,770
Total restricted cash and investments	\$ <u>497,901</u>	<u>243,598</u>	<u>741,499</u>	<u>646,662</u>

See accompanying independent auditors' report.

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Supplemental Schedule  
Combining Balance Sheet

June 30, 2004

(Dollars in thousands)

<b>Assets</b>	<b>Sewer</b>	<b>Water</b>	<b>Combined total</b>
Unrestricted current assets:			
Cash and cash equivalents	\$ 22,522	8,408	30,930
Investments	36,828	16,231	53,059
Intergovernmental loans	5,395	6,853	12,248
Accounts receivable	546	1,131	1,677
Total unrestricted current assets	<u>65,291</u>	<u>32,623</u>	<u>97,914</u>
Restricted assets:			
Cash and investments	497,901	243,598	741,499
Interest receivable	4,815	1,711	6,526
Grants receivable:			
Billed	2,242	(21)	2,221
Unbilled	208	—	208
Total restricted assets	<u>505,166</u>	<u>245,288</u>	<u>750,454</u>
Capital assets, not being depreciated	333,974	548,597	882,571
Capital assets, being depreciated, net	3,706,470	1,963,780	5,670,250
Deferred charges	211,656	80,432	292,088
Other assets, net	137,008	53,132	190,140
Total assets	<u>\$ 4,959,565</u>	<u>2,923,852</u>	<u>7,883,417</u>
<b>Liabilities and Net Assets</b>			
Current liabilities:			
Accounts payable and accrued expenses	\$ 38,324	21,935	60,259
Commercial paper notes	—	307,000	307,000
Current portion of long-term debt	39,067	13,461	52,528
Total current liabilities	<u>77,391</u>	<u>342,396</u>	<u>419,787</u>
Payable from restricted assets:			
Accounts payable for construction	12,566	8,912	21,478
Accrued interest on bonds payable	47,695	20,342	68,037
Total payable from restricted assets	<u>60,261</u>	<u>29,254</u>	<u>89,515</u>
Retainage on construction in progress	5,357	14,055	19,412
Long-term debt, less current portion	3,486,411	1,398,532	4,884,943
Long-term capital leases	24,784	11,652	36,436
Reserves	68,920	30,264	99,184
Deferred credits	61,462	24,253	85,715
Total liabilities	<u>3,784,586</u>	<u>1,850,406</u>	<u>5,634,992</u>
Net assets:			
Invested in capital assets, net of related debt	902,985	902,367	1,805,352
Restricted	74,572	94,776	169,348
Unrestricted	197,422	76,303	273,725
Total net assets	<u>1,174,979</u>	<u>1,073,446</u>	<u>2,248,425</u>
Commitments and contingencies			
Total liabilities and net assets	<u>\$ 4,959,565</u>	<u>2,923,852</u>	<u>7,883,417</u>

See accompanying independent auditors' report.

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Supplemental Schedule  
Combining Balance Sheet

June 30, 2003

(Dollars in thousands)

<b>Assets</b>	<b>Sewer</b>	<b>Water</b>	<b>Combined total</b>
Unrestricted current assets:			
Cash and cash equivalents	\$ 22,360	7,889	30,249
Investments	37,483	16,437	53,920
Intergovernmental loans	5,997	6,770	12,767
Accounts receivable	8,066	1,811	9,877
Total unrestricted current assets	<u>73,906</u>	<u>32,907</u>	<u>106,813</u>
Restricted assets:			
Cash and investments	464,707	181,955	646,662
Interest receivable	4,926	1,654	6,580
Grants receivable:			
Billed	2,219	(56)	2,163
Unbilled	208	—	208
Total restricted assets	<u>472,060</u>	<u>183,553</u>	<u>655,613</u>
Capital assets, not being depreciated	294,621	544,534	839,155
Capital assets, being depreciated, net	3,790,403	1,921,651	5,712,054
Deferred charges	167,503	71,777	239,280
Other assets, net	117,772	41,461	159,233
Total assets	<u>\$ 4,916,265</u>	<u>2,795,883</u>	<u>7,712,148</u>
<b>Liabilities and Net Assets</b>			
Current liabilities:			
Accounts payable and accrued expenses	\$ 29,295	25,127	54,422
Commercial paper notes	—	311,000	311,000
Current portion of long-term debt	34,889	13,537	48,426
Total current liabilities	<u>64,184</u>	<u>349,664</u>	<u>413,848</u>
Payable from restricted assets:			
Accounts payable for construction	21,149	20,807	41,956
Accrued interest on bonds payable	48,763	18,121	66,884
Total payable from restricted assets	<u>69,912</u>	<u>38,928</u>	<u>108,840</u>
Retainage on construction in progress	8,587	32,674	41,261
Long-term debt, less current portion	3,393,607	1,213,681	4,607,288
Long-term capital leases	25,017	11,768	36,785
Reserves	82,670	36,514	119,184
Deferred credits	70,662	16,500	87,162
Total liabilities	<u>3,714,639</u>	<u>1,699,729</u>	<u>5,414,368</u>
Net assets:			
Invested in capital assets, net of related debt	977,850	978,582	1,956,432
Restricted	74,530	48,879	123,409
Unrestricted	149,246	68,693	217,939
Total net assets	<u>1,201,626</u>	<u>1,096,154</u>	<u>2,297,780</u>
Commitments and contingencies			
Total liabilities and net assets	<u>\$ 4,916,265</u>	<u>2,795,883</u>	<u>7,712,148</u>

See accompanying independent auditors' report.

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Supplemental Schedule  
Combining Statement of Revenues, Expenses, and Changes in Net Assets

Year ended June 30, 2004

(Dollars in thousands)

	<u>Sewer</u>	<u>Water</u>	<u>Combined total</u>
Operating revenues:			
Customer services	\$ 310,791	130,158	440,949
Other	5,710	218	5,928
	<u>316,501</u>	<u>130,376</u>	<u>446,877</u>
Operating expenses:			
Operations	52,011	25,333	77,344
Maintenance	15,072	3,539	18,611
Payments in lieu of taxes	—	5,029	5,029
Engineering, general, and administrative	73,009	29,325	102,334
	<u>140,092</u>	<u>63,226</u>	<u>203,318</u>
Income from operations before depreciation	176,409	67,150	243,559
Depreciation	<u>117,498</u>	<u>43,994</u>	<u>161,492</u>
Operating income	<u>58,911</u>	<u>23,156</u>	<u>82,067</u>
Regulatory accounting provisions:			
Decrease in reserves	13,750	6,250	20,000
Decrease in deferred credits, net	53,353	902	54,255
	<u>67,103</u>	<u>7,152</u>	<u>74,255</u>
Nonoperating income (expense):			
Debt service grants	3,421	642	4,063
Investment income	9,121	4,986	14,107
Interest expense	(170,389)	(59,125)	(229,514)
	<u>(157,847)</u>	<u>(53,497)</u>	<u>(211,344)</u>
Net loss before capital grants	(31,833)	(23,189)	(55,022)
Capital grants	<u>5,186</u>	<u>481</u>	<u>5,667</u>
Decrease in net assets	(26,647)	(22,708)	(49,355)
Total net assets, beginning of year	<u>1,201,626</u>	<u>1,096,154</u>	<u>2,297,780</u>
Total net assets, end of year	\$ <u>1,174,979</u>	<u>1,073,446</u>	<u>2,248,425</u>

See accompanying independent auditors' report.

**MASSACHUSETTS WATER RESOURCES AUTHORITY**

Supplemental Schedule  
Combining Statement of Revenues, Expenses, and Changes in Net Assets

Year ended June 30, 2003

(Dollars in thousands)

	<u>Sewer</u>	<u>Water</u>	<u>Combined total</u>
Operating revenues:			
Customer services	\$ 306,153	120,513	426,666
Other	2,154	227	2,381
	<u>308,307</u>	<u>120,740</u>	<u>429,047</u>
Operating expenses:			
Operations	51,577	26,840	78,417
Maintenance	14,249	2,965	17,214
Payments in lieu of taxes	—	4,966	4,966
Engineering, general, and administrative	76,844	31,257	108,101
	<u>142,670</u>	<u>66,028</u>	<u>208,698</u>
Income from operations before depreciation	165,637	54,712	220,349
Depreciation	116,142	39,017	155,159
Operating income	<u>49,495</u>	<u>15,695</u>	<u>65,190</u>
Regulatory accounting provisions:			
Decrease in deferred credits, net	57,294	5,830	63,124
	<u>57,294</u>	<u>5,830</u>	<u>63,124</u>
Nonoperating income (expense):			
Investment income	31,204	9,059	40,263
Interest expense	(169,826)	(53,693)	(223,519)
	<u>(138,622)</u>	<u>(44,634)</u>	<u>(183,256)</u>
Net loss before capital grants	(31,833)	(23,109)	(54,942)
Capital grants	5,267	653	5,920
Decrease in net assets	(26,566)	(22,456)	(49,022)
Total net assets, beginning of year	<u>1,228,192</u>	<u>1,118,610</u>	<u>2,346,802</u>
Total net assets, end of year	\$ <u><u>1,201,626</u></u>	<u><u>1,096,154</u></u>	<u><u>2,297,780</u></u>

See accompanying independent auditors' report.



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

The Board of Directors  
Massachusetts Water Resources Authority:

We have audited the financial statements of the Massachusetts Water Resources Authority (the Authority) as of and for the years ended June 30, 2004, and have issued our report thereon dated August 16, 2004. We conducted our audits in accordance with auditing standards generally accepted in the United States of America and the standards applicable to financial audits contained in *Government Auditing Standards*, issued by the Comptroller General of the United States.

**Internal Control over Financial Reporting**

In planning and performing our audits, we considered the Authority's internal control over financial reporting in order to determine our auditing procedures for the purpose of expressing our opinion on the financial statements and not to provide assurance on the internal control over financial reporting. Our consideration of the internal control over financial reporting would not necessarily disclose all matters in the internal control over financial reporting that might be material weaknesses. A material weakness is a reportable condition in which the design or operation of one or more of the internal control components does not reduce to a relatively low level the risk that misstatements caused by error or fraud in amounts that would be material in relation to the financial statements being audited may occur and not be detected within a timely period by employees in the normal course of performing their assigned functions. We noted no matters involving the internal control over financial reporting or its operation that we consider to be material weaknesses.

**Compliance and Other Matters**

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



This report is intended solely for the information and use of the Authority's board of directors, management, the United States Environmental Protection Agency, and pass-through entities and is not intended to be and should not be used by anyone other than the specified parties.

KPMG LLP

August 16, 2004





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March 8, 2005

Board of Directors  
Massachusetts Water Resources Authority  
Charlestown Navy Yard  
100 First Avenue  
Boston, MA 02129

Subject: Feasibility Report 2005 Series A

Dear Members of the Board:

We are submitting herewith a Supplemental Report (the "Supplement") providing our engineering and financial evaluation and overview (the "Report") of the Massachusetts Water Resources Authority (the "MWRA" or the "Authority"). The Authority has requested that Camp Dresser & McKee Inc. ("CDM") prepare this Report to provide certain information concerning the Authority in connection with its issuance of the 2005 Series A Bonds. The Series A Bonds consist of approximately \$326 million to refund some or all of several outstanding bond issues. The purpose of this Report is to supplement and update the material aspects of the following Reports, the "2004 B Report" dated September 17, 2004 included in the Authority's Official Statement dated September 17, 2004 for its General Revenue Bonds, 2004 Series B, the "2004 A Report" dated May 14, 2004 included in the Authority's Official Statement dated May 25, 2004 for its General Revenue Bonds, 2003 Series A and our report dated December 8, 2003 included in the Authority's Official Statement dated December 16, 2003 for its General Revenue Bonds, 2003 B Series. The 2003 B Report and the 2004 A Report assesses the Authority's capacity, efficiency and progress in managing its complex affairs and provides a detailed analysis of the Authority's financial projections. The 2003 Report is incorporated by reference herein.

To prepare this update, we have:

- Reviewed key reports and documents prepared by the Authority, including the FY 2005 Capital Improvement Program (the "FY2005 CIP") the FY 2005 Current Expense Budget (the "CEB"), the Proposed Fiscal Year 2006 Capital Improvement Program (the "FY 2006 CIP"), audited FY 2004 financial statements, court compliance reports, facility plans, internal operating reports, and various other documents.

- Interviewed key Authority staff responsible for these efforts, reviewed operational plans, and reviewed ongoing and planned capital improvements
- Projected the Authority's revenues and expenses for the FY 2005 to FY 2010 period, on the basis of assumptions we believe to be reasonable, the provisions of the General Bond Resolution (the "Resolution"), Commonwealth legislation regarding state revolving fund ("SRF") subsidy rates and debt service assistance, and Authority practices and policies.

The Authority is implementing a significant capital improvement program that includes major upgrades to its drinking water system, reducing combined sewer overflows, completing upgrades and renovations to its wastewater system and addressing the overall reliability and integrity of the Systems. The Board of Directors annually approves the capital improvement program. In June 2003, the Board of Directors adopted a five-year capital spending cap that limits total expenditures for Fiscal Years 2004 through 2008 to \$1.13 billion. This cap was set to balance the priority needs of the systems with the financial resources of the Authority. The cap policy also requires that a new cap for FY09-FY13 be set by the Board before the end of the current cap period.

Within the current planning period, the Authority has been implementing a major upgrade of its drinking water system including the construction of a new water treatment plant at Walnut Hill, providing a more reliable delivery system with the construction of the Metro West Water Supply Tunnel and enhancing water quality by covering storage facilities. This program is nearing its completion with a number of major milestones being reached in this planning period. Major milestones recently completed include the Metro West Water Supply Tunnel placed into service on November 3, 2003, inspection of and modifications to the Cosgrove Tunnel during the winter of 2003/2004 and placed back in service ahead of schedule in March of 2004, and brought sequential cells of the Norumbega Covered Storage Reservoir into service between November 2003 and July of 2004. The Walnut Hill Treatment plant, the next major milestone, is currently undergoing functionality testing and remains substantially on schedule for a spring 2005 startup and essentially on budget.

This upgrade, continuing a major water capital improvement program to protect and enhance the quality of its drinking water, is intended to ensure compliance with the federal Safe Drinking Water Act (the "SDWA"), and provide an adequate level of redundancy to the water transmission system, while continuing to operate and maintain water transmission and conveyance systems. The Authority is completing these projects substantially on schedule and on budget.

Since its creation, a critical focus for the Authority has been to comply with the terms of a very aggressive court-mandated wastewater construction schedule under the federal Clean Water Act, as amended (the "CWA"). The major project, the Deer Island Treatment Plant (the "DITP") is complete. The DITP is operating as designed resulting in significant and measurable improvements in water quality and the quantity and diversity of marine life present in Boston Harbor. These improvements are expected to continue as a result of the DITP. The Authority's focus has now shifted towards completing the

Combined Sewer Overflow (CSO) program, where, based on the FY 2006 CIP, it anticipates spending nearly \$280 million between FY 2006 and FY 2008 and an additional \$130 million through FY 2013. Anticipated spending in the FY 2006 –FY 2008 period is projected to increase by approximately \$118 million from the projections included in the FY 2005 CIP, largely reflecting changes in the schedule for the North Dorchester Bay Reserve Channel CSO project.

The Authority's Proposed FY 2006 CIP continues the major priorities of the Authority. However, as a result of the Authority's ongoing efforts to manage rate increases to its member communities, while continuing to upgrade and maintain the System, the Proposed FY 2006 CIP reduces projected spending by approximately \$420 million as compared to the FY 2005 CIP. This reduction reflects a proposed shift forward of CSO spending and a reduction in infrastructure improvements to the System largely in FY 2009-FY 2013. However as part of its discussions with the Board of Directors to establish a five year cap for the FY 2009-FY 2013 cap period (expected to begin with the FY 2007 capital budget discussions and that must be set by the end of FY 2008) the Authority expects to review its project prioritization process in conjunction with its capital budgeting and master planning process. The Authority anticipates that this master planning process will provide a framework for the CIP and project prioritization process, and that it is likely that many of the projects previously identified but cut in the proposed FY 2006 CIP may be incorporated into the master plan and could reflect the need for significant expenditures to meet rehabilitation needs of the Systems over time.

The Authority, with the assistance and support of the Advisory Board and many others, has secured increased state and federal financial assistance for its construction programs. The Authority has aggressively sought alternative, less expensive means of achieving compliance with the various legal and regulatory requirements imposed upon it. In assessing the present organization and management's ability to address the many real challenges that face the Authority, we believe its record of achievement over the past decade is an important consideration.

Significant progress has been made in the development of required new facilities and compliance with a complex range of regulatory requirements. The Authority is increasing its focus on properly operating and maintaining its systems. In our investigations, we have found that all of the Authority's facilities are well operated and maintained, especially in light of the age and pre-existing condition of many facilities.

We have reached the following conclusions regarding the Authority's operations and financial status:

## **Organization and Management**

- The Authority is well organized to effectively carry out its various duties. Of equal importance, the Authority continually evaluates and adjusts its organizational structure to properly address emerging issues and shifting priorities. For example, the Authority conducted a staffing needs assessment that concluded the Authority could reduce staff and properly maintain all operations and maintenance needs. The

Authority has reduced staff in line with the report and continues to evaluate programs and processes to increase efficiency and reduce costs. The Authority continues to move ahead with this staff adjustment and is slightly ahead of the schedule that was established by that evaluation.

- The Authority's staff members have the qualifications and experience commensurate with their responsibilities and have demonstrated their ability to make organizational and staffing changes as required maintaining a cost-effective and efficient operational structure.
- The Authority has identified and focused on rates as a central management issue. The Authority has worked closely with the Advisory Board to contain expenses. At the same time, the Authority has devised and implemented strategies to minimize rate increases, including seeking and obtaining additional federal and state funding, while controlling capital and operational spending.
- The Authority is placing new emphasis on developing programs and procedures for effectively operating and maintaining new and existing water and wastewater facilities. In addition, the Authority continues to devote substantial attention to maintaining and enhancing water quality as it operates existing and develops new water facilities.
- In response to the federally mandated Bioterrorism Act, the MWRA has assessed and implemented a security improvement program at the critical water facilities throughout the system. The security improvement program includes several degrees of operational and procedural requirements and emergency response plans that are directly tied to the National Homeland Security Readiness System.

## **Sewer Operations**

- Wastewater treatment to the Authority's Boston Metropolitan Service Area is provided at the 1.2 Billion gallon per day peak capacity DITP. Portions of the DITP have been in operation since 1995, and the DITP has been fully operational since 2001. The Authority operates the DITP under a NPDES permit that took effect in August 2000. The DITP consistently complies with the requirements of the permit including limits on pH, total suspended solids (TSS), carbonaceous biological oxygen demand (CBOD), chlorine residuals (TCR), and fecal coliform. The dry weather flows to the plant have averaged approximately 327 million gallons per day during calendar 2004 and peak daily flows of up to 1.2 billion gallons per day have been treated. On two occasions in the spring of 2004 there were interruptions in the plant's power supply due to a combination of events both with the power supply from NStar and the timely initiation of the on site backup power generation facility. These events were the first time since the plant was placed in service that there was an interruption in treatment and the Authority has moved quickly to ascertain both the cause of and the means to prevent future events from occurring. The EPA and the DEP were properly notified and have been furnished a detailed analysis. The Authority has implemented a number of operational and physical system changes to minimize the possibility that

these events occur again. Other than these incidents, the DITP has operated and is operating as expected.

- The Transport System is generally well operated and maintained. Significant improvements have been made to the North System through the construction of new pump stations and a new screenings facility. Several South System pump stations and interceptors in need of repair and replacement are in the process, or have been upgraded. In accordance with the CIP, the major construction contracts for these South System improvements, known as the Braintree-Weymouth Relief Facilities, are under construction. Major elements of that project were put into service in November of 2004.
- Major interceptor and other wastewater collection system needs are also adequately addressed in the CIP. Due to the age and the nature of the collection system, there will be an ongoing need for rehabilitation and replacement of sewers. The Authority in the FY 2006 CIP is proposing to reduce planned spending for these purposes by approximately \$260 million from that put forth in the FY 2005 CIP. Anticipated spending is now projected at approximately \$500 million. We anticipate that with the Authority moving forward with its master plan it will be able to more accurately identify the needs for this type of spending.
- Based on the performance of the DITP to date, we believe that the DITP facility, as designed, will continue to meet the NPDES permit limits for carbonaceous biological oxygen demand (“CBOD”) and total suspended solids (“TSS”), chlorine residual and fecal coliform at the projected design level of flows and loads. We further believe that the performance of the DITP in conjunction with the source control strategies already implemented by the Authority results in an effluent that consistently meets all the numerical limits of the permit.

## **Residual Processing Facilities**

- The Authority dewater and dries the sludge from the DITP at its Fore River Staging Area pelletizing plant. The plant has adequate capacity to process and distribute the quantities of sludge associated with the operation of the DITP. The Authority contracts the operation of the facility with New England Fertilizer Company (NEFCO). NEFCO provides services in accordance with a fifteen-year operations contract that took effect in 2001.

## **Combined Sewer Overflows (CSO)**

- In the summer of 1997, the Authority submitted to EPA, DEP and the Massachusetts Environmental Policy Act (MEPA) Unit a Final Facilities Plan and Environmental Impact Report presenting its long-term CSO control plan (the “LTCP”), comprising 25 site-specific projects. In response, EPA and DEP took several actions, including modifying the Commonwealth’s water quality standards to accommodate portions of the plan that had received full approval, and implementing a regulatory strategy for further review of control options for those portions of the plan impacting the Charles River, the Alewife Brook and the Upper Mystic River. Since 1997, the Authority has

made substantial progress in implementing the LTCP projects: fourteen are complete, six are in construction and the remaining five are in design or will be in design by 2007. Over the last several years, the Authority has conducted reassessments of certain projects, primarily due to higher cost estimates (to ensure cost-effectiveness in meeting the 1997 CSO control goals) or siting obstacles. The reassessments resulted in modifications to the scope, cost and schedules for the Upgrade CSO Facilities, North Dorchester Bay, Reserved Channel, Alewife Brook, and Fort Point Channel (BOS072-073) projects. The Authority also completed a reassessment of the East Boston Branch Sewer Relief project, but has not yet selected a final plan, pending agreement with EPA and DEP. The total cost of the CSO control plan as contained in the FY 2005 CIP is \$701.3 million. The CSO program is subject to oversight by the Federal Court in accordance with Schedule Six to the Federal Court order of December 23, 1985 and subsequent orders of the Court. The Authority plans to seek the Court's acceptance of proposed revisions to Schedule Six, primarily to account for the project modifications, with the last CSO project (Reserved Channel sewer separation) to be completed by 2017.

- The control plans for CSOs affecting the Charles River, the Alewife Brook and the Upper Mystic River received regulatory approval as "minimum technology requirements" under short-term variances from water quality standards, pending the outcome of various studies being conducted by the Authority and others to allow EPA and DEP to make final determinations on water quality standards and the appropriateness of additional CSO controls. In the fall of 2004, DEP issued three-year extensions to the Charles River and the Alewife Brook/Upper Mystic River variances, to October 1, 2007 and September 1, 2007, respectively. The variances require the Authority to implement its recommended CSO plans for these water bodies and also require the Authority and the CSO communities bordering these water bodies to investigate means to enhance the level of CSO control, primarily by removing stormwater inflows from the combined sewer systems. From these investigations, EPA and DEP may determine that additional CSO control measures are cost-beneficial and should be added to MWRA's LTCP, increasing the cost of the plan.
- In 2004, the Authority reached consensus with the regulatory agencies on a revised CSO control plan for the South Boston beaches (North Dorchester Bay) and the Reserved Channel. In April 2004, the Authority filed a Supplemental Facilities Plan and Environmental Impact Report that recommended new CSO control plans for these receiving waters, with the goals of eliminating CSO discharges to the beaches (25-year storm level of control), eliminating most of the separate stormwater discharges to the beaches (5-year storm level of control), and greatly reducing CSO discharges to the Reserved Channel (a shipping channel). The Secretary of Environmental Affairs issued a certificate on the plan in July 2004 allowing detailed design to proceed. The Authority commenced final design of the storage tunnel in September and completed 60 percent plans and specifications in February 2005. The Authority also completed 100 percent plans and specifications in December 2004 on the related contract to relocate storm drain discharges from the Pleasure Bay beaches

to the Reserved Channel, with the intent of commencing construction of this contract in 2005.

- The Authority is also in discussions with EPA and DEP on the results of its reassessment of the East Boston Branch Sewer Relief project, for which the Authority completed the first construction contract in June 2004 but suspended remaining work until completing the reassessment and recommending a final plan. The Authority undertook the reassessment in response to a significant increase in the project cost from the 1997 Facilities Plan (approximately \$30 million) to the 2001 Preliminary Design Report (approximately \$60 million) and information indicating that the recommended hydraulic relief measures might not fully attain CSO control goals. In ongoing regulatory discussions, the Authority has recommended the original relief project, at the higher cost. There is, however, the risk of a cost increase of \$15 million or more if the regulatory agencies require additional work.

### **Water Supply and Use**

- The Authority has concluded, and we concur, that long-term demand will remain below the system's safe yield of its water supply sources of 300 million gallons per day (mgd) for at least the next 10 years. Demand has fallen from 334 mgd in calendar year 1987 to 224 mgd in calendar year 2004. The Authority anticipates that demand will be stable or decline slightly in the future depending on the demand for additional service from communities seeking to obtain water from the Authority.
- Water levels in the Authority's reservoir are above normal for this time of year, with the Quabbin Reservoir at 90 percent of capacity at the end of December 2004. The Authority has programs in place to reduce demand, if supplies were to decline precipitously.

### **Water Quality and Treatment**

- The Authority continues to act prudently to address the requirements of the SDWA Amendments and Massachusetts drinking water regulations. The SDWA Amendments require the Authority to construct a water treatment plant for the Wachusett Reservoir with disinfection, corrosion control, and, if required, filtration. Based on the Proposed FY 2006 CIP, the estimated total cost for the Authority's Waterworks System Improvement Projects is approximately \$1.87 billion, with \$491 million to be expended in FY 2005 and beyond. Approximately \$321.0 million is projected to be expended between FY 2005 and FY 2008.
- The Authority is proceeding with construction of its treatment plant under a court ruling that determined filtration is not required. Because of the delays engendered by the litigation and construction issues, the Authority and DEP have agreed to a revised consent order schedule. Under this schedule, construction of the treatment facility began in November 2000, and is currently scheduled to be on line by June 2005. The plant is scheduled to be physically completed and undergoing reliability testing by the scheduled completion date.

- The Authority has begun planning work to add ultra violet treatment at the Walnut Hill Treatment Plant. This additional disinfection process is required to comply with the pending Long Term 2 Surface Water Treatment Rule that is expected to require two primary disinfectants be used on unfiltered water sources by 2012. The WHTP was designed to accommodate this second process train. The estimated cost of this project is \$44 million with the project to be completed by FY 2012.
- The Authority delivers an average of 220 mgd of treated water to its partially and fully supplied customers. This water consistently meets all regulatory requirements required for potable water.

## **Water Pumping Stations and Other Facilities**

- The overall pumping system appears to be well operated and maintained. Several key pumping stations have undergone significant rehabilitation in recent years and the Authority continues to work closely with member communities to improve the condition of local water distribution systems.

## **Revenues and Rates**

- CDM has developed rate revenue projections for FY 2006 through FY 2009 based on the Authority's CEB and the CIP and certain economic assumptions that we believe are reasonable. We project that through FY 2010 the Authority's combined revenue requirement will increase at an average annual rate of 7.2 percent. Typical combined annual household bills are projected to increase from \$886 in FY 2005, to \$1,226 in FY 2010, assuming average household water consumption of 90,000 gallons per year. Actual consumption in the Authority service area is estimated to average 61,000 gallons per year, therefore average household bills are approximately 32 percent less than the preceding figures. These projections are based on many assumptions, including but not limited to annual household consumption, and deviations from these assumptions will affect the actual level of future rates.
- The Authority is responding to the concerns of customers in its service area about rate levels and future rate increases by working to minimize its rate increases through ongoing review and modification of its capital and operating expenditures and by seeking additional outside funding to offset the cost of its capital program. In addition, the Authority is seeking to maintain a relatively smooth pattern of future rate increases through prudent withdrawals from the Rate Stabilization Fund and the Bond Redemption Account.
- Based upon our review, and recognizing the availability and use of retail rate alternatives by the Local Bodies, we are reasonably confident that the Authority's projected rates and charges will be within the ability of the individual Local Bodies and generally within the ability of their collective retail customer base to afford.
- Over this forecast period, we do not believe that the Authority will experience material problems collecting amounts due from Local Bodies. We base this on the Authority's history to date, and the enforcement, collection, and revenue protection



mechanisms contained in the Enabling Act and the Resolution. This includes the Authority's success to date in initiating the local aid intercept provisions in the few instances where such action has been required.

- The Resolution provides for adequate reserves and appropriate fund structures and provisions to address current and future needs of the systems. The Authority uses prudent financial management practices to ensure that future obligations are met without disruptions or untimely actions.

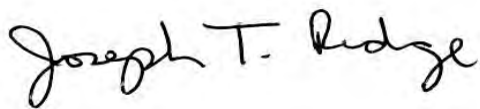
## **Financial Management and Budgeting**

- The Authority has developed budgeting procedures, financial information systems, and controls, which appear to be sound and appropriate for its needs. Based on our review of policies and procedures, we believe that the Authority's management receives adequate expenditure and variance reports for purposes of monitoring program progress and compliance with budgeted expenditure levels for both the current and capital budgets.
- The Authority's CEB establishes a level of expenditure which makes adequate provision for efficient operation and maintenance of the wastewater and water systems. Budget estimates are reasonable in view of the operational requirements of the systems and the implementation of the CIP, including mandated projects.
- We believe that the Authority's CIP reasonably identifies and prioritizes the specific needs for replacing and rehabilitating the Authority's systems and shows thoughtful planning and development. The CIP continues to be aggressive to meet compliance schedules, but the Authority's financing plan reflects the objective of balancing capital expenditures with the Authority's goal of minimizing rate increases.

We wish to extend our gratitude to the Authority for the cooperation and fine support provided by the Authority's staff. We stand ready to respond to any questions regarding the content of our work.

Very truly yours,

CAMP DRESSER & McKEE INC.



Joseph T. Ridge  
Vice President

# Financial Requirements

## 1.1 Introduction

The purposes of this section are to describe:

- Projected Authority expenses for FY 2005 through FY 2010.
- Projected non-rate revenues for the same period.
- Projected rate increases.
- Impacts of such rate increases on customers.
- Projected compliance with various Resolution covenants.

Our financial evaluation is based on a review of the Authority's audited financial statements and various budget documents, current and historical. Our analysis is based on the following documents and data sources: the Authority's actual operating results through FY 2004, the FY 2005 Current Expense Budget (the "CEB,") the FY 2005 Capital Improvement Program (the "CIP"), the Proposed FY 2006 capital improvement program (the "FY 2006 CIP"), variance reports for operating and capital budgets, and the Authority's projections of grant receipts, escrows, and participation in the Massachusetts Water Pollution Abatement Trust State Revolving Fund (the "SRF").

We have projected the Authority's revenue requirements taking into account present expenditures, anticipated schedules for capital improvements, FY 2004 year-end balances in various funds and accounts, FY 2004 operating results, the Authority's CIP and CEB, and the covenants of the General Bond Resolution, as amended and supplemented (the "General Bond Resolution" or the "Resolution"). Our projections reflect Authority assumptions regarding the schedule, timing and cost of certain key capital projects, including but not limited to the Integrated Water Supply Improvement Project.

## 1.2 Key Assumptions

This section describes the key assumptions we have used in developing our analysis. We have developed projections of future Authority expenses and revenues taking into account the data and information described above, assumptions regarding economic conditions, Authority policies and spending practices, and the Authority's most recent financings. These projections also take into account Authority-developed projections on the use of debt escrows and tax-exempt commercial paper ("TECP"). The projections contained herein are consistent with those developed by the Authority for its FY 2005 budget. The projections are developed such that the Authority's projected revenues and expenses meet the various requirements of the Resolution.

As described in subsequent subsections, the Resolution requires the Authority to comply with three alternative rate covenants. Our projection determines the level of revenue necessary to comply with the most restrictive of these covenants. The key assumptions and inputs used for these projections are:

- All future variable rate debt is assumed to carry a 4 percent interest rate. Future senior debt is assumed to be 40-year debt at an interest rate of approximately 6 percent in FY2005 and in subsequent fiscal years. Sewer and Water SRF debt issued during FY 2005 and beyond will carry an effective interest rate of 2 percent. Sewer SRF debt will be issued with a 30-year term and Water SRF with a 20-year term.
- Capital costs are projected to inflate at an average annual rate of 2.5 percent for projects not yet under contract. Operating and maintenance costs for existing facilities are projected to inflate at an average annual rate of 2.5 percent. Projects scheduled to come on line from FY 2005 to FY 2010 are projected to have a modest impact on the Authority's total operating expenses.
- Capital spending is based on the CIP and it is assumed that the Authority's expenditure rate will average 85 percent of the budgeted cash expenditure rate. The Authority is assumed to receive grant moneys at 85 percent of the CIP budgeted rate as well. However, two-thirds of the deferred expenditures are expected to be spent three years later. Thus, the amount deferred in FY 2005 is added to FY 2008 anticipated CIP expenditures.
- The 2005 Bonds are used to refund the following: \$51.9 million 1993 C, \$28.1 million 1995B, \$15.6 million 1996A, \$19.05 million 1998A, \$170.45 2000A, \$24.1 million 2002 B, \$4.8 million 2003D, and \$5.4 million 2004A.
- The projections assume that the Authority will not receive any State Debt Service Assistance in FY2005 through FY 2010. However, it is possible that the Commonwealth of Massachusetts will fund debt service assistance in the future. In this event, the Authority's revenue requirement will fall by the amount of debt service assistance received.

The projections reported herein are based on the preceding assumptions.

## **1.3 Rate Revenue Requirements**

In developing projected rate revenue requirements as shown in Tables 1 through 3, we have followed the Authority's CEB format with expenditures classified as direct, indirect and capital. Non-rate revenue is then applied against total expenses to determine the Authority's rate revenue requirement for a particular fiscal year.

### **1.3.1 Direct Expenses**

Projected direct expenses are summarized in Table 1 and discussed in the following sections. Direct expenditures are projected to increase from approximately \$176.1 million in FY 2005 to approximately \$203.6 million in FY 2010, an average annual increase of 2.9 percent. These projections reflect the costs of operating and maintaining the Authority's existing system, as well as the incremental costs associated with new facilities that the Authority anticipates becoming operational during this time.

**Table 1**  
**Budgeted and Projected Direct Expenses, FY 2005-FY 2010**  
(\$ in 000s)

	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>
Sewer Fund Direct Expenses (1)	\$126,661	\$128,388	\$130,720	\$134,496	\$137,228	\$140,727
Waterworks Fund Direct Expense (2)	<u>\$49,390</u>	<u>\$56,541</u>	<u>\$58,987</u>	<u>\$59,558</u>	<u>\$61,181</u>	<u>\$62,838</u>
<b>Total Direct Expenses</b>	<b>\$176,051</b>	<b>\$184,929</b>	<b>\$189,707</b>	<b>\$194,054</b>	<b>\$198,409</b>	<b>\$203,566</b>

(1) Includes Sewerage Division, excluding Clinton Treatment Plant, and allocated Laboratory Services and Administrative.

(2) Includes Waterworks Division, Clinton Treatment Plant, and allocated Laboratory Services and Administrative.

Note: Details may not add exactly due to rounding.

Sewer fund direct expenses, as presented in Table 1, exclude the Clinton Wastewater Treatment plant expenses, but include allocated Administrative expenses. Sewer fund direct expenses are projected to increase at an average annual rate of 2.1 percent from FY 2005 to FY 2010, reflecting the impact of new facilities coming on line and assumed inflation increases for operating existing facilities. The Clinton Wastewater Treatment Plant is treated as a Waterworks fund expense because the facility was constructed to mitigate the impact of certain waterworks facilities. Administrative and support expenses are allocated between the Waterworks fund and the Sewer fund, based on the total direct annual costs in each fund. In FY 2005, 65 percent of allocable direct administrative expenses were combined with Sewer fund direct expenses in Table 5-1. This allocation is expected to decline to approximately 61 percent in FY 2010 as water-related expenses increase more rapidly than sewer expenses.

The Waterworks fund direct expenses are projected to increase at an average annual rate of 4.9 percent between FY 2005 and FY 2010. The Waterworks fund expenses include Clinton Wastewater Treatment costs and a significant increase in water operating costs resulting from new facilities coming on line. The projected Waterworks fund direct expenses also reflect the impact of completing several pump station and distribution system projects, as well as most of the major SDWA compliance projects, including the Walnut Hill Water Treatment Plant that is expected to be operational in FY 2005.

Table 2 presents a detailed breakdown of the Authority's projected combined direct expenses. These expenses are presented by CEB line item for the period FY 2005 through FY 2010. Labor costs are the Authority's largest line item expense representing over 55 percent of operating expenses and are projected to increase from \$97.5 million in FY 2005 to \$110 million in FY 2010. This is an average annual increase of 2.4 percent over that period.

**Table 2**  
**Budgeted and Projected Direct Expenses, FY 2005-FY 2010**  
(\$ in 000s)

Category	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Labor	\$97,472	\$100,325	\$102,643	\$104,908	\$107,310	\$109,992
Chemicals	\$6,913	\$8,236	\$8,444	\$8,524	\$8,584	\$8,779
Utilities	\$19,151	\$21,877	\$22,714	\$23,353	\$23,892	\$24,440
Maintenance & Materials	\$23,917	\$25,013	\$25,688	\$26,293	\$26,880	\$27,538
Services	<u>\$28,597</u>	<u>\$29,478</u>	<u>\$30,218</u>	<u>\$30,977</u>	<u>\$31,743</u>	<u>\$32,816</u>
<b>Total Direct Expenses</b>	<b>\$176,051</b>	<b>\$184,929</b>	<b>\$189,707</b>	<b>\$194,054</b>	<b>\$198,409</b>	<b>\$203,566</b>

Note: Details may not add exactly due to rounding.

Chemical costs account for less than 5 percent of direct expenses and are estimated to increase at an average annual rate of 3.9 percent between FY 2005 and FY 2010. This reflects the operation of the new water and sewer facilities expected to be in service between FY 2005 and FY2008.

Utilities, which represent close to 11 percent of direct expenses, are expected to increase at an average annual rate of 5 percent between FY 2005 and FY 2010. This increase is caused by the new Walnut Hill WTP, which comes on line during this period. The Authority's utility cost increase is expected to be off set by the decreased costs in operations of the new Braintree-Weymouth facilities beginning in FY 2004.

Maintenance and materials, which represent just less than 14 percent of direct expenses, are projected to increase an average annual rate of 2.9 percent from FY 2005 to FY 2010. The majority of this increase is expected when the new Walnut Hill WTP goes on line.

### 1.3.2 Indirect Expenses

Indirect expenses for FY 2005 through FY 2010 are summarized in Table 3. Indirect expenses include a number of cost items that reflect financial commitments by the Authority, but which are not directly controlled by an operating division of the Authority. As an example, the Authority has agreed to compensate certain Local Bodies because of the adverse impacts caused by the construction of new facilities. These mitigation payments are financial obligations of the Authority and are allocated specifically to either the water or sewer utility.

**Table 3**  
**Budgeted and Projected Indirect Expenses, FY 2005-FY 2010**  
(\$ in 000s)

Category	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Insurance	\$2,300	\$2,358	\$2,416	\$2,477	\$2,539	\$2,602
Watershed/PILOT	\$21,812	\$24,297	\$30,919	\$26,155	\$27,236	\$28,329
Cable Substation Lease	\$4,818	\$4,317	\$4,121	\$3,926	\$3,733	\$3,541
Mitigation	\$1,237	\$1,237	\$1,237	\$1,237	\$1,237	\$1,237
Reserves Additions	\$1,000	\$1,000	\$1,000	\$101	\$720	\$855
Pension Fund Deposits	<u>\$3,408</u>	<u>\$3,578</u>	<u>\$3,757</u>	<u>\$3,851</u>	<u>\$3,947</u>	<u>\$4,046</u>
<b>Total Indirect Expenses</b>	\$34,575	\$36,786	\$43,450	\$37,747	\$39,412	\$40,609

Note: Details may not add exactly due to rounding.

The major Indirect Expenses are:

**Insurance:** The Authority purchases property and casualty insurance from external insurance carriers, and self-insures for significant levels of property and general liabilities.

**Watershed/PILOT:** The Enabling Act requires the Authority to pay the Commonwealth for two obligations. The first obligation is to reimburse the Commonwealth for the operating costs and debt service associated with land acquisitions of the Department of Conservation and Recreation’s Division of Water Supply Protection. The second obligation is to make payments in lieu of taxes (PILOT) to each city or town with lands located in the Authority’s watersheds.

**Cable and Substation Lease:** A subsidiary of the Boston Edison Company (“BECo”) installed a cross-harbor power cable and built a power substation to supply electric power for the construction and operation of the DITP. The Authority has agreed to repay BECo’s capital investment on a 25-year schedule.

**Mitigation:** The Authority is currently a party to an agreement that requires the Authority to make payments to Winthrop to ameliorate the adverse physical, social, and economic impacts of the Authority’s construction programs. The Winthrop agreement is in effect through FY 2005, and it is estimated that annual payments will amount to approximately \$800,000 until FY 2005. The Authority had a mitigation agreement with Quincy, which has expired and a successor agreement has not yet been finalized. However, the Authority continues to be obligated to pay Quincy for fire protection services.

**Additions to Reserves:** The Authority is required by the terms of the Resolution to maintain reserve funds for operations, insurance, and renewal and replacement.

These reserves are incrementally funded each year, as necessary, to bring them to stipulated levels. These are discussed in more detail in the following section.

**Pension Fund Contribution:** The Authority is budgeted to deposit approximately \$3.4 million in FY 2005 into the Retirement Fund. Our projections are based on a January 2003 actuarial study prepared for the Authority's retirement system. The Authority Retirement System had a qualified consultant evaluate the solvency of the pension fund in FY 2003; however, CDM has not made an independent assessment of the pension fund.

### **1.3.3 Reserve Funds**

The Authority is required by the General Bond Resolution to meet funding requirements for certain funds. The Authority is required to maintain an Operating Reserve Fund to be used in the event of unexpected or extraordinary fluctuations in monthly operation and maintenance expenses. The Authority is required to have on deposit in the Operating Reserve Fund at the end of each fiscal year an amount equal to one-sixth of that fiscal year's operating expenses. (Operating expenses are the total of direct and indirect expenses found in the previous two tables, less the amounts expended for Watershed/PILOT and Reserve additions).

At the end of FY 2004, the Operating Reserve had a balance of \$34.2 million. No deposits to the Operating Reserve are scheduled until the end of FY2007. In FY 2008 through FY 2010, we project mandatory contributions to the reserve of \$101,000, \$720,000, and \$855,000, respectively. The Authority has in the past and may in the future pre-fund required Reserve Fund deposits.

The Resolution requires the Authority to fund an Insurance Reserve Fund to a level confirmed by a qualified insurance consultant. At the end of FY 2002, the Insurance Reserve Fund balance was approximately \$18 million. In October 2003, the Authority's insurance consultant reviewed the adequacy of the Insurance Reserve Fund and recommended that the Authority increase the balance to \$21 million by adding \$1 million annually for the next three years. The annual deposit is being incorporated into this report. The Insurance Reserve Fund Requirement has not been independently reviewed or evaluated by CDM.

The Resolution also requires the Authority to fund a Renewal and Replacement Reserve Fund, based on the recommendations of the Consulting Engineer. The Renewal and Replacement Reserve Fund is established to pay the costs of emergency repairs or capital improvements to the water and wastewater systems when funds are not available in either the Construction Fund or the Operating Fund. Projects financed from the Renewal and Replacement Reserve Fund must be necessary to ensure the continual operation of the system, and not previously identified to be financed from the Operating Fund. The Renewal and Replacement Reserve Fund requirement is presently established at \$35 million, as set forth in a report in 1999 by CDM, the Authority's Consulting Engineer, and confirmed in 2003. Since FY 1997, the Authority has met the Renewal and Replacement

Reserve Fund balance funding requirement. No additional deposits are projected to be required over the forecast period.

### **1.3.4 Capital Spending**

The projected capital spending for FY 2005 through FY 2010 is presented in Table 4, based on the FY 2005 CIP. The capital expenditures presented in this table are presented on a cash basis, and represent the anticipated actual expenditures for various projects. The projected capital expenditures are based on contracts that are currently underway, as well as projected future projects reflected in the CIP. Inflated estimates are based on a 2.5 percent average annual inflation rate for all projects that will not be under contract until after the end of FY 2004. In our opinion, the assumed inflation rate is reasonable given recent and anticipated inflation trends. This inflation rate should provide an adequate allowance for currently unforeseen factors that could increase inflation pressures on construction costs.

It should be noted that the Proposed FY 2006 CIP anticipates a reduction in capital spending during the forecast period from that of the FY 2005 CIP. From FY 2004 through FY 2008, the Proposed FY 2006 CIP anticipates a 7 percent increase in CIP spending to approximately \$1.13 billion. This is largely the result of the accelerated schedule for the North Dorchester Reserve Channel CSO project. However, From FY 2009 to FY 2013, the Proposed FY 2006 CIP anticipates a 44 percent reduction to approximately \$508 million. The largest source of reduction is in the Wastewater Interception and Pumping project category. This reduction reflects a proposed shift forward of CSO spending and a reduction in infrastructure improvements to the System largely in FY 2009-FY 2013. However as part of its discussions with the Board of Directors to establish a five year cap for the FY 2009-FY 2013 cap period (expected to begin with the FY 2007 capital budget discussions and that must be set by the end of FY 2008) the Authority expects to review its project prioritization process in conjunction with its capital budgeting and master planning process. The Authority anticipates that this master planning process will provide a framework for the CIP and project prioritization process, and that it is likely that many of the projects previously identified but cut in the proposed FY 2006 CIP may be incorporated into the master plan and could reflect the need for significant expenditures to meet rehabilitation needs of the Systems over time.

Contingency amounts shown in Table 4 are based on projected cash expenditures. The contingency in a particular year is estimated to be 10 percent of projected spending, except for the North Dorchester Bay CSO Conduit and the Braintree Weymouth Tunnel where a 15 percent contingency rate is applied.

Water and Sewer System capital spending is projected to decline as the Authority completes major elements of the Water Program, including the Walnut Hill WTP, the MWWST project, and the various improvements in the water storage system. Projected capital spending is in line with the Authority's self-imposed five-year capital spending cap, which for FY 2004 to FY 2008 is approximately \$1.1 billion. (The Authority will be establishing a cap for FY 2009 to FY 2013 capital spending.) This CIP also includes



approximately \$88 million in current revenue for wastewater capital requirements from FY 2005 to FY 2013, including \$65 million for with equipment replacement at Deer Island.

The projected Waterworks CIP spending is based on the proposed revised schedule for projects under the Wachusett Consent Order. The Authority's CIP assumes that the Walnut Hill WTP includes corrosion control, chlorination, fluoridation, and ozonation, but not filtration. The Authority is evaluating additional disinfections stages to enhance water quality and to comply with recent SDWA requirements; however, this is unlikely to impact the Authority's expenditures significantly during this forecast period.

	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>
<b>Sewer System (1)</b>						
Contracted	\$84,342	\$33,696	\$12,761	\$9,931	(\$3,181)	\$628
Uncontracted—2004 \$	\$28,245	\$83,291	\$89,857	\$89,003	\$85,036	\$89,966
Contingency—2004 \$	<u>\$11,660</u>	<u>\$12,608</u>	<u>\$11,736</u>	<u>\$11,940</u>	<u>\$10,332</u>	<u>\$11,305</u>
<b>Subtotal—2004 \$</b>	<b>\$124,246</b>	<b>\$129,595</b>	<b>\$114,354</b>	<b>\$110,874</b>	<b>\$92,186</b>	<b>\$101,899</b>
<b>Waterworks System (1)</b>						
Contracted	\$54,832	\$27,088	\$13,711	\$4,170	\$2,345	\$810
Uncontracted—2004 \$	\$18,954	\$38,386	\$59,256	\$64,702	\$73,516	\$77,875
Contingency—2004 \$	<u>\$5,082</u>	<u>\$2,044</u>	<u>\$1,541</u>	<u>\$939</u>	<u>\$1,175</u>	<u>\$1,355</u>
Subtotal—2004 \$	\$78,869	\$67,518	\$74,508	\$69,812	\$77,036	\$80,040
<b>Total CIP—Uninflated</b>	<b>\$203,115</b>	<b>\$197,114</b>	<b>\$188,863</b>	<b>\$180,686</b>	<b>\$169,222</b>	<b>\$181,939</b>
<b>Total CIP—Inflated</b>	<b>\$204,366</b>	<b>\$203,700</b>	<b>\$201,084</b>	<b>\$197,740</b>	<b>\$191,449</b>	<b>\$210,565</b>
(1) Included allocated Administrative CIP projects. Note: Details may not add exactly due to rounding.						

Table 5 presents the projected flow of funds within the Construction Fund from FY 2005 through FY 2010. Most construction funding is projected to be financed with long-term debt or state revolving fund loans. This table is based on an assumption that SRF funding remains stable, but that grant funding will end.

**Table 5**  
**Construction Fund Projected Cash Flow, FY 2005-FY 2010**  
(\$ in 000's)

	FY 2005	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
1 Construction Needs <sup>(1)</sup>						
Financed by:	\$173,711	\$173,145	\$170,921	\$188,516	\$183,102	\$199,089
2 Balance: Begin. of Year	\$140,558	\$95,260	\$12,892	\$14,652	\$14,110	\$15,709
3 Tax Exempt Com. Paper	\$0	\$0	\$0	\$0	\$0	\$0
4 Long Term Debt <sup>(2)</sup>	\$86,413	\$48,777	\$130,681	\$145,974	\$142,701	\$156,393
5 State Revolving Fund	\$42,000	\$42,000	\$42,000	\$42,000	\$42,000	\$42,000
6 Grants	\$0	\$0	\$0	\$0	\$0	\$0
7 Bond Anticipation Notes	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>	<u>\$0</u>
8 <b>Balance: End of Year</b>	<b>\$95,260</b>	<b>\$12,892</b>	<b>\$14,652</b>	<b>\$14,110</b>	<b>\$15,709</b>	<b>\$15,013</b>

(1) Construction needs is approximately 85 percent of Total CIP--Inflated line shown on bottom of Table 5, plus 2/3's of the amount deferred three years earlier.

(2) Includes both Senior and Subordinated debt.

Note: Details may not add exactly due to rounding.

The Balance: End of Year (line 8) is equal to the sum of the available sources (lines 2-7), less projected construction needs (line 1). Projected construction needs are equal to 85 percent of the total inflated construction needs presented at the bottom of Table 4 plus two-thirds of the remaining 15 percent deferred from three years before.

The Authority has developed its projections of borrowing amounts in a fiscal year, such that it begins the following fiscal year with a construction fund starting balance which, when combined with SRF loans, grants, and pay-as-you-go capital, is at least 10 percent of the next year's construction requirement. This, coupled with the availability of TECP, provides a sufficient cushion to prevent disruption of the Authority's capital program from unanticipated or unfavorable capital market conditions.

The capital spending program described in the preceding paragraphs affects the Authority's revenue requirement in three ways:

- Debt service must be paid on the bonds issued to fund the program.
- Sufficient revenues must be generated to comply with the Primary and Secured Coverage requirements.
- The Authority must fund the CORE Fund, which is available only for the payment of principal and interest on all Secured Bonds.

Table 6 presents existing and projected debt service resulting from the projected capital spending program and assumes that the Authority is not constrained by its Debt Limitation. Annual debt service in a year is based on the monthly debt service deposits that are required in accordance with the Resolution.

**Table 6**  
**Current and Projected Debt Service, FY 2005-FY 2010**  
(\$ in 000's)

<b>Senior Debt</b>	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>
<i>Principal to be Issued in FY <sup>(1)</sup></i>	\$0	\$66,078	\$155,733	\$172,474	\$168,891	\$183,879
Existing Senior Debt Service <sup>(2)</sup>	\$163,669	\$188,813	\$193,484	\$196,925	\$193,700	\$196,175
Future Senior Debt Service	\$0	\$2,196	\$9,567	\$20,473	\$31,817	\$43,540
<b>Total Senior Debt Service</b>	<b>\$163,669</b>	<b>\$191,009</b>	<b>\$203,051</b>	<b>\$217,398</b>	<b>\$225,517</b>	<b>\$239,715</b>
Bond Redemption Account	\$0	(\$11,280)	(\$9,057)	(\$13,893)	\$0	\$0
<b>Net Senior Debt Service</b>	<b>\$163,669</b>	<b>\$179,729</b>	<b>\$193,994</b>	<b>\$203,505</b>	<b>\$225,517</b>	<b>\$239,715</b>
<b>Subordinated/SRF Debt</b>						
<i>Principal to be Issued in FY <sup>(1)</sup></i>	\$142,000	\$42,000	\$42,000	\$42,000	\$42,000	\$42,000
Existing Sub./SRF Debt Service <sup>(3)</sup>	\$108,038	\$115,484	\$118,195	\$129,040	\$131,553	\$160,671
Future Subordinated/SRF Debt Service	<u>\$1,847</u>	<u>\$8,618</u>	<u>\$10,757</u>	<u>\$12,897</u>	<u>\$15,036</u>	<u>\$17,176</u>
<b>Net Subordinated Debt Service</b>	<b>\$109,886</b>	<b>\$124,102</b>	<b>\$128,952</b>	<b>\$141,937</b>	<b>\$146,590</b>	<b>\$177,847</b>
<b>Total Debt Service</b>	<b>\$273,555</b>	<b>\$303,831</b>	<b>\$322,946</b>	<b>\$345,442</b>	<b>\$372,106</b>	<b>\$417,561</b>

<sup>(1)</sup> Total Principal amount represents the amount of bonds required to provide the Construction Fund Deposit shown on line 1 of Table 6, plus the take out of Commercial Paper issued in prior fiscal year(s). This amount is increased to reflect Debt Service Reserve Fund Requirements and cost of issuance.

<sup>(2)</sup> Existing senior debt service has been reduced to reflect the impact of the 2005 A refunding bonds.

<sup>(3)</sup> Existing subordinated debt service in FY2005 has been reduced by \$8.853 million to reflect early payment of subordinated debt.

Note: Details may not add exactly due to rounding.

Total Senior Debt Service is projected to increase from approximately \$163.7 million in FY 2005, to approximately \$239.7 million in FY 2010. In Table 6, Senior Debt Service is reduced by the current and anticipated funds in the Bond Redemption Account. The Bond Redemption Account is a valuable rate-smoothing tool available to the Authority, which estimates that it will have nearly \$34.2 million in the Bond Redemption Account at the beginning of the forecast period.

Subordinated debt service, including both SRF and other subordinated MWRA debt, is projected to increase from \$109.9 million in FY 2005 to \$177.8 million in FY 2010. Projected SRF debt service assumes a subsidized interest rate of 2 percent. The Authority is also assuming a variable rate issue in FY 2005 in the amount of \$100 million.

### 1.3.5 Non-Rate Revenues

The Authority receives revenues from a variety of sources that offset the amount that must be collected from the Local Bodies. Total non-rate revenues are budgeted at \$39.6 million in FY 2005 and are expected to increase to a total of \$41.9 million by FY 2010 with a peak of \$56.4 million in FY 2006. Table 7 summarizes these sources from FY 2005 through FY 2010.

<b>Table 7</b>						
<b>Projected Non-Rate Revenue, FY 2005-FY 2010</b>						
(\$ in 000's)						
	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>
Rate Stabilization Fund Withdrawal	\$0	\$15,684	\$16,799	\$5,044	\$3,919	\$0
Miscellaneous	\$10,880	\$11,570	\$11,900	\$12,016	\$12,354	\$12,830
Investment Income	<u>\$28,727</u>	<u>\$29,101</u>	<u>\$27,451</u>	<u>\$27,874</u>	<u>\$28,081</u>	<u>\$29,061</u>
<b>TOTAL</b>	<b>\$39,607</b>	<b>\$56,355</b>	<b>\$56,150</b>	<b>\$44,935</b>	<b>\$44,353</b>	<b>\$41,891</b>
Note: Details may not add exactly due to rounding.						

Major non-rate revenue sources are briefly described in the following:

**Rate Stabilization Fund Withdrawal:** When annual revenues exceed expenses, the Authority may deposit the money in the Rate Stabilization Fund. In future years, money may be withdrawn from the fund to reduce rate revenue requirements. Our projections cap Rate Stabilization Fund withdrawals at an amount no greater than 10 percent of the Required Debt Service Fund Deposits, net of Debt Service Assistance credited to Senior Debt for such year, consistent with the Resolution, and use such amounts as available to moderate projected rate increases consistent with Authority practice. The Rate Stabilization Fund balance at the end of FY 2004 was approximately \$41.4 million.

**Investment Income:** The Authority earns interest by investing fund balances in a variety of interest-bearing securities. These amounts are transferred to the Revenue Fund and are available to meet the ongoing obligations of the Authority. Total investment income is projected to decrease from approximately \$28.7 million in FY 2005, to approximately \$29.1 million in FY 2010. The fluctuations in investment income between FY 2005 and FY 2010 partially reflect changes in construction fund, Rate Stabilization Fund, and Debt Service Reserve Fund balances. For example, the fund balance in the Debt Service Reserve Fund will increase as the Authority continues to issue long-term debt to finance the new construction.

**Miscellaneous:** The Authority also receives certain amounts from Local Bodies, primarily in central Massachusetts, that are provided water under various contracts, as well as payments from the Town of Clinton for partial operation of the Clinton Wastewater Plant. Between FY 2005 and FY 2010, the Authority is projected to receive approximately \$22.1 million from the communities served by the Chicopee Valley Aqueduct (the "CVA") under the contractual service agreements. The Authority also receives a variety of fees, penalties and charges in their normal course of business.

## 1.4. Rate Revenue Requirement and Retail Customer Impacts

### 1.4.1 Rate Revenue Requirement

Table 8 summarizes our rate projections for FY 2005 through FY 2010. In FY 2006, the Authority's rate revenue requirement is projected to increase by approximately 6.7 percent over FY 2005 levels to a total of approximately \$483.4 million. The rate revenue requirement equals the total amount of expenses in a fiscal year (including required reserve deposits and any amounts required to meet coverage requirements) less non-rate revenues. Of this amount, approximately \$324.9 million will be required to meet the expenses of the Sewer System, including allocated administrative and indirect expenses, and approximately \$158.4 million for the Waterworks System.

Rate revenues are projected to increase to \$641 million in FY 2010, an average annual increase of 7.2 percent from FY 2005 levels. For the Sewer System, the rate revenue requirement is projected to increase from \$318.7 million to approximately \$430.2 million, an average annual increase of approximately 6.2 percent. The Waterworks System revenue requirement is projected to increase from \$134.3 million in FY 2005 to approximately \$210.7 million in FY 2010, an average annual increase of 9.4 percent.

	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>
Wastewater Rate Revenue	\$318,675	\$324,916	\$343,539	\$370,730	\$394,371	\$430,242
Water Rate Revenue	<u>\$134,325</u>	<u>\$158,435</u>	<u>\$172,195</u>	<u>\$179,558</u>	<u>\$191,369</u>	<u>\$210,761</u>
<b>Total Rate Revenue</b>	\$453,000	\$483,351	\$515,734	\$550,288	\$585,741	\$641,003
Annual Rate Increase	3.9%	6.7%	6.7%	6.7%	6.4%	9.4%

Note: Details may not add exactly due to rounding.

The relatively more rapid percentage increase in the Waterworks System rate revenue requirement reflects the initiation of various projects to comply with the SDWA as well as the debt service associated with the construction of the MWWST. Conversely, the Sewer System rate revenue requirement increases are relatively lower, reflecting the Authority's completion of the DITP.

These projected rate revenue increases are the product of a large number of assumptions, including the rate of growth in Authority operating expenses and economic and financial assumptions. They also assume that the Authority uses the Rate Stabilization Fund consistent with the Resolution and the Bond Redemption Account to smooth future projected rate increases.

## **1.4.2 Rate Allocation Methodology**

The Authority's charges for the services of the Waterworks and Sewer Systems, identified as Total Rate Revenue in the preceding table, are billed to Local Bodies on a wholesale basis. This means that the Authority bills Local Bodies, including special districts, rather than the individual residences or businesses served by the Systems. Separate charges applicable to the respective Systems are established each year as required by the Act; these charges are established at levels at least sufficient, together with other available revenue, to pay the full annual revenue requirement, as described in subsequent sections.

### **1.4.2.1 Water Rate Methodology**

Using an average cost methodology, the Authority's net annual Waterworks System costs for the current fiscal year, including operation and maintenance, debt service, and reserve fund requirements are recovered from Local Bodies in proportion to their prior calendar year annual water consumption. For FY 2004, the unit cost of water equals \$1,638 per million gallons; in FY 2005, the cost is projected to total \$1,811 per million gallons excluding the impact of debt service assistance and based on the Authority's most current projections nearly \$2,137 in FY 2006.

### **1.4.2.2 Contractual Agreements for Water Service**

The Authority currently provides water service to 19 municipalities under contracts that were agreed to pursuant to special legislative acts or were inherited by the Authority from the MDC. The Authority's agreements with three of these Local Bodies (Chicopee, South Hadley, and Wilbraham) uses a rate methodology for the CVA Rate that reflects the full cost of providing water service to them. Clinton receives its first 800 mg of water per year from the Authority free of charge. Budgeted revenue in FY 2005 from these four communities, plus five additional Local Bodies that are served at the prevailing rate, totals \$3.5 million. The Authority has had discussions with several communities regarding potential water sales to meet various needs. However, any additional permanent sales to other communities are unlikely to increase total sales by more than 10 percent.

### **1.4.2.3 Wastewater Rate Methodology**

The Authority's sewer rate methodology encompasses the following elements:

**Operation and Maintenance Expense:** Each Local Body's annual allocation in FY 2005 is based upon the average total annual metered flow for the prior three years from each community taking into account three separate prices for each portion of wastewater: total annual flow, pounds of suspended solids, and pounds of biochemical oxygen demand.

**Capital Costs:** A flow-based method, adjusted for strength, is used to recover one quarter of the capital costs, and a population-based method is used to recover the remaining three quarters. For each Local Body in FY 2005, flow calculations are based on the average of the month in the prior three calendar years in which the highest average daily flows occurred for that community. The remaining share of capital costs is allocated based on population: 50 percent of the balance (37.5 percent of the total) assigned on the basis of the community's total or census

population and 50 percent of the balance (37.5 percent of the total) on the basis of the presently served population.

#### **1.4.2.4 Enforceability of Charges**

The Authority's charges to Local Bodies are a general obligation of the Local Bodies. Local Bodies fund payment of the Authority's wholesale rates and charges from a number of revenue sources, including local retail water and wastewater charges, real and personal property taxes, Commonwealth local aid distributions, or a combination of the preceding. In the event any charge to a Local Body is not paid when due, the Act authorizes the Authority to recover the amount due, together with interest and other actual damages, by action in the state Superior Court. Without suit, the Authority may also certify to the State Treasurer the amount of any unpaid charge from a Local Body (except Boston Water and Sewer Commission, the Lancaster Sewer District, the Lynn Water and Sewer Commission, the Lynnfield Water District, and the South Hadley Fire District No. 1, which collectively will account for approximately 32 percent of total rate revenues in FY 2005), whereupon the State Treasurer is required by the Act to deduct the amount due from any distribution of local aid then payable to such Local Body by the Commonwealth, if any, and instead to pay such amount to the Authority. The Authority has collected 100 percent of its rates and charges in each year of its existence. Nearly all rates and charges are paid within 30 days of the due date; the state aid intercept has been used only six times in total, and not since FY 1993.

The availability of local aid distributions in the future to satisfy unpaid charges imposed by the Authority with respect to those Local Bodies eligible to receive such distributions will be dependent upon, among other things, the aggregate amount actually appropriated to each Local Body by the state legislature in a fiscal year for local aid distribution, and to the extent to which a Local Body's local aid distribution may have already been accessed under other valid intercept mechanisms.

#### **1.4.3 Retail Customer Impacts**

The Local Bodies and their retail customers will continue to be impacted by the projected increases in the Authority's charges for water and wastewater service over the next several years. Local Bodies will be required to increase their contributions through retail user fee increases. Due to the variety of revenue sources used by the Local Bodies and the differences in service levels, it is difficult to accurately assess the impact of the projected increases in the Authority's charges on the average household in the Authority's service area. The Advisory Board annually surveys the Local Bodies, and on the basis of the FY 2004 survey, the Authority has estimated that during FY 2004 the average annual household charges for water and wastewater service across the 21 Local Bodies receiving both services totaled \$835, using an industry standard benchmark that the average household consumes 90,000 gallons per year. We project that in FY 2005 and FY 2006 the average household bill assuming 90,000 gallons average annual consumption will increase to approximately \$886 and \$938, respectively. When making these projections, we have assumed (1) that the Local Body which provides retail services receives water and sewer services from the Authority, (2) that the Local Body passes on to each household 100 percent of any Authority increases in the form of retail user fees, (3) that the Local Body's

charges increase by 5 percent annually through FY 2009, and (4) that the Authority's charges constitute approximately 61 percent of the Local Bodies' charges in FY 2004.

Table 9 summarizes the projected annual household bills through FY 2010 assuming average household consumption of 90,000 gallons per year. Typical annual household bills are projected to increase to approximately \$1,226 in FY 2010. Of this amount, \$771 is the MWRA wholesale charge and \$455 is the projected local charge.

These estimates of household charges are based on the assumptions regarding inflationary increases, long-term debt interest rates, state and federal assistance, estimates of additional operating expenses related to new facilities, and construction costs of new facilities. These estimated charges are, therefore, subject to change.

We believe that assuming average annual consumption of 90,000 gallons per year overstates residential consumption in many of the Local Bodies, and that most residential customers consume significantly less. The Authority has estimated that average annual consumption in the service area is approximately 61,000 gallons per year per household, 68% percent of the industry benchmark. Consequently, the average annual household bills described above are not reflective of the actual cost of water and sewer service being incurred by the Local Bodies' residential customers. At the consumption level of 61,000 gallons, the average retail bill during FY 2005 would be approximately \$601; in FY 2010, \$831.

	<b>FY 2005</b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>
<b>Combined</b>						
Local	\$349	\$369	\$394	\$413	\$439	\$455
MWRA	<u>\$537</u>	<u>\$569</u>	<u>\$610</u>	<u>\$659</u>	<u>\$708</u>	<u>\$771</u>
<b>Total</b>	\$886	\$938	\$1,004	\$1,072	\$1,147	\$1,226
<b>Water</b>						
Local	\$197	\$212	\$231	\$236	\$253	\$259
MWRA	<u>\$144</u>	<u>\$173</u>	<u>\$195</u>	<u>\$199</u>	<u>\$216</u>	<u>\$231</u>
<b>Total</b>	\$341	\$385	\$426	\$435	\$469	\$490
<b>Sewer</b>						
Local	\$151	\$157	\$163	\$176	\$186	\$196
MWRA	<u>\$394</u>	<u>\$396</u>	<u>\$415</u>	<u>\$461</u>	<u>\$492</u>	<u>\$540</u>
<b>Total</b>	\$545	\$553	\$578	\$637	\$678	\$736
Note: Details may not add exactly due to rounding.						
<sup>1</sup> Assumes annual average consumption of 90,000 gallons per year.						

The retail rates within the MWRA service area are among the highest in the country. The 2004 AWWA Rate survey found an average annual combined water and sewer household



bills of approximately \$524 assuming 90,000 gallons of water use. However, comparing the costs to households of water and sewer services across jurisdictions is difficult given differing methodologies in establishing user fees, capital assessments, general tax support, and the availability of state and federal financial assistance. In addition, it is important to take into account regional variations in water consumption and household income when assessing the impact of such bills on residential customers. The Authority believes that with these factors taken into account its service costs are comparable to many utilities across the country.

For certain segments of the MWRA service area population, especially those with low and/or fixed incomes, we believe that the retail rates may be burdensome. If these increases are not mitigated in some fashion, certain demographic groups within the retail customer base may find the projected increases unaffordable. However, Local Bodies have a variety of means for mitigating these impacts, including lifeline rates, subsidization from other revenue sources, and discounts for senior and low-income households. Several of these measures have already been implemented by certain Local Bodies to mitigate the burden on the most vulnerable retail customers.

Based upon our review, and recognizing the availability and use of retail rate alternatives by the Local Bodies, we are reasonably confident that the Authority's projected rates and charges will be within the ability of the individual Local Bodies and their collective retail customer base to afford.

## **1.5. Compliance with the General Bond Resolution**

Table 11 summarizes our evaluation of the Authority's compliance with certain terms of the Resolution from FY 2005 through FY 2010. The data included in this table regarding non-rate revenues, operating expenses, State Debt Service Assistance and reserve fund deposits are described in subsequent sections. Rate revenue is described in the preceding section. In general, the Authority must generate sufficient rate revenue to meet all operating and capital expenses after accounting for non-rate revenue, such as debt service assistance and investment income. In addition, the Authority's total revenues must be sufficient to comply with the debt service coverage requirements of the Resolution.

Projected annual revenue requirements of the Authority, including operation and maintenance expenses, debt service, and deposits into the various reserve funds are discussed subsequently. The Authority may deposit certain year-end surpluses from operations into the Rate Stabilization Fund (line 17) and use the accumulated balance in this fund to mitigate the impact of future increases in revenue requirement, subject to the terms of the Resolution and management discretion. Year-end surpluses have resulted from favorable variances of capital financing, operating expenses, and non-rate revenues.

In addition to meeting its yearly cash requirements, the annual revenues of the Authority must be adequate to comply with certain covenants of the Resolution, including the covenants prescribed in Section 705 as to annual level of rates and charges and the required annual debt service coverage ratio (the Rate Covenant) as well as the covenants outlined in Section 206 concerning conditions precedent to the issuance of additional

revenue bonds (the Additional Bonds Test). (For a more complete description of these requirements, see Appendix C, Summary of Certain Provisions of the General Bond Resolution.)

In order to comply with the Rate Covenant, annual revenues of the Authority must be adequate to: (1) meet all annual revenue requirements including operation and maintenance expenses, *pro rata* debt service fund deposits, and reserve fund requirements; and (2) provide revenue available for revenue bond debt service payments in each fiscal year equal to the sum of the primary and supplemental coverage ratios. Revenue available from current year operations must provide the Primary Bond Coverage Ratio of 120 percent. Balances on hand in the CORE Fund together with annual deposits, which may be made during the year must provide the additional Supplemental Bond Coverage Ratio of 10 percent. The Authority, under its Supplemental Resolution, is also required to maintain Revenues Available for Bond Debt Service at a level equal to 110 percent of debt service on all senior and secured bonds, including SRF bonds (Secured Bond Rate Covenant). Prior to FY 1997, the Authority treated Debt Service Assistance as non-rate revenue. In FY 1997 the Authority began treating the Debt Service Assistance as a direct credit to debt service.

As shown on lines 19 through 23 of Table 11, the Authority is projected to generate sufficient revenues to comply with the applicable coverage requirements. The projected Primary Bond Coverage Ratio (line 20) meets or exceeds the 120 percent requirement for all forecasted years. The Supplemental Coverage Ratio (CORE) (line 22) exceeds the requirement of 10 percent. The Secured Bond Coverage Ratio (line 23) is projected to equal or surpass the 110 percent level in all years.

The projected deposits into the CORE Fund (line 14) are in accordance with the Authority's intentions to deposit moneys into this fund. Under this funding plan, at the end of each fiscal year the cumulative balance in the Fund exceeds 10 percent of the total annual debt service deposits on revenue bonds outstanding during the year. This funding program is slightly more accelerated than that required by the Resolution.

**Table 11**  
**Projected Compliance with Resolution, FY 2005-FY 2010**  
**(\$ in 000's)**

<b>Revenues</b>	<b>FY 2005<sup>1</sup></b>	<b>FY 2006</b>	<b>FY 2007</b>	<b>FY 2008</b>	<b>FY 2009</b>	<b>FY 2010</b>
1 Non-Rate Revenues						
2 Investment Income	\$28,727	\$29,101	\$27,451	\$27,874	\$28,081	\$29,061
3 Rate Stabilization Fund	\$0	\$15,684	\$16,799	\$5,044	\$3,919	\$0
4 Miscellaneous	\$10,880	\$11,570	\$11,900	\$12,016	\$12,354	\$12,830
5 Rate Revenue Requirement	<u>\$453,000</u>	<u>\$483,351</u>	<u>\$515,734</u>	<u>\$550,288</u>	<u>\$585,741</u>	<u>\$641,003</u>
6 <b>Total Revenue</b>	\$492,607	\$539,706	\$571,884	\$595,223	\$630,094	\$682,895
7 Operating Expenses <sup>2</sup>	<u>\$191,031</u>	<u>\$199,635</u>	<u>\$204,455</u>	<u>\$208,762</u>	<u>\$213,081</u>	<u>\$218,209</u>
8 <b>Net Operating Revenues</b>	\$301,576	\$340,071	\$367,428	\$386,461	\$417,013	\$464,686
9 Debt Service						
10 Senior Debt Service <sup>3</sup>	\$163,669	\$191,009	\$203,051	\$217,398	\$225,517	\$239,715
11 Bond Redemption Account	\$0	(\$11,280)	(\$9,057)	(\$13,893)	\$0	\$0
12 Secured Debt Service	\$109,886	\$124,102	\$128,952	\$141,937	\$146,590	\$177,847
13 <b>Total Debt Service</b>	\$273,555	\$303,831	\$322,946	\$345,442	\$372,106	\$417,561
14 CORE Deposit	\$0	\$0	\$0	\$802	\$2,105	\$1,630
15 Watershed and PILOT	\$21,812	\$24,297	\$30,919	\$26,155	\$27,236	\$28,329
16 Reserve Fund Deposits	\$1,000	\$1,000	\$1,000	\$101	\$720	\$855
17 Rate Stabilization Fund Deposits	\$0	\$0	\$0	\$0	\$0	\$0
18 <b>Balance Available Year End</b>	\$0	\$0	\$0	\$0	\$0	\$0
19 <b>Rate Covenant Test</b>						
20 <b>Primary Coverage</b>	184.3%	189.2%	189.4%	189.5%	184.0%	193.2%
21 Core Fund Balance	\$20,125	\$20,125	\$20,125	\$20,437	\$22,638	\$24,058
22 <b>Core Coverage</b>	12.3%	11.2%	10.4%	10.0%	10.0%	10.0%
23 <b>Secured Coverage</b>	110.2%	111.9%	113.8%	111.6%	111.5%	110.9%

**Note:** Details may not add exactly due to rounding.

<sup>1</sup> Existing subordinated debt service in FY2005 has been reduced by \$8.853 million to reflect early payment of subordinated debt

<sup>2</sup> Operating expenses include Capital Lease Payment of \$3.217 Million in all fiscal years.

<sup>3</sup> Senior debt service has been reduced to reflect the impact of the 2005 A refunding bonds.

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**SUMMARY OF CERTAIN PROVISIONS OF THE GENERAL BOND RESOLUTION**

The following is a brief summary of certain provisions of the General Bond Resolution including certain terms used in the General Bond Resolution and used but not elsewhere defined in this Official Statement. This summary does not purport to be complete and reference is made to the General Bond Resolution (including the various supplements thereto) for full and complete statements of its terms and provisions. In particular and without limitation, this summary does not include a description of the provisions of the Twelfth Supplemental Resolution relating to the Authority's Tax-Exempt Commercial Paper Notes, Series 1994, the Eighteenth Supplemental Resolution relating to the Authority's Multi-Modal Subordinated General Revenue Bonds, 1997 Series A and B, the Twenty-Third Supplemental Resolution relating to the Authority's Multi-Modal Subordinated General Revenue Refunding Bonds, 1998 Series D, the Twenty-Fourth Supplemental Resolution relating to the Authority's Multi-Modal Subordinated General Revenue Bonds, 1999 Series A and B, the Twenty-Fifth Supplemental Resolution relating to the Authority's Subordinated General Revenue Bonds, 1999 Series C and D, the Twenty-Seventh Supplemental Resolution relating to the Authority's Tax-Exempt Commercial Paper Notes, Series 1999, the Thirtieth Supplemental Resolution relating to the Authority's Multi-Modal Subordinated General Revenue Refunding Bonds, 2000 Series B, the Thirty-First Supplemental Resolution relating to the Authority's Multi-Modal Subordinated General Revenue Refunding Bonds, 2000 Series C, the Thirty-Fourth Supplemental Resolution relating to the Authority's Multi-Modal Subordinated General Revenue Bonds, 2001 Series A and 2001 Series B or the Thirty-Ninth Supplemental Resolution relating to the Authority's Multi-Modal Subordinated General Revenue Refunding Bonds, 2002 Series C through G.

"Accountant" shall mean KPMG LLP or any independent certified public accountant (or a firm thereof) of recognized standing, selected by the Authority and satisfactory to the Trustee and may be the accountant regularly auditing the books of the Authority.

"Adjusted Debt Service" for any period of time, with respect to any category or Series of Secured Bonds shall mean, the Debt Service for such period of time with respect to such Series except that, if any Refundable Principal Installment of such Series is included in Debt Service for such period of time, Adjusted Debt Service shall mean Debt Service determined as if such Refundable Principal Installment had been payable over a period extending from the due date of such Refundable Principal Installment through the date identified in the Supplemental Resolution authorizing such Series (which date may be no later than the last date on which such Series 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 level annual payments of the sum of Principal Installments and interest over such period. Interest deemed payable in any period of time after the actual due date of any Refundable Principal Installment of any Series of Secured Bonds shall be calculated at the applicable Refundable Principal Installment Pro Forma Interest Rate (using the actuarial method of calculation).

"Aggregate Adjusted Debt Service" shall mean, for any Fiscal Year, and with respect to Bonds or Subordinated Bonds, the aggregate of the Adjusted Debt Service on all Series of Bonds or Subordinated Bonds for such Fiscal Year.

"Authorized Representative" shall mean, with respect to the Authority, the Chairman, the Vice Chairman, the Executive Director, the Director of the Division of Finance and Development or the Treasurer of the Authority and, when used in reference to an act or document, shall also mean any other person authorized by resolution of the Authority to perform such act or sign such document.

"Average Annual Adjusted Debt Service" shall mean, for a Fiscal or Bond Year with respect to any category of Secured Bonds and for any Series of such Secured Bonds, the sum of Adjusted Debt Service for each year in which such Secured Bonds will be Outstanding divided by the number of years that such Secured Bonds will be Outstanding.

"Bond" or "Bonds" shall mean any bonds, notes or other evidences of indebtedness, as the case may be, authenticated and delivered pursuant to the General Bond Resolution in the manner described under the heading Conditions Precedent to Delivery of a Series of Bonds and shall also mean any Parity Bond Anticipation Notes and

any Parity Reimbursement Obligation incurred with respect to Bonds, but shall not mean Subordinated Bonds, other Bond Anticipation Notes or other Indebtedness.

"Bond Anticipation Notes" shall mean any of the notes issued in anticipation of a Series of Secured Bonds pursuant to the General Bond Resolution and shall include, unless the context otherwise indicates, Parity Bond Anticipation Notes and Subordinated Parity Bond Anticipation Notes.

"Bond Counsel's Opinion" shall mean an opinion by Ropes & Gray LLP, or any attorney or firm of attorneys of nationally recognized standing in the field of law relating to revenue bonds of public instrumentalities, selected by the Authority and satisfactory to the Trustee and may be an attorney or firm regularly providing services to the Authority.

"Business Day" shall mean any day other than a Saturday, a Sunday or any other day on which any Fiduciary is authorized or required by law to be closed for business.

"Capital Budget" shall mean the capital expenditure budget of the Authority as in effect from time to time in accordance with Section 8(b) of the Act and the General Bond Resolution.

"Capital Improvements" shall mean extensions, improvements, enlargements, betterments, alterations, renewals and replacements of the System or other property of the Authority (including land, equipment and other real or personal property), which (i) is used or useful in connection with the System or any part thereof, (ii) is constructed, acquired or made by or on behalf of the Authority subsequent to the date of adoption of the General Bond Resolution, and (iii) is properly chargeable (whether or not so charged by the Authority) according to generally accepted accounting principles, as additions to utility plant accounts.

"Code" shall mean the Internal Revenue Code of 1986, as amended, including any regulations promulgated thereunder or applicable thereto.

"Combined Bond Coverage Requirement" for any twelve-month period shall mean an amount equal to the sum of: (i) the Primary Bond Coverage Requirement; and (ii) the sum of all Required Supplemental Bond Coverage Deposits for such period.

"Commonwealth Obligations" shall mean obligations of the Authority payable to the Commonwealth, including without limitation obligations with respect to principal of, premium, if any, or interest on Commonwealth debt required to be paid by the Authority under applicable law, amounts payable to the Commonwealth pursuant to Section 5(b) of the Act, state taxes, payments in lieu of taxes collected by the Commonwealth on behalf of any municipality, payments on account of administrative costs of the Watershed Division and state governmental charges of all other kinds, but not including Water Pollution Abatement Obligations; and shall also include Special Payment Obligations, which shall be payable equally and ratably with all other Commonwealth Obligations.

"Consulting Engineer" shall mean Camp Dresser & McKee Inc. or any independent engineer or firm of engineers selected by the Authority pursuant to the General Bond Resolution.

"Costs" as applied to any Project, shall mean all or any part of the cost, paid by or on behalf of or reimbursable by or to the Authority, of undertaking and carrying out such Project including, without limitation, any item of "cost" as defined in the Act.

"Credit Facility" shall mean 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, the senior long term debt obligations of which (or the holding company of any bank) are rated in either of the highest two rating categories by each Rating Agency which provides for payment of all or a portion of the Principal Installments or interest due on any Series of Secured Bonds or provides funds for the purchase of such Secured Bonds or portions thereof.

"Current Expenses" shall mean any expenses incurred by or for the account of the Authority or reimbursable by or to the Authority for maintaining, repairing or operating the System and engaging in other activities authorized by the Act including, without limiting the generality of the foregoing, any item of "current expense" as defined in the Act, amounts defined herein as Operating Expenses, Debt Service, Commonwealth Obligations or Water Pollution Abatement Obligations, and other current expenses required or permitted by law to be paid by or reimbursable to the Authority.

"Debt Service" for any period of time shall mean, as of any date of calculation and with respect to any Series of Indebtedness, an amount equal to the sum of (i) interest payable during such period of time on Indebtedness of such Series (including any interest payable on any Parity Bond Anticipation Notes), except to the extent that such interest is to be paid from amounts representing Capitalized Interest and (ii) the Principal Installments of the Indebtedness of such Series payable during such period of time. Such interest and Principal Installments for such Series shall be calculated on the assumption that (x) no Indebtedness 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) as to future period, Variable Rate Indebtedness will bear interest at the greater of (A) the rate or rates which were assumed by the Authority in the current Operating Budget to be borne by such Variable Rate Indebtedness during such period or (B) the weighted average of the actual rate or rates borne by such Variable Rate Indebtedness over the preceding month, or (C) but only for the first Fiscal Year in which such Variable Rate Indebtedness is Outstanding, the interest rate stipulated by the Authority in the Supplemental Resolution authorizing such Indebtedness.

"Defeasance Obligations" shall mean the obligations described in clause (a), (b) or (j) of the definition of Investment Securities; provided that such obligations shall not be redeemable prior to the maturity date or stated redemption date relied upon in satisfying the conditions of the General Bond Resolution with respect to defeasance.

"Designated Debt" shall mean any Series of Subordinated Bonds with respect to which there shall be in effect a Qualified Swap.

"Depository" shall mean any bank or trust company selected by the Authority, as the case may be, as a depository of moneys to be held under the provisions of the General Bond Resolution, any may include the Trustee.

"Event of Default" shall mean any event specified as such in the General Bond Resolution.

"Fiduciary" shall mean the Trustee or any Paying Agent or Depository.

"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 in either of the two highest categories from each Rating Agency; or (ii) an irrevocable and unconditional policy or policies of insurance in full force and effect issued by municipal bond insurers or multiline insurers the obligations insured by which are eligible for a rating in either of the two highest categories from each Rating Agency; in each case providing for the payment of sums for the payment of Principal Installments of and interest on Secured Indebtedness in the manner provided in the General Bond Resolution; and providing further that any such Financial Guaranty must be drawn upon on a date which is at least seven (7) 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 data as provided in a related Supplemental Resolution.

"Fiscal Year" shall mean the twelve-month period commencing July 1 of any calendar year and ending June 30 of the succeeding calendar year or such other twelve-month period as may be provided by the Act or authorized by the Authority pursuant to the Act.

"Governmental Obligations" shall mean direct general obligations of, or obligations the timely payment of principal of and interest on which are unconditionally guaranteed by, the United States of America.

"Grant Agreements" shall mean any and all agreements between the Authority (by original execution or by transfer from the Metropolitan District Commission pursuant to the Act) and the United States of America or the Commonwealth, or any agency, department, bureau, commission or other instrumentality of either thereof, all as the same may be amended or supplemented from time to time, providing for or relating to the provision of Grant Receipts to the Authority.

"Grant Receipts" shall mean any money received by or on behalf of the Authority under or pursuant to a Grant Agreement as or on account of a grant or contribution, heretofore or hereafter made, in aid of or with respect to any Project (including without limitation any such moneys received by the Commonwealth or the Metropolitan District Commission in trust for the Authority pursuant to Sections 4 and 5 of the Act as or on account of a grant or contribution, heretofore made, in aid of or with respect to any improvement to the System).

"Indebtedness" shall mean an indebtedness for borrowed money of the Authority, including without limitation all Bonds, Subordinated Bonds, Bond Anticipation Notes, Reimbursement Obligations, Special Subordinated Indebtedness and the Prior Notes but shall not include Special Payment Obligations.

"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 or by a duly appointed subcommittee of its Board of Directors and in effect at the time of the making of such investment:

- (a) Government Obligations;
- (b) Certificates or receipts representing direct ownership of future interest or principal payments on Government Obligations or any obligations of agencies or instrumentalities of the United States of America which are backed by the full faith and credit of the United States, which obligations are held by a custodian in safekeeping on behalf of the holders of such receipts;
- (c) Bonds, debentures, notes or other evidences of indebtedness issued by any of the following: Federal Home Loan Mortgage Corporation; Student Loan Marketing Association; Federal Home Loan Banks; Federal National Mortgage Association; Government National Mortgage Association; Bank for Cooperatives; Federal Intermediate Credit Banks; Federal Financing Bank; Export-Import Bank of the United States; Federal Land Banks; or any other agency or instrumentality of the United States of America; or the International Reconstruction Development Bank;
- (d) All other obligations issued or unconditionally guaranteed as to the timely payment of principal and interest by an agency of person controlled or supervised by and acting as an instrumentality of the United States of America pursuant to authority granted by Congress;
- (e) Interest-bearing time or demand deposits, certificates of deposit, or other similar banking arrangements with any government securities dealer, bank, trust company, savings and loan association, national banking association or other savings institution (including the Trustee), provided that such deposits, certificates, and other arrangements are fully insured by the Federal Deposit Insurance Corporation or the Federal Savings and Loan Insurance Corporation or (ii) interest-bearing time or demand deposits or certificates of deposit with any bank, trust company, national banking association or other savings institution (including the Trustee), provided such deposits and certificates are in or with a bank, trust company, national banking association or other savings institution whose long-term unsecured debt is rated in one of the three highest long-term rating categories by S&P and Moody's (if such rating agencies are Rating Agencies) and, if rated by any other Rating Agency, rated in the three highest rating categories of such Rating Agency, and provided further that with respect to (i) and (ii) any such obligations are held by the Trustee or a bank, trust company or national banking association (other than the issuer of such obligations, unless the issuer is the Trustee);
- (f) Repurchase agreements collateralized by securities described in subparagraphs (a), (b), (c) or (d) above with any registered broker/dealer or with any commercial bank, 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%;

(g) Money market funds rated in the highest category by S&P and Moody's (if such rating agencies are Rating Agencies) and, if rated by any other Rating Agency, rated in the highest rating category of such Rating Agency;

(h) Commercial paper rated in the highest rating category by S&P and Moody's (if such rating agencies are Rating Agencies) and, if rated by any other Rating Agency, rated in the highest rating category of such Rating Agency;

(i) Shares of investment companies or cash equivalent investments which are authorized to invest only in assets or securities described in subparagraphs (a), (b), (c), (d) and (f) above;

(j) Obligations the interest on which is excluded from gross income for purposes of federal income taxation that have been advance-refunded prior to their maturity and that are fully and irrevocably secured as to principal and interest by Government Obligations, or Government Obligations which have been stripped of their unmature interest coupons and interest coupons stripped from Government Obligations, held in trust for the payment thereof which obligations are rated in the highest rating category by each Rating Agency;

(k) Short-term or long-term obligations the interest on which is excludable from gross income for Federal income tax purposes and that are rated in the three highest rating categories by S&P and Moody's (if such rating agencies are Rating Agencies) and, if rated by any other Rating Agency, rated in the three highest rating categories of such Rating Agency, or shares of investment companies or cash equivalent investments which are authorized to invest primarily in such obligations;

(l) participation units in a combined investment fund created under Section 38A of Chapter 29 of the General Laws of the Commonwealth;

(m) investment contracts with banks or other financial institutions whose long-term unsecured debt or claims-paying ability is rated in one of the three highest rating categories by S&P and Moody's (if such rating agencies are Rating Agencies) and, if rated by any other Rating Agency, rated in the three highest rating categories of such Rating Agency; and

(n) any other investment authorized pursuant to an amendment or supplement hereto pursuant to the General Bond Resolution.

Obligations of any Fiduciary or an affiliate thereof may be Investment Securities, provided that they otherwise qualify.

"Local Body Default" shall mean a default in the payment of any Rates and Charges due to the Authority by a Local Body, as certified by an Authorized Representative of the Authority in accordance with the provisions of the General Bond Resolution.

"Moody's" shall mean Moody's Investors Service Inc.

"Net Revenues" shall mean with respect to a period to time all Revenues accrued in such period in accordance with general accepted accounting principles less the Operating Expenses incurred or payable during such period in accordance with generally accepted accounting principles; provided, however, that the proceeds of revenue anticipation notes shall not constitute Revenues and the principal amount of such notes shall not constitute Operating Expenses for the purpose of calculating Net Revenues.

"Operating Budget" shall mean the Operating Budget duly adopted by the Authority in the same manner as its Current Expense Budget, except as provided in the General Bond Resolution, as amended from time to time, in accordance with the General Bond Resolution, which Operating Budget may constitute a portion of, or an exhibit or appendix to, such Current Expense Budget.

"Operating Expenses" shall mean the Authority's expenses, whether or not annually recurring, of maintaining, repairing and operating the System and engaging in other activities authorized by the Act including, without limiting the generality of the foregoing, amounts for administrative expenses including costs of salaries and benefits and amounts required to finance pension benefits earned by employees of the Authority, as provided in the Act; cost of insurance, payments for engineering, financial, accounting, legal and other services rendered to the Authority, payments under any interest rate exchange, cap, or other hedge agreement which have been designated by the authority as Operating Expenses for purposes of the General Bond Resolution in such agreement; costs incurred or payable by the Authority with respect to the System Real Property (as defined in the Act); costs of issuance not financed in the Costs of a Project paid by the Authority; and payments of interest on revenue anticipation notes and other Current Expenses; but not including depreciation, recognition upon disposal or other retirement of a capital asset, Debt Service payable from any Fund or Account established hereunder, Commonwealth Obligations, Water Pollution Abatement Obligations, Special Payment Obligations, and expenses incurred in connection with a separate facility financing as described under "Additional Indebtedness - Special Subordinated Indebtedness."

"Option Bonds" shall mean Secured Bonds which by their terms may be tendered by and at the option of the owner thereof for purchase or payment by the Authority prior to the stated maturity thereof.

"Outstanding", when used with reference to Bonds or any other Indebtedness, shall mean, as of any date, all Bonds or other evidences of Indebtedness theretofore or thereupon being authenticated and delivered under the General Bond Resolution except:

- (a) any Bonds or other evidences of Indebtedness canceled by the Trustee at or prior to such date;
- (b) any Bond or other evidence of Indebtedness (or portion thereof) for the payment or redemption of which there shall be set aside and held in trust hereunder 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 other evidence of Indebtedness or portion thereof is to be redeemed, for which notice of redemption has been given as provided in the General Bond Resolution, or the applicable Supplemental Resolution, or provision satisfactory to the Trustee has been made for the giving of such notice;
- (c) any Bond or other evidence of Indebtedness in lieu of or in substitution for which other Bonds or other evidences of Indebtedness have been authenticated and delivered; and
- (d) any Bond or other evidence of Indebtedness deemed to have been paid as provided in the General Bond Resolution.

"Parity Bond Anticipation Notes" shall mean Bond Anticipation Notes the interest on which is payable from and secured by a pledge of, and a lien on, the Revenues on a parity with the lien created by the General Bond Resolution to secure the Bonds.

"Parity or Senior Secured Bonds" shall mean any Secured Bonds issued on a parity with or senior to the SRF Bonds.

"Parity Reimbursement Obligation" shall mean a Reimbursement Obligation the payment of which is secured by a pledge of, and a lien on, Revenues on a parity with the lien created in favor of a class of Secured Bonds by the General Bond Resolution.

"Payment Date" shall mean, with respect to any class of Secured Bonds, each date on which interest or a Principal Installment or both shall be due and payable on any of such Outstanding Secured Bonds according to their respective terms.

"Primary Bond Coverage Requirement" shall mean, for any twelve-month period, the product of the Primary Bond Coverage Ratio and the Required Debt Service Fund Deposits for all Outstanding Bonds for such period.

"Principal Installment" shall mean, as of any date of calculation and with respect to any Series of Secured Indebtedness, so long as any obligations of such Series are Outstanding, (i) the principal amount of obligations of such Series due 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 obligations of such Series. For the purposes of the preceding sentence, "Principal Amount" shall include (x) any amount designated in, or determined pursuant to, the applicable Supplemental Resolution, as the "principal amount" with respect to any Bonds or Subordinated 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 to the Authority 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 Obligation. Principal Installment shall, however, not include the principal of Bond Anticipation Notes.

"Pro Forma Bond Issue" shall mean when used with reference to the Debt Service Reserve Fund Requirement or the Subordinated Debt Service Reserve Fund Requirement in connection with a Series of Variable Rate Indebtedness, the hypothetical fixed rate long-term bond issue set forth in the Supplemental Resolution authorizing such Series, having (i) the same maturities (and sinking fund provisions, if any) as the Series of Variable Rate Indebtedness to which it relates and (ii) such interest rate or rates as the Authority shall reasonably deem to be the equivalent of the rates which would have been borne by such Series of Variable Rate Indebtedness if such Series had been issued as a Series of Fixed Rate Indebtedness; provided that such interest rate shall be not less than 80% of the "30-year revenue bond index" the most recently published by The Bond Buyer or, if such index is no longer published such other substantially comparable index as determined by the Authority with the approval of the Trustee.

"Project" shall mean any undertaking or other activity by or on behalf of the Authority to maintain, improve or enlarge the System or to maintain, improve or enlarge any facilities owned or operated by any Local Body the maintenance, improvement or enlargement of which directly or indirectly affects the Waterworks Operations or Sewer Operations of the Authority or to acquire, construct, maintain, improve or enlarge any other facilities or properties to be lawfully owned or operated by the Authority including, without limitation, any "project" as defined in the Act.

"Qualified Swap" shall mean an interest rate exchange, cap or other hedge agreement (a) whose Designated Debt is all or part of a particular Series of Subordinated Bonds and (b) which has been designated to the Trustee by the Authority as a Qualified Swap with respect to such Subordinated Bonds.

"Rates and Charges" shall mean all charges, whether denominated as charges, fees, rates, assessments or otherwise, established by the Authority for the water supply or sewer services provided by the Authority.

"Rating Agencies" shall mean Moody's and S&P and their respective successors and assigns if such rating agencies are maintaining a rating on the Secured Bonds at the request of the Authority, and shall also include any

other rating agency nationally recognized for skill and expertise in rating the credit of obligations such as the Secured Bonds and which is maintaining a rating on the Secured Bonds at the request of the Authority.

"Rebate Fund Requirement" means, as of any date of calculation, an amount equal to the aggregate of the amounts, if any, specified in each Series Resolution authorizing the issuance of a Series of Indebtedness as the amount required to be maintained in the Rebate Fund with respect to such Indebtedness.

"Redemption Price" shall mean, when used with respect to a Secured 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 General Bond Resolution.

"Refundable Principal Installment" shall mean any Principal Installment for any Series of Bonds or Subordinated 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 or Subordinated Bonds and provided further that such Principal Installment shall be a Refundable Principal Installment only until the date of adoption of the Rates and Charges for the Fiscal Year (after which time such Refundable Principal Installment shall be treated as payable in level payments of the sum of the Principal Installments and interest over a five-year period commencing in such Fiscal Year at an interest rate determined by the Authority, set forth on a Certificate based on then prevailing interest rates for obligations such as the Bonds or the Subordinated Bonds, as the case may be) in which such Principal Installment comes due unless the Authority has delivered to the Trustee a Certificate of an Authorized Representative to the effect that it has made provision for the payment of such Principal Installment from a source other than Revenues.

"Refundable Principal Installment Pro Forma Interest Rate" shall mean, when used with reference to a Refundable Principal Installment, such hypothetical fixed interest rate as the Authority shall designate in the Supplemental Resolution authorizing such Refundable Principal Installment, based on then prevailing interest rates for obligations such as the Bonds or the Subordinated Bonds, as the case may be, to be the net interest cost which would have been borne by the Bonds or the Subordinated Bonds, as the case may be, constituting such Refundable Principal Installment if they had been payable on a level debt service basis over a period from the due date of such Refundable Principal Installment through the date identified in the Supplemental Resolution authorizing such Refundable Principal Installment (which date may be no later than the last date on which such Refundable Principal Installment could have been stated to mature under the Act as in effect on the date of issuance of such Refundable Principal Installment).

"Regularly Scheduled Qualified Swap Payments" shall mean the regularly scheduled payments under the terms of Qualified Swap which are due absent any termination, default or dispute in connection with such Qualified Swap.

"Reimbursement Obligation" shall mean the obligation of the Authority described in the General Bond Resolution to reimburse the issuer of a Credit Facility for amounts paid by such issuer thereunder together with interest thereon, whether or not such obligation to so reimburse is evidenced by a promissory note or other similar instrument.

"Required Debt Service Fund Deposits" shall mean, for any period of time, all deposits made to the Principal and Interest Accounts of the Debt Service Fund for such period whether pursuant to the flow of funds provisions, application of investment earnings provisions or any other provision of the General Bond Resolution (but shall not include amounts transferred from the Capitalized Interest Account, amounts paid from state debt service assistance which the Authority elects not to include in Revenues or other funds of the Authority that are not Revenues and are not transferred from other Funds or Accounts established under the General Bond Resolution).

"Required Subordinated Debt Service Fund Deposits" shall mean, for any period of time, all deposits required to be made to the Principal and Interest Accounts of the Subordinated Debt Service Fund for such period, determined in the case of the SRF Bonds in accordance with the debt service schedules set forth in the Sixth Supplemental Resolution Authorizing the Issuance of the 1993 Series A Bonds, the Tenth Supplemental Resolution Authorizing the Issuance of the 1993 Series D Bonds and the Fourteenth Supplemental Resolution Authorizing the Issuance of the 1995 Series B Bonds in each case in the column captioned "Net Loan Repayments", whether

pursuant to the provisions of the General Bond Resolution described in paragraph (a) under the heading Flow of Funds From the Revenue Fund or provisions regarding transfer of investment earnings described in paragraphs (b) and (d) under the heading Investment of Certain Funds or any other provision of the General Bond Resolution (but shall not include amounts transferred from the Capitalized Interest Account); provided that such schedule of Net Loan Repayments shall be adjusted, as provided in the applicable loan agreement between the Authority and the Trust, with respect to (i) a withdrawal from the debt service reserve fund established by the Trust to secure the SRF Bonds which withdrawal results in a reduction in the Equity Earnings which will be available for Loan Subsidy Amounts, (ii) any costs paid from the project account funded with the proceeds of the SRF Bonds which are declared ineligible for Loan Subsidy Amounts which the Authority has elected not to repay to the Trust, and (iii) any prepayment of the SRF Bonds on account of optional prepayment or with any unspent proceeds of the SRF Bonds, but such schedule of Net Loan Repayments shall not be required to be adjusted (x) on account of any default by an obligor on any investment from which Equity Earnings are expected to be derived or (y) a default by the Commonwealth in the payment of Contract Assistance, unless the Authority shall determine to do so; and provided further that no adjustment for the reason described in clause (i) above shall be required, unless the Authority shall determine to do so, in determining Required Subordinated Debt Service Fund Deposits occurring prior to the earlier of (i) eighteen months following the date which follows the occurrence of the event resulting in the increased Net Loan Repayment or (ii) the next establishment by the Authority to its rates and charges which can feasibly incorporate the increased Net Loan Repayment resulting from such event; and provided further that such deposits shall not include amounts paid from state debt service assistance which the Authority elects not to include in Revenues or other funds of the Authority that are not Revenues and are not transferred from other Funds or Accounts established under the General Bond Resolution; provided, however, that for the purpose of this definition, for any Designated Debt for any period, the amount required to be deposited into the Interest Account of the Subordinated Debt Service Fund shall be deemed to be calculated at the higher of the fixed rate provided in the applicable Qualified Swap or the variable rate of interest actually borne by such Designated Debt (calculated, if applicable, as provided in the definition of "Debt Service").

"Required Supplemental Bond Coverage Deposits" shall mean, for any period of time, all deposits to be made to the Community Obligation and Revenue Enhancement Fund pursuant to the flow of funds provisions during such period.

"Revenues" shall mean and include all income, revenue, receipts, and other moneys derived by the Authority from its operation of the Systems and engaging in other activities authorized by the Act and all accounts, general intangibles and contract or other rights to receive the same, whether existing at the date of adoption of a General Bond Resolution or thereafter coming into existence and whether held by the Authority at such date or thereafter acquired, and the proceeds thereof including, without limiting the generality of the foregoing, all "revenue" as defined in the Act and receipts from Rates and Charges and, except to the extent provided in the General Bond Resolution, the proceeds of insurance and condemnation awards received with respect to, and proceeds from the sale or other disposition of any portion of, the System, and shall include, without limiting the foregoing, all interest and investment income or moneys held under the General Bond Resolution which are deposited in the Revenue Fund, the Operating Fund or the Debt Service Fund, but not including the proceeds of any Special Subordinated Indebtedness or any Grant Receipts (except to the extent otherwise provided herein or in any other resolution of the Authority), any revenues, receipts or other moneys of a facility financed with repayments of principal of loans made from the Revolving Loan Fund, or any amounts permitted to be received and held outside of the various Funds and Accounts established by the General Bond Resolution.

"Revenues Available for Bond Debt Service" shall mean, with respect to a twelve-month period, Net Revenues for such period plus (i) amounts transferred from the Rate Stabilization Fund to the Revenue Fund during such period; and (ii) amounts transferred from the Operating Reserve Fund to the Operating Fund in such period; provided, however, for purposes of calculating Revenues Available for Bond Debt Service, the sum of clause (i) and (ii) above shall not exceed the product of (x) the difference between the Primary Bond Coverage Ratio and 1.0, if any, and (y) the Required Debt Service Fund Deposits for all Outstanding Bonds for such period; and provided, further, that for purposes of calculating Revenues Available for Bond Debt Service the amount included pursuant to clause (i) above shall not exceed the product of (x) 0.1 and (y) the Required Debt Service Fund Deposits for all Outstanding Bonds for such period. Revenues deposited to the General Fund which are subsequently transferred to the Rate Stabilization Fund shall not be included in Revenues Available for Bond Debt Service in the year that such Revenues are deposited to the General Fund.



"Revenues Available for Subordinated Debt Service" shall mean with respect to a Fiscal Year, Revenues Available for Bond Debt Service less Required Debt Service Fund Deposits on all Series of Bonds Outstanding during such Fiscal Year.

"S&P" shall mean Standard & Poor's Ratings Group.

"Secured Bond Debt Service Coverage Ratio" for any period of time shall mean the ratio obtained by dividing Revenues Available for Bond Debt Service by the sum of (i) the Required Debt Service Fund Deposits for all Outstanding Bonds for such period and (ii) the Required Subordinated Debt Service Fund Deposits for all Outstanding Subordinated Bonds (including the SRF Bonds) which are payable on a parity with or senior to the SRF Bonds for such period.

"Secured Bonds" or "Secured Indebtedness" shall mean all Bonds and all Subordinated Bonds.

"Series" or "Series of Secured Bonds" shall mean all of the Secured Bonds authenticated and delivered on original issuance identified pursuant to the Supplemental Resolution authorizing such Secured Bonds as a separate Series of Secured Bonds and any Secured Bonds thereafter authenticated and delivered in lieu of or in substitution therefor pursuant to the General Bond Resolution regardless of variations in maturity, interest rate or other provisions.

"Sewer Operations" shall mean the "sewer division" established pursuant to Section 8(a) of the Act.

"Sinking Fund Installment" shall mean, as of any particular date of calculation, the amount required by the General Bond Resolution or any Supplemental Resolution to be paid by the Authority on a future date for the retirement of the principal amount of Outstanding Bonds or Subordinated Bonds which are stated to mature subsequent to such future date, but does not include any amount payable by the Authority by reason only of the maturity of a Bond or Subordinated Bond.

"Special Credit Facility" shall mean, with respect to any Series of Secured 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 Secured Bonds when due or (ii) the payment of the Principal Installments of and interest on such Secured 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.

"Special Payment Obligations" shall mean payment obligations under any interest rate exchange, cap or other hedge agreement or other long-term contract which have been designated as payable from the Commonwealth Obligation Fund in such agreement.

"Special Subordinated Indebtedness" shall mean Indebtedness incurred in anticipation of grant receipts; incurred in anticipation of revenues; payable from and secured by the General Fund; incurred with respect to the financing of a separate facility; or incurred in connection with the Revolving Loan Fund, all in accordance with the provisions of the General Bond Resolution.

"SRF Bonds" shall mean Water Pollution Abatement Obligations of the Authority.

"SRF Program Bonds" shall mean bonds of the Trust secured by SRF Bonds.

"Subordinated Bonds" shall mean bonds or indebtedness which have a lien subordinate to the lien of the Bonds, on the Funds and Accounts and property established under the General Bond Resolution, and shall also mean any Subordinated Parity Bond Anticipation Notes and any Parity Reimbursement Obligation incurred with respect to

Subordinated Bonds; provided that the Subordinated Bonds have no lien on the Debt Service Fund or the Debt Service Reserve Fund.

"Subordinated Debt Service Reserve Fund Requirement" shall mean the aggregate of the amounts, if any, required to be deposited in the Subordinated Debt Service Reserve Fund pursuant to all Supplemental Resolutions authorizing the issuance of Subordinated Bonds.

"Subordinated Parity Bond Anticipation Notes" shall mean Bond Anticipation Notes the interest on which is payable from and secured by a pledge of, and a lien on, the Revenues on a parity with the lien created by the General Bond Resolution to secure the Subordinated Bonds.

"Supplemental Bond Coverage Requirement" for any Fiscal Year shall mean, unless the context otherwise indicates, the Required Debt Service Fund Deposits for all Bonds Outstanding as of the beginning of such Fiscal Year, times the Supplemental Bond Coverage Ratio.

"Supplemental Resolution" shall mean a resolution of the Authority authorizing the issuance of a Series of Bonds or Subordinated Bonds or otherwise amending or supplementing the General Bond Resolution, adopted in accordance with the General Bond Resolution.

"System" shall mean collectively the "Waterworks System" and the "Sewer System" as such terms are defined in Section 1(o) and 1(v) of the Act.

"Tax Exempt Indebtedness" shall mean Indebtedness the interest on which is excluded from gross income of the holder thereof for federal income tax purposes which was accompanied by a favorable Bond Counsel's Opinion regarding such exclusion on the date of such Indebtedness.

"Tender Option Price" shall mean, with respect to any Option Bond tendered for purpose or payment in accordance with the Supplemental Resolution authorizing such Option Bond, an amount equal to the principal amount of such Option Bond.

"Trust" shall mean the Massachusetts Water Pollution Abatement Trust first established pursuant to Chapter 275 of the Acts of 1989 of the Commonwealth.

"Trust Bond Resolution" shall mean a bond resolution of the Trust providing for the issuance of a series of SRF Program Bonds.

"Variable Rate Indebtedness" shall mean, as of any date of determination, any Indebtedness on which the interest rate borne thereby may vary during any part of its remaining term. For the purpose of calculating the applicable Series Debt Service Reserve Fund Requirement with respect to any Series of Variable Rate Indebtedness, the Adjusted Debt Service on such Series shall be determined by reference to the Pro Forma Bond Issue for such Series set forth in the Supplemental Resolution authorizing such Series.

"Water Pollution Abatement Obligations" shall mean obligations incurred and owing to the Trust.

"Watershed Division" shall mean the Division of Watershed Management established by Section 42 of Chapter 372 of the Acts of 1984 of the Commonwealth.

"Waterworks Operations" shall mean the "waterworks division" established pursuant to Section 8(a) of the Act.

#### The Pledge Effected by the General Bond Resolution

(a) Under the General Bond Resolution, there are pledged for the payment of the Bonds, in accordance with their terms and the provisions of the General Bond Resolution, subject only to the provisions of the General Bond Resolution permitting the application thereof for or to the purposes and on the terms and conditions

therein set forth: (i) all Revenues; (ii) all moneys or securities in any of the Funds, Accounts and Subaccounts (except the Operating Fund, the Rebate Fund, the Note Payment Fund and the Subordinated Debt Service Reserve Fund) together with the investment earnings thereon except to the extent such earnings are required to be deposited in the Rebate Fund pursuant to a Supplemental 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 General Bond Resolution.

(b) Subject only to the prior pledge created for the payment of the Bonds in paragraph (a) above, and on the terms and conditions set forth therein with respect to such prior pledge, the property described in clauses (i)-(iii) of said paragraph (a) (except moneys or securities in the Debt Service Fund and the Debt Service Reserve Fund) and the Subordinated Debt Service Reserve Fund are further pledged under the General Bond Resolution to the payment of the Subordinated Bonds. (Section 501)

#### Additional Indebtedness

(a) Except for additional Indebtedness issued in accordance with the provisions of the General Bond Resolution, the Authority shall not issue any bonds, notes or other evidences of indebtedness secured by a pledge of or other lien or charge on the Revenues and shall not create or cause to be created any lien or charge on such Revenues or on any amounts held by any Fiduciary under the General Bond Resolution; but the Authority shall not be prevented from issuing bonds or notes or other obligations for the corporate purposes of the Authority payable out of, or secured by a pledge of, Revenues to be derived on and after the date that the pledge of the Revenues provided in the General Bond Resolution shall be discharged and satisfied as provided in the General Bond Resolution 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 General Bond Resolution and the lien and pledge created by the General Bond Resolution.

(b) Notwithstanding anything in the General Bond Resolution to the contrary, so long as no default under the General Bond Resolution shall have occurred and be continuing, the Authority may issue at any time or from time to time:

(i) Indebtedness issued in anticipation of Grant Receipts which may be secured solely by a pledge of the proceeds of such Indebtedness, the Grant Receipts anticipated, other amounts on deposit from time to time in any separate account established by the Authority to hold Grant Receipts, earnings thereon and other amounts not constituting Revenues under the General Bond Resolution; or

(ii) Indebtedness issued in anticipation of the Revenues to be received in a particular Fiscal Year, whether unsecured or secured by a pledge of Revenues; provided that (a) any such Indebtedness shall be payable no later than one year from its date of issue (or, in the case of Indebtedness issued to renew any such Indebtedness, no later than one year from the date of issue of the original issue of Indebtedness), (b) the aggregate amount of such Indebtedness Outstanding at any one time in a Fiscal Year shall not exceed fifty percent (50%) of the Revenues for the immediately preceding Fiscal Year and (c) the proceeds of such Indebtedness (other than the proceeds of Indebtedness issued to pay a prior issue of such Indebtedness) shall be deposited in the Revenue Fund; or

(iii) Indebtedness payable from and secured by amounts on deposit in or to be deposited in the General Fund pursuant to the General Bond Resolution.

Any Indebtedness described in this paragraph (b), in addition to the security therefor described herein, may be issued as general obligations of the Authority or as special obligations payable solely from the Revenues, Grant Receipts, proceeds, moneys, securities or funds pledged as security therefor.

(c) Notwithstanding anything in the General Bond Resolution to the contrary, the Authority may issue Indebtedness secured solely by the revenues, receipts or other moneys derived by the Authority from the lease, license, operation, sale or other disposition of any facility or equipment (whether or not part of the System) hereafter constructed or acquired by or on behalf of the Authority with the proceeds of such Indebtedness. Such Indebtedness shall be special, limited obligations of the Authority payable solely out of the revenues, receipts and other moneys pledged therefor. Such revenues, receipts and other moneys shall not be considered Revenues hereunder provided



that (i) neither the debt service on such Indebtedness nor any cost of the acquisition, construction, operation, maintenance or repair of any such facility or equipment nor provision for reserves for any of the foregoing shall be paid from the proceeds of Secured Indebtedness or from Revenues (other than Revenues deposited in or available for deposit in the General Fund pursuant to the General Bond Resolution) or shall be included in Operating Expenses, (ii) any such revenues, receipts and moneys in excess of such debt service, cost of acquisition, construction, operation, maintenance and repair and reserves shall be deposited in the Revenue Fund (and upon such deposit shall be deemed Revenues), and (iii) prior to the issue of any such Indebtedness, the Authority shall deliver to the Trustee a certificate of the Consulting Engineer certifying that the lease, license, operation, sale or other disposition of such facility or equipment and the application of the revenues, receipts and other moneys derived therefrom to the operation, maintenance and repair thereof and the payment of the debt service on the Indebtedness issued therefor and the provision of reserves for the foregoing, will not result in any decrease in the Revenues projected by such Consulting Engineer to be received by the Authority during the succeeding five Fiscal Years (including the Fiscal Year in which such Indebtedness is issued).

(d) Notwithstanding anything in the General Bond Resolution to the contrary, the Authority may issue Indebtedness secured by a pledge of moneys in the Revolving Loan Fund which either (i) have been committed to loans to Local Bodies or (ii) represent payments made by Local Bodies on loans previously made from the Revolving Loan Fund, or by a pledge of moneys in the General Fund. Any lien granted on such moneys in the Revolving Loan Fund to secure such Indebtedness shall be senior to the pledge of the General Bond Resolution but any lien granted on moneys in the General Fund to secure such Indebtedness shall be junior to such pledge. Any such Indebtedness shall be issued pursuant to a separate resolution of the Authority and each instrument evidencing such Indebtedness shall state expressly that the holders of such Indebtedness shall have no rights to the Revenues or other moneys held in Funds and Accounts established under the General Bond Resolution except for moneys in the Revolving Loan Fund or in the General Fund as described in this paragraph. (Section 709)

#### Conditions Precedent to Delivery of a Series of Bonds

The Bonds of a Series shall be executed by the Authority for issuance and delivered to the Trustee and thereupon shall be authenticated by the Trustee and delivered to the Authority or upon its order, but only upon the receipt by the Trustee of certain documents and opinions relating to such Bonds and:

(a) except in the case of any Series of Refunding Secured Bonds issued in the manner described in clause (i) under the heading Conditions Precedent to Delivery of Refunding Secured Bonds or any Parity Bond Anticipation Notes,

(i) a Certificate of an Authorized Representative of the Authority certifying that for the most recent period of twelve consecutive months preceding the date on which such Bonds are to be issued for which such information is available, Revenues Available for Bond Debt Service were at least equal to the Combined Bond Coverage Requirements; and

(ii) either:

(A) a Certificate of the Consulting Engineer certifying that for both the Fiscal Year in which such Bonds are to be issued and the Fiscal Year immediately following, projected Revenues Available for Bond Debt Service, assuming transfers from the Rate Stabilization Fund only to the extent such assumption is set forth in a Certificate of the Authority, are at least equal to the sum of (1) the Primary Bond Coverage Requirement for all Series of Bonds Outstanding in such Fiscal Year, taking into account the Series of Bonds to be issued and any other Series of Bonds which is projected to be issued on or before the last day of such Fiscal Year, and (2) the Required Supplemental Bond Coverage Deposits for such Fiscal Year, taking into account the Series of Bonds to be issued and any other Series of Bonds which is projected to be issued on or before the last day of such Fiscal Year; or

(B) a Certificate of the Consulting Engineer certifying that:

(1) for the Fiscal Year in which such Bonds are to be issued, projected Revenues Available for Bond Debt Service, calculated without assuming any increase in Rates and Charges other than those then approved in accordance with the General Bond Resolution and assuming transfers from the Rate Stabilization Fund only to the extent such assumption is set forth in a Certificate of the Authority, are at least equal to the sum of (x) the Required Debt Service Fund Deposits for all Series of Bonds then Outstanding in such Fiscal Year, taking into account the particular Series of Bonds to be issued, (y) any amounts required to be deposited in the Operating Reserve Fund, the Insurance Reserve Fund or the Renewal and Replacement Reserve Fund to satisfy the applicable Requirement for such Fund and (z) the Required Supplemental Bond Coverage Deposits, taking into account the particular Series of Bonds to be issued; and

(2) for the Fiscal Year immediately following the Fiscal Year in which such Bonds are to be issued, projected Revenues Available for Bond Debt Service as calculated in (f)(ii)(B)(1) above, but adjusted to reflect any increases in Operating Expenses shown on the Authority's proposed or final Operating Budget for such following Fiscal Year or, if such Budget has not been submitted, as adjusted to reflect an increase in Operating Expenses not less than the average percentage increase in Operating Expenses over the previous three Fiscal Years, are at least equal to the sum of (x) the Required Debt Service Fund Deposits of all Series of Bonds included for purposes of (f)(ii)(B)(1)(x) above, (y) any amounts required to be deposited in the Operating Reserve Fund to satisfy the applicable Requirement for such Fund in such Fiscal Year, and (z) the Required Supplemental Bond Coverage Deposits, if any;

(b) a Certificate of the Authorized Representative of the Authority, dated as of the date of such delivery, stating that there is no Event of Default by the Authority with respect to the performance of any of the covenants, conditions, agreements or provisions contained in the General Bond Resolution provided, however that the Authority need deliver no such certification with respect to compliance with covenants as to Rates and Charges for a Series of Refunding Secured Bonds issued pursuant to the General Bond Resolution; and

(c) such further documents and moneys as are required by the General Bond Resolution or any Supplemental Resolution. (Section 206)

#### Conditions Precedent to Delivery of a Series of Subordinated Bonds

The Subordinated Bonds of a Series shall be executed by the Authority for issuance and delivery to the Trustee and thereupon shall be authenticated by the Trustee and delivered to the Authority or upon its order, but only upon the receipt by the Trustee of the items, opinions and certificates required by the provisions described under the heading Conditions Precedent to Delivery of a Series of Bonds except paragraph (a) thereof and the Supplemental Resolution authorizing such Subordinated Bonds. (Section 206A)

#### Conditions Precedent to Delivery of a Series of Parity or Senior Secured Bonds

So long as any SRF Bonds are Outstanding, Secured Bonds which are paid on a parity with or senior to the SRF Bonds ("Parity or Senior Secured Bonds") may be issued by the Authority only if there shall have been delivered to the Trustee in addition to any documents required under the provisions described under the heading Conditions Precedent to Delivery of a Series of Bonds or, as the case may be, Conditions Precedent to Delivery of a Series of Subordinated Bonds:

(a) a Certificate of an Authorized Representative of the Authority certifying that for the most recent period of twelve consecutive months preceding the date on which such Parity or Senior Secured Bonds are to be issued for which such information is available, Revenues Available for Bond Debt Service were at least sufficient to maintain a Secured Bond Debt Service Coverage Ratio of 1.10, after providing for all Required Supplemental Bond Coverage Deposits; and

(b) either:

(i) a Certificate of a Consulting Engineer of the Authority certifying that for both the Fiscal Year in which such Parity or Senior Secured Bonds are to be issued and the Fiscal Year immediately following, projected Revenues Available for Bond Debt Service, assuming transfers from the Rate Stabilization Fund only to the extent such assumption is set forth in a Certificate of the Authority, are at least sufficient to maintain a Secured Bond Debt Service Coverage Ratio of 1.10, after providing for all Required Supplemental Bond Coverage Deposits, taking into account the Series of Parity or Senior Secured Bonds to be issued and any other Series of Parity or Senior Secured Bonds which is projected to be issued on or before the last day of such Fiscal Year; or

(ii) a Certificate of an Authorized Representative of the Authority certifying that:

(A) for the Fiscal Year in which such Parity or Senior Secured Bonds are to be issued, projected Revenues Available for Bond Debt Service, calculated without assuming any increase in Rates and Charges other than those then approved in accordance with the General Bond Resolution, and assuming transfers from the Rate Stabilization Fund only to the extent such assumption is set forth in a Certificate of the Authority, are at least equal to the sum of (x) the Required Debt Service Fund Deposits and Required Subordinated Debt Service Fund Deposits for all Series of Parity or Senior Secured Bonds then Outstanding in such Fiscal Year, taking into account the particular Series of Parity or Senior Secured Bonds to be issued, (y) any amounts required to be deposited in the Operating Reserve Fund, the Insurance Reserve Fund or the Renewal and Replacement Reserve Fund to satisfy the applicable Requirement for such Fund and (z) the Required Supplemental Bond Coverage Deposits, taking into account the particular Series of Parity or Senior Secured Bonds to be issued; and

(B) for the Fiscal Year immediately following the Fiscal Year in which such Parity or Senior Secured Bonds are to be issued, projected Revenues Available for Bond Debt Service as calculated for clause (b)(ii)(A) under his heading, but adjusted to reflect any increases in Operating Expenses shown on the Authority's proposed or final Operating Budget for such following Fiscal Year or, if such Budget has not been submitted, as adjusted to reflect an increase in Operating Expenses not less than the average percentage increase in Operating Expenses over the previous three Fiscal Years, are at least equal to the sum of (x) the Required Debt Service Fund Deposits and the Required Subordinated Debt Service Fund Deposits on Series of Parity or Senior Secured Bonds included for purposes clause (b)(ii)(A)(x) under this heading, (y) any amounts required to be deposited in the Operating Reserve Fund to satisfy the applicable Requirement for such Fund in such Fiscal Year, and (z) the Required Supplemental Bond Coverage Deposits, if any, for Parity or Senior Secured Bonds included in clause (x) above. (Sixth Supplemental Resolution Section 306, Tenth Supplemental Resolution Section 307 and Fourteenth Supplemental Resolution Section 307)

#### Conditions Precedent to Delivery of Refunding Secured Bonds

One or more Series of Refunding Secured Bonds may be issued pursuant to the General Bond Resolution at any time to refund any Outstanding Secured Bonds provided that either (i), but only with respect to Bonds issued to refund Bonds, (A) Aggregate Adjusted Debt Service on the Bonds immediately after the issuance of such Refunding Secured Bonds for each Fiscal Year shall be no greater than Aggregate Adjusted Debt Service immediately prior to the issuance of such Refunding Secured Bonds and (B) the final maturity of all Bonds Outstanding immediately after the issuance of such Refunding Secured Bonds shall be no later than the final maturity immediately prior to the issuance of such Refunding Secured Bonds or (ii) the requirements detailed in paragraph (a) under the heading Conditions Precedent to Delivery of a Series of Bonds, or with respect to an issue of Subordinated Bonds, the requirements of any Supplemental Resolution with respect to the issuance of additional Subordinated Bonds, shall have been satisfied after giving effect to the proposed refunding, all as shown in a Certificate signed by an Authorized Representative of the Authority (and, as to certain matters, a Certificate signed by the Consulting Engineer) and delivered to the Trustee prior to the authentication and delivery of such Series of Refunding Secured Bonds. (Section 207)

So long as any SRF Bonds are Outstanding, one or more series of Parity or Senior Secured Bonds may be issued pursuant to this paragraph at any time for the purpose of refunding any Outstanding Secured Bonds provided that either (i)(A) Aggregate Adjusted Debt Service on all Parity or Senior Secured Bonds immediately after the issuance of such refunding bonds for each Fiscal Year shall be no greater than Aggregate Adjusted Debt Service on all Parity or Senior Secured Bonds prior to the issuance of such refunding bonds and (B) the final maturity of all Parity or Senior Secured Bonds Outstanding after the issuance of such refunding bonds shall be no later than the final maturity immediately prior to the issuance of such refunding bonds or (ii) the requirements described under the heading Conditions Precedent to Delivery of a Series of Parity or Senior Secured Bonds shall be satisfied after giving effect to the proposed refunding, all as shown in a Certificate signed by an Authorized Representative of the Authority (and as to the matters in paragraph (b) under the heading Conditions Precedent to Delivery of Parity or Senior Secured Bonds, a Certificate signed by a Consulting Engineer) and delivered to the Trustee prior to the authentication and delivery of such Series of refunding bonds. All Refunding Secured Bonds of a Series issued under the terms described in this paragraph shall be executed by the Authority for issuance and delivered to the Trustee and thereupon shall be authenticated by the Trustee and delivered to the Authority or upon its order, but only upon receipt by the Trustee of the items required by the provisions described under the heading Conditions Precedent to Delivery of Refunding Secured Bonds as appropriate for the issuance of Parity or Senior Secured Bonds. Refunding Secured Bonds of a Series may be issued under the terms described in this paragraph to refund the SRF Bonds only if (i) the applicable SRF Program Bonds shall no longer be Outstanding (as defined in the applicable Trust Bond Resolution) immediately after such refunding or (ii) if any of the SRF Program Bonds remain Outstanding (as defined in the applicable Trust Bond Resolution) immediately after such refunding, each Rating Agency (as defined in the applicable Trust Bond Resolution) shall have confirmed in writing that such refunding shall not adversely affect the rating it assigns to the SRF Program Bonds. (Sixth Supplemental Resolution Section 310)

#### Express Reservation of Rights

The Authority expressly reserves the right to issue Subordinated Bonds payable from the Subordinated Debt Service Fund prior to, on a parity with or junior to the SRF Bonds, to establish one or more covenants for the sole benefit of some or all of such additional Subordinated Bonds, and to fund one or more accounts within the Subordinated Debt Service Reserve Fund for the sole benefit of some or all of such Subordinated Bonds. (Sixth Supplemental Resolution Section 309)

#### Bond Anticipation Notes

Whenever the Authority shall authorize the issuance of a Series of Secured Bonds, the Authority may, by resolution, authorize the issuance of notes (and renewals thereof) in anticipation of such Secured 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 Secured Bonds in anticipation of which such notes are issued. The proceeds of such Secured 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 General Bond Resolution. The Authority may pledge the Revenues to the payment of the interest on such notes which pledge may be on a parity with the pledge securing all Bonds in which event such interest shall be payable from the Debt Service Fund. The Authority may also pledge the Revenues and moneys on deposit in the General Fund and the Rate Stabilization Fund to the payment of the principal of such notes but such pledge shall be subordinate to the pledge securing the payment of the Secured Bonds. (Section 208)

#### Special Subordinated Indebtedness

The Authority may, at any time, or from time to time, issue Special Subordinated Indebtedness payable out of, and which may be secured by a pledge of and lien on such amounts in such Funds as may from time to time be available for the purpose of payment thereof as provided in the General Bond Resolution. Any pledge of or lien on amounts held by the Trustee shall be, and shall be expressed to be subordinate in all respects to the pledge created by the General Bond Resolution as security for the Secured Bonds. Such Special Subordinated Indebtedness shall be issued only as follows:

(a) Notwithstanding anything in the General Bond Resolution to the contrary, so long as no default shall have occurred under the General Bond Resolution and be continuing, the Authority may issue at any time or from time to time:

(i) Indebtedness issued in anticipation of Grant Receipts secured solely by a pledge of the proceeds of such Indebtedness, Grant Receipts including the Grant Receipts anticipated, earnings thereon and other amounts not constituting Revenues under the General Bond Resolution; or

(ii) Indebtedness issued in anticipation of the Revenues to be received in a particular Fiscal Year, whether unsecured or secured by a pledge of Revenues; provided that (a) any such Indebtedness shall be payable no later than one year from its date of issue (or, in the case of Indebtedness issued to renew any such Indebtedness, no later than one year from the date of issue of the original issue of Indebtedness), (b) the aggregate principal amount of such Indebtedness Outstanding at any one time in a Fiscal Year shall not exceed fifty percent (50%) of the Revenues for the immediately preceding Fiscal Year and (c) the proceeds of such Indebtedness (other than the proceeds of Indebtedness issued to pay a prior issue of such Indebtedness) shall be deposited in the Revenue Fund; or

(iii) Indebtedness payable from and secured by amounts on deposit in or to be deposited in the General Fund pursuant to the General Bond Resolution.

Any Indebtedness described in this paragraph (a), in addition to the security therefor described or provided for herein, may be issued as general obligations of the Authority or as special obligations payable solely from the Revenues, Grant Receipts, proceeds, moneys, securities or funds pledged as security therefor.

(b) Notwithstanding anything in the General Bond Resolution to the contrary, the Authority may issue Indebtedness secured solely by the revenues derived by the Authority from any facility or equipment (whether or not part of the System) hereafter constructed or acquired by or on behalf of the Authority with the proceeds of such Indebtedness. Such Indebtedness shall be special, limited obligations of the Authority payable solely out of the revenues pledged therefor. Such revenues, receipts and other moneys shall not be considered Revenues under the General Bond Resolution provided that (i) neither the debt service on such Indebtedness nor any cost of any such facility or equipment nor provision for reserves for any of the foregoing shall be paid from the proceeds of Secured Indebtedness or from Revenues (other than Revenues deposited in or available for deposit in the General Fund pursuant to the General Bond Resolution) or shall be included in Operating Expenses, (ii) any such revenues in excess of such debt service, cost of acquisition, construction, operation, maintenance and repair and reserves shall be deposited in the Revenue Fund (and upon such deposit shall be deemed Revenues), and (iii) prior to the issue of any such Indebtedness, the Authority shall deliver to the Trustee a Certificate of the Consulting Engineer certifying that the operation, of such facility or equipment and the application of the revenues derived therefrom to the operation, maintenance and repair thereof and the payment of the debt service on the Indebtedness issued therefor and the provision of reserves for the foregoing, will not result in any decrease in the Revenues projected by such Consulting Engineer to be received by the Authority during the succeeding five Fiscal Years (including the Fiscal Year in which such Indebtedness is issued).

(c) Notwithstanding anything in the General Bond Resolution to the contrary, the Authority may issue Indebtedness secured by a pledge or certain moneys in the Revolving Loan Fund or by moneys in the General Fund. Any lien granted on such moneys in the Revolving Loan Fund to secure such Indebtedness shall be senior to the pledge of the General Bond Resolution but any lien granted on moneys in the General Fund to secure such Indebtedness shall be junior to such pledge. (Sections 209 and 709)

#### Credit Facilities

(a) In connection with the issuance of any Series of Secured Bonds under the General Bond Resolution, the Authority may obtain or cause to be obtained one or more Credit Facilities providing for payment of all or a portion of the Debt Service or to become due on such Secured Bonds, providing for the purchase of such Secured Bonds by the issuer of such Credit Facility or providing funds for the purchase of such Secured Bonds by the Authority.



(b) 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 deemed to be Outstanding for the purposes of the General Bond Resolution until amounts are paid under such Credit Facility. Any such Reimbursement Obligation may be secured by a pledge of, and a lien on, Revenues on a parity with the lien created by the General Bond Resolution (a "Parity Reimbursement Obligation"). Any such Parity Reimbursement Obligation shall be deemed to be a Secured Bond. (Section 210)

#### Establishment of Funds and Accounts

(a) The following Funds and Accounts are established by the General Bond Resolution:

- (i) Construction Fund, containing a:
  - (A) Waterworks System Account; and
  - (B) Sewer System Account;
- (ii) Cost of Issuance Fund;
- (iii) Revenue Fund;
- (iv) Operating Fund;
- (v) Debt Service Fund, containing a:
  - (A) Principal Account;
  - (B) Interest Account;
  - (C) Redemption Account; and
  - (D) Capitalized Interest Account;
- (vi) Subordinated Debt Service Fund, containing a:
  - (A) Principal Account;
  - (B) Interest Account;
  - (C) Redemption Account; and
  - (D) Capitalized Interest Account;
- (vii) Debt Service Fund containing a Common Account;
- (viii) Subordinated Debt Service Reserve Fund containing a Common Account;
- (ix) Community Obligation and Revenue Enhancement Fund, containing a:
  - (A) General Account; and
  - (B) Reserve Account;
- (x) Commonwealth Obligation Fund;
- (xi) Rebate Fund;
- (xii) Operating Reserve Fund;
- (xiii) Insurance Reserve Fund;
- (xiv) Renewal and Replacement Reserve Fund;
- (xv) Water Pollution Abatement Fund;
- (xvi) Rate Stabilization Fund;
- (xvii) Revolving Loan Fund;
- (xviii) General Fund; and
- (xix) Note Payment Fund.

(b) Any Supplemental Resolution which provides for a Special Credit Facility may establish one or more "Special Accounts" in the Debt Service Reserve Fund or the Subordinated Debt Service Reserve Fund. Unless otherwise expressly provided in the General Bond Resolution, all of the Funds, Accounts and Subaccounts shall be held by the Trustee, except the Operating Fund and the Construction Fund or any Accounts or Subaccounts therein, which may be held by one or more Depositories. (Section 502)

#### Construction Fund

There shall be deposited from time to time in the Subaccounts of the Construction Fund (i) the proceeds of casualty insurance, contractors' performance bonds and any condemnation, as determined by the Authority in accordance with the General Bond Resolution; (ii) the balance remaining of the proceeds of any Bond Anticipation Notes issued to pay the Costs of a Project after payment or provision for payment of such notes; (iii) any amounts

required to be deposited therein pursuant to the General Bond Resolution or any Supplemental Resolution; (iv) any moneys transferred pursuant to the General Bond Resolution from the Rate Stabilization Fund or from the General Fund; and (v) any other amounts received by the Authority for or in connection with the Waterworks System and the Sewer System, respectively, and determined by the Authority to be deposited therein, which are not otherwise required to be applied by the General Bond Resolution. Except as otherwise provided under the heading Priority of Funds in Event of Debt Service Fund Shortfall or Priority of Funds in Event of Subordinated Debt Service Fund Shortfall or if investment earnings on moneys in the Construction Fund are required to be transferred to the Rebate Fund, amounts in the Construction Fund shall be expended only to pay Costs of a Project pursuant to requisitions filed in accordance with the Supplemental Resolution. At any time from time to time the Trustee may transfer amounts on deposit therein between a particular Subaccount within the Waterworks System Account and the corresponding Subaccount within the Sewer System Account upon receipt of a Certificate of an authorized Representative of the Authority requesting such transfer. If the Authority at any time cannot certify that it reasonably expects the moneys on deposit in any Subaccount of the Construction Funds which constitutes the proceeds of Tax Exempt Indebtedness to be expended for the Costs of a Project, then such shall be transferred to the Redemption Account and applied solely to the redemption of Secured Bonds of the applicable Series on the first date on which such Secured Bonds may be called without premium (unless the Authority shall elect to call such Secured Bonds earlier at a premium). (Section 503)

#### Cost of Issuance Fund

There shall be deposited from time to time in a separate Subaccount of the Cost of Issuance Fund for each Series of Secured Bonds issued under the General Bond Resolution any amounts required to be deposited therein pursuant to the terms of a Supplemental Resolution with respect to such Series. Moneys in the Cost of Issuance Fund shall be paid upon the filing by the Authority with the Trustee its requisition therefor (in the form set forth in a Supplemental Resolution) signed by an Authorized Representative of the Authority. (Section 504)

#### Deposits of Revenues

The Authority shall promptly cause all Revenues received to be deposited in the Revenue Fund held by the Trustee. There shall also be deposited into the Revenue Fund by the Trustee or any other Fiduciary all other amounts required by the General Bond Resolution to be so deposited. (Section 505)

#### Flow of Funds from the Revenue Fund

(a) On the last Business Day of each month the Trustee shall, after making any transfers that are required by the General Bond Resolution, from the amounts on deposit in the Revenue Fund, make the following deposits in the following order:

(i) To the Operating Fund, the amount necessary to make the amount on deposit therein equal to Operating Expenses for the next succeeding three months, as shown on the Operating Budget.

(ii) To the Debt Service Fund:

(A) on a pro rata basis the amount necessary to make up any deficiency in any Subaccount resulting from an increase in the applicable interest rate on any Variable Rate Bonds over the rate which was assumed in calculating the amount required for a prior deposit pursuant to the General Bond Resolution;

(B) on a pro rata basis to each Subaccount of the Interest Account, after taking into account any available moneys in the corresponding Subaccount of the Capitalized Interest Account if any, the amount necessary to increase the amount on deposit in each such Subaccount so that it equals interest included in Adjusted Debt Service next coming due on Outstanding Bonds of the applicable Series accrued and unpaid and to accrue to and including the last day of the next succeeding month (assuming, in the case of Variable Rate Bonds, no further adjustments in the applicable interest rate);

(C) on a pro rata basis to each Subaccount of the Principal Account the amount necessary to increase the amount on deposit in each such Subaccount so that it equals that portion of the Principal Installment included in Adjusted Debt Service next coming due on Outstanding Bonds of the applicable Series accrued and unpaid and to accrue (assuming such Principal Installment accrues on the same basis as simple interest on a debt) to and including the last day of the next succeeding month; provided, however, that no deposit shall be required to be made with respect to a Bond prior to twelve months before the next Principal Installment coming due on such Bond; and

(D) on a pro rata basis to each Subaccount of the Redemption Account the amount, if any, necessary to increase the amount on deposit in each Subaccount so that it equals the Redemption Price of Outstanding Bonds of the applicable Series then called for redemption (other than from Sinking fund Installments) as of any date on or prior to last day of the next succeeding month, after taking into account amounts on deposit in the applicable Subaccount within the Principal Account, if any, available to pay such Bonds called for redemption.

The Trustee shall not be required to make any payments into the Debt Service Fund when the aggregate amount of money in the Debt Service Fund and the Debt Service Reserve Fund is at least equal to the amount required to defease the lien of the General Bond Resolution granted to secure payment of Bonds pursuant to the provisions of the General Bond Resolution described under the heading Defeasance.

(iii) To the Subordinated Debt Service Fund deposits determined with respect to Subordinated Bonds in the same manner as the deposits set forth in clause (ii) above with respect to Bonds; provided, that there also shall be paid on a pro rata basis to each Subaccount of the Interest Account established with respect to Regularly Scheduled Qualified Swap Payments relating to a Series of Designated Debt, the amount (if any) necessary to increase the amount on deposit in each such Subaccount so that it equals that portion of the Regularly Scheduled Qualified Swap Payment next coming due with respect to such Series of Designated Debt accrued and unpaid and to accrue (assuming such Regularly Scheduled Qualified Swap Payment accrues on the same basis as simple interest on a debt) to and including the last day of the next succeeding month.

The Trustee shall not be required to make any payments into the Subordinated Debt Service Fund when the aggregate amount of money in the Debt Service Fund and the Debt Service Reserve Fund is at least equal to the amount required to defease the lien of the General Bond Resolution granted to secure payment of Bonds and when the aggregate amount of money in the Subordinated Debt Service Fund and the Subordinated Debt Service Reserve Fund is at least equal to the amount required to defease the lien of the General Bond Resolution granted to secure payment of Subordinated Bonds, all pursuant to the provisions of the General Bond Resolution described under the heading Defeasance.

(iv) To the Debt Service Reserve Fund,

(A) to each Series Subaccount of the Common Account therein one-twelfth (1/12) the amount, if any, necessary to increase the amount on deposit in such Subaccount, determined as of the first day of the Fiscal Year, to an amount equal to the applicable Series Debt Service Reserve Fund Requirement (provided that no such deposit shall be required in a Fiscal Year following the funding of the Common Account in connection with the issuance of a Series of Bonds pursuant to the General Bond Resolution); and

(B) to each such Special Account the deposit required by any Supplemental Resolution.

(v) To the Subordinated Debt Service Reserve Fund,



(A) to each Series Subaccount of the Common Account therein the amount, if any, necessary to increase the amount on deposit in such Subaccount to the level required by any Supplemental Resolution;

(B) to each Special Account the deposit required by any Supplemental Resolution.

(vi) To each Series Subaccount of the General Account of the Community Obligation and Revenue Enhancement Fund one-twelfth (1/12) of the difference between the Supplemental Bond Coverage Requirement with respect to such Series of Bonds and the amount on deposit in such Subaccount on the first day of the Fiscal Year; provided that in addition to the foregoing amount the Authority at its election may, with respect to a series of Bonds issued in such Fiscal Year, deposit in a separate subaccount of the General Account established for such Series an amount equal to the Required Debt Service Deposit with respect to such series for the current month times the Supplemental Bond Coverage Ratio.

(vii) To the Commonwealth Obligation Fund, the amount equal to the amount of Commonwealth Obligations (including, without limitation, Special Payment Obligations) payable during the next succeeding month, as shown on the Operating Budget.

(viii) To the Rebate Fund, the amount of the Rebate Fund Requirement, if any, determined in accordance with the Supplemental Resolution.

(b) On each December 31 and June 30, or, if such days are not Business Days, on the next preceding Business Day, the Trustee shall, from the amounts on deposit in the Revenue Fund, and after making the deposits referred to in paragraph (a) above, make the following deposits in the following order:

(i) To the Operating Reserve Fund, one half of the difference between the amount on deposit in such Fund on the first day of the current Fiscal Year and the Operating Reserve Fund Requirement for the current Fiscal Year.

(ii) To the Insurance Reserve Fund, one half of the difference between the amount on deposit in such Fund on the first day of the current Fiscal Year and the Insurance Reserve Fund Requirement for the current Fiscal Year.

(iii) To the Renewal and Replacement Reserve Fund, one half of the difference between the amount on deposit in such Fund on the first day of the current Fiscal Year and Renewal and Replacement Reserve Requirement for the current Fiscal Year.

(iv) To the Water Pollution Abatement Fund, the amount necessary to increase the amount on deposit therein so that it equals the amount of Water Pollution Abatement Obligations payable during the next six months, as certified by an Authorized Representative of the Authority.

(v) To the Revolving Loan Fund, such amount as the Authority may from time to time determine.

(vi) Subject to the provisions of paragraph (c) below, the General Fund, any moneys remaining after making the deposits set forth above.

(c) On any June 30 and December 31 on which deposits are to be made pursuant to (b) above, after making the deposits required by clauses (i)-(v) of paragraph (b) above, the Trustee, on direction of an Authorized Representative, shall retain all or portion of the remaining moneys in the Revenue Fund to provide additional moneys for deposits required under paragraph (a) above during the next six months. (Section 506)

### Operating Fund

The Operating Fund shall be established as one or more accounts with one or more banks or trust companies, as the Authority shall determine, which shall be Depositories. Moneys held in the Operating Fund shall be applied by the Authority to the payment of Operating Expenses in accordance with the Operating Budget. Moneys in the Revenue Fund and the Operating Reserve Fund shall be paid by the Trustee to the Authority for deposit into the Operating Fund pursuant to the General Bond Resolution. If on any June 30, or, if such day is not a Business Day, on the next preceding Business Day, the amount on deposit in the Operating Fund exceeds the amount equal to the next three months of Operating Expenses as shown on the Authority's Operating Budget then such excess shall be transferred to the Revenue Fund. (Section 507)

### Debt Service Fund

(a) The Trustee shall, for each Series of Bonds Outstanding, pay (i) on each Bond Payment Date, from the moneys on deposit in the applicable Subaccounts within the Principal Account and Interest Account of the Debt Service Fund the amounts required for the payment of the Principal Installments and for the payment of interest, respectively, due on such Date; (ii) on any redemption date other than for sinking fund redemption, from the applicable Subaccounts within the Interest Account and Redemption Account of the Debt Service Fund the amounts required for the payment of accrued interest and for the payment of principal of and premium, if any, respectively, on Bonds to be redeemed; and (iii) on any date of purchase, from the applicable Subaccounts within the Principal Account and of the Debt Service Fund, the amounts required for the payment of principal and interest, respectively, of any Bonds to be purchased to the extent sufficient amounts are not available therefor under a Credit Facility in accordance with the applicable Supplemental Resolution.

(b) The amounts accumulated in the applicable Subaccount within the Principal Account of the Debt Service Fund for each Sinking Fund Installment shall, at the direction of an Authorized Representative of the Authority, be applied (together with amounts in the applicable Subaccount within the Interest Account of the Debt Service Fund with respect to interest on the Bonds for which such Sinking Fund Installment was established) by the Trustee at the written direction of the Authority prior to the forty-fifth day preceding the due date of such Sinking Fund Installment as follows:

(1) to the purchase of Bonds of the Series and maturity for which such Sinking Fund Installment was established, at prices (including any brokerage and other charges) not exceeding the Redemption Price payable for such Bonds when such Bonds are redeemable by application of such Sinking Fund Installment plus unpaid interest accrued to the date of purchase; or

(2) to the redemption of such Bonds, if then redeemable by their terms, at or below the Redemption Price referred to in clause (1) above;

provided, however, that the Trustee shall not call for redemption or purchase any Bonds pursuant to this paragraph (b) which have already been called for redemption pursuant to the provisions of the General Bond Resolution.

(c) Upon the purchase or redemption of any Bond pursuant to paragraph (b) above, an amount equal to the principal amount of the Bond so purchased or redeemed shall be credited toward the next Sinking Fund Installment thereafter to become due and the amount of any excess of the amounts so credited over the amount of such Sinking Fund Installment shall be credited against future Sinking Fund Installments in direct chronological order.

(d) As soon as practicable after the forty-fifth day preceding the due date of any such Sinking Fund Installment, the Trustee shall proceed to call for redemption, pursuant to the General Bond Resolution, on such due date Bonds of the Series and maturity for which such Sinking Fund Installment was established in the amount of such Sinking Fund Installment. The Trustee shall so call such Bonds for redemption whether or not it then has moneys in the Debt Service Fund sufficient to pay the applicable Redemption Price thereof on the redemption date. (Section 508)

### Priority of Funds in Event of Debt Service Fund Shortfall

If on any Bond Payment Date there shall be insufficient monies available in the applicable Subaccount within the applicable Account in the Debt Service Fund to provide for payment of the Principal Installments of or interest on any Series of Bonds then due, after drawing any moneys available for such purpose from any applicable Credit Facility or Special Account in the Debt Service Reserve Fund, the Trustee shall withdraw and apply the necessary moneys to provide for such insufficiency from the following Funds and Accounts in the following order: (i) amounts in the Redemption Account not yet committed to the redemption of Bonds, (ii) the General Fund, (iii) amounts in the Revolving Loan Fund not yet committed to loans to Local Bodies, (iv) the Rate Stabilization Fund, (v) the Water Pollution Abatement Fund, (vi) the Renewal and Replacement Reserve Fund, (vii) the Insurance Reserve Fund, (viii) the Operating Reserve Fund, (ix) the Commonwealth Obligation Fund, (x) the Reserve Account of the Community Obligation and Revenue Enhancement Fund, (xi) the General Account of the Community Obligation and Revenue Enhancement Fund, (xii) the Common Account in the Debt Service Reserve Fund, (xiii) the Subordinated Debt Service Fund, (xiv) the Cost of Issuance Fund and (xv) the Construction Fund. (Section 508(e))

### Subordinated Debt Service Fund

(a) The Trustee shall, for each Series of Subordinated Bonds Outstanding, make payments similar to those set forth with respect to Bonds under the heading Debt Service Fund. The Trustee shall also apply moneys in the Subordinated Debt Service Fund as set forth under the heading Priority of Funds in Event of Debt Service Fund Shortfall. Moneys in the Subordinated Debt Service Fund shall also be transferred to the Note Payment Fund and applied to the payment of interest on notes issued pursuant to the terms described under the heading Bond Anticipation Notes to the extent provided in any Supplemental Resolution authorizing such notes.

(b) The amounts accumulated in the applicable Subaccount within the Principal Account of the Subordinated Debt Service Fund for each Sinking Fund Installment may be applied (together with amounts in the applicable Subaccount within the Interest Account of the Subordinated Debt Service Fund with respect to interest on the Subordinated Bonds for which such Sinking Fund was established) by the Trustee to the purchase or redemption of Subordinated Bonds of the Series and maturity for which such Sinking Fund Installment was established in the same manner as moneys in the Debt Service Fund may be applied to Bonds as set forth in paragraph (b) under the heading Debt Service Fund. Upon such purchase or redemption, an amount equal to the principal amount of the Subordinated Bond so purchased or redeemed shall be credited toward the next Sinking Fund Installment thereafter to become due and the amount of any excess of the amounts so credited over the amount of such Sinking Fund Installment shall be credited against future Sinking Fund Installments in direct chronological order.

(c) As soon as practicable after the forty-fifth day preceding the due date of any such Sinking Fund Installment, the Trustee shall proceed to call for redemption on such due date Subordinated Bonds of the Series and maturity for which such Sinking Fund Installment was established in the amount of such Sinking Fund Installment. The Trustee shall so call such Subordinated Bonds for redemption whether or not it then has moneys in the Subordinated Debt Service Fund sufficient to pay the applicable Redemption Price thereof on the redemption date.

(d) In connection with the issuance or maintenance of any Designated Debt, the Authority may establish within the Interest Account of the Subordinated Debt Service Fund one or more Subaccounts for the purpose of holding funds to be applied to the payment of Regularly Scheduled Qualified Swap Payments relating to such Designated Debt. Such moneys shall be applied by the Trustee, at the direction of the Authority, to the payment of such Regularly Scheduled Qualified Swap Payments. (Section 509)

### Priority of Funds in Event of Subordinated Debt Service Fund Shortfall

If on any Subordinated Bond Payment Date there shall be insufficient moneys available in the applicable Subaccount within the applicable Account in the Subordinated Debt Service Fund to provide for payment of the Principal Installments of or interest on any Series of Subordinated Bonds then due, after drawing any moneys available for such purpose from any applicable Credit Facility or Special Account in the Subordinated Debt Service Reserve Fund, subject to any transfers to be made on such date pursuant the terms described under the heading Priority of Funds in Event of Debt Service Fund Shortfall, the Trustee shall withdraw and apply the necessary moneys to provide for such insufficiency from the following Funds and Accounts in the following order:

(i) amounts in the Redemption Account of the Subordinated Debt Service Fund not yet committed to the redemption of Bonds, (ii) the General Fund, (iii) amounts in the Revolving Loan Fund not yet committed to loans to Local Bodies, (iv) the Rate Stabilization Fund, (v) the Water Pollution Abatement Fund, (vi) the Renewal and Replacement Reserve Fund, (vii) the Insurance Reserve Fund, (viii) the Operating Reserve Fund, (ix) the Commonwealth Obligation Fund, (x) the Reserve Account in the Community Obligation and Revenue Enhancement Fund, (xi) the General Account in the Community Obligation and Revenue Enhancement Fund, (xii) the Common Account in the Subordinated Debt Service Reserve Fund, (xiii) the Costs of Issuance Fund and, (xiv) the Construction Fund. (Section 509(e))

#### Debt Service Reserve Fund

(a) Amounts on deposit in each of the Subaccounts within the Common Account in the Debt Service Reserve Fund shall be applied on a pro rata basis, based on various Series Debt Service Reserve Fund Requirements, to the extent other funds are not available therefor pursuant to the General Bond Resolution, solely to pay the Principal Installments of and interest on the Bonds when due. Amounts on deposit in each of the Special Accounts in the Debt Service Reserve Fund shall be applied, to the extent other funds are not available therefor pursuant to the General Bond Resolution, solely to pay the Principal Installments of and interest on the Bonds of the Series to which such Special Account relates as and when specified in the applicable Supplemental Resolution.

(b) On each June 30 any excess in the Common Account or any Special Account shall be deposited into the applicable Subaccount of the Debt Service Fund.

(c) 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 Series of 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.

(d) In lieu of the required deposits and transfers to any Account in the Debt Service Reserve Fund, the Authority may cause to be deposited in any such Account Financial Guaranties. The Financial Guaranties shall be payable (upon the giving of notice as required under the General Bond Resolution) on any date on which moneys will be required to be withdrawn from the applicable Account in the Debt Service Reserve Fund and such withdrawal cannot be met by moneys on deposit in the applicable Account. 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 applicable Account, funds in the amount of the disbursement made under such Financial Guaranties.

(e) In the event of the refunding of any Bonds, the Trustee shall, upon the written direction of the Authority, withdraw from the Subaccount and Account related to the Bonds to be refunded all or any portion of the amounts accumulated therein with respect to the Bonds to be refunded and deposit such amounts as provided in such written direction; provided that such withdrawal shall not be made unless (i) immediately thereafter the bonds being refunded shall be deemed to have been paid pursuant to the General Bond Resolution, and (ii) after giving effect to any amounts being simultaneously deposited therein, the amount remaining in each Subaccount and Account after such withdrawal shall not be less than the applicable Requirement. (Section 510)

#### Subordinated Debt Service Reserve Fund

Moneys in the Subordinated Debt Service Reserve Fund shall be applied to the Subordinated Bonds in a manner similar to the application of moneys in the Debt Service Reserve Fund to payment of Bonds. (Section 511)

#### Commonwealth Obligation Fund

Moneys in the Commonwealth Obligation Fund shall be transferred to the Commonwealth to satisfy Commonwealth Obligations due and payable by the Authority; provided that moneys in such Fund which are to be applied to Special Payment Obligations shall be transferred as directed by a Certificate of an Authorized Representative. The Trustee shall also apply moneys in the Commonwealth Obligation Fund as provided under the

headings Priority of Funds in Event of Debt Service Fund Shortfall and Priority of Funds in Event of Subordinated Debt Service Fund Shortfall. If as of any June 30, the amount on deposit in the Commonwealth Obligation Fund is in excess of the amount payable on the Commonwealth Obligations in the Fiscal Year then ending then such excess shall be transferred to the Revenue Fund. (Section 512)

#### Community Obligation and Revenue Enhancement Fund

(a) Moneys on deposit in the General Account of the Community Obligation and Revenue Enhancement Fund shall be transferred to the Reserve Account of such Fund in the event of a Local Body Default, in an amount equal to the amount of such defaulted payment. The Trustee shall also apply moneys in the Community Obligation and Revenue Enhancement Fund as provided under the headings Priority of Funds in Event of Debt Service Fund Shortfall and Priority of Funds in Event of Subordinated Debt Service Shortfall. Transfers from the Community Obligation and Revenue enhancement Fund shall be allocated to each Series Subaccount therein on a pro rata basis based on the Required Debt Service Fund Deposits for the related Series of Bonds.

(b) In the event that an overdue payment which has been certified as a Local Body Default is received by the Authority, in part or in whole, from the Local Body which had defaulted after a transfer of funds pursuant to paragraph (a) above, the Authority shall promptly pay such amount to the Trustee and identify it appropriately and the Trustee shall (i) deposit such amount to the Revenue Fund and (ii) transfer moneys on deposit in the Reserve Account of the Community Obligation and Revenue Enhancement Fund equal to the amount of such overdue payment received to the General Account of the Fund. In addition, if the Authority shall have complied with the requirements described in paragraph (a) under the heading Non-Payment of Rates, Certification to Commonwealth Treasurer with respect to a Local Body Default and an allowance shall have been included in the Rates and Charges as contemplated therein, as certified by the Authority, on the last Business Day of the Fiscal Year in which such assessment is made, the Trustee shall transfer moneys on deposit in the Reserve Account of the Fund equal to the amount of such Default to the General Account of the Fund.

(c) So long as the Authority shall diligently comply, or be diligently proceeding to comply, with the requirements described in paragraph (a) under the heading Non-Payment of Rates, Certification to Commonwealth Treasurer, amounts on deposit in the Reserve Account of the Community Obligation and Revenue Enhancement Fund relating to a Local Body Default as well as in the General Account of such Fund shall be taken into account for the purposes of calculating the balance therein, the Combined Bond Coverage Requirement and the provisions described under the heading Trust Combined Debt Service Coverage Ratio. If the Authority shall not so comply, or be diligently proceeding to comply, with respect to a Local Body Default, however, amounts on deposit in the Reserve Account of the Fund which relate to such Local Body Default shall not be so taken into account.

(d) If, as of any June 30, or, if such day is not a Business Day, on the next preceding Business Day, the amount on deposit in any Subaccount of the Community Obligation and Revenue Enhancement Fund shall exceed the Supplemental Bond Coverage Requirement for such Series for the Fiscal Year then ending, such excess shall be withdrawn and transferred to the related Subaccount of the Debt Service Fund.

(e) In the event of the refunding of any Bonds, the Trustee shall, upon the written direction of the Authority, withdraw from the Subaccount and Account of the Community Obligation and Revenue Enhancement Fund related to the Bonds to be refunded all or any portion of the amounts accumulated therein with respect to the Bonds to be refunded and deposit such amounts first, if Bonds have been issued to refund the Bonds being refunded, to fund the corresponding Subaccount and Account of the Community Obligation and Revenue Enhancement Fund established with respect to the refunding Bonds, up to an amount equal to the Supplemental Bond Coverage Requirement for such refunding Bonds for the next Fiscal Year, second, as provided for excesses in such Subaccount in paragraph (d) above, and third, as provided in such written direction; provided that such withdrawal shall not be made unless (i) immediately thereafter the Bonds being refunded shall be deemed to have been paid pursuant to the General Bond Resolution, and (ii) after giving effect to any amounts being simultaneously deposited therein, the amount remaining in each Subaccount and Account of the Community Obligation and Revenue Enhancement Fund after such withdrawal shall not be less than the applicable Requirement. In giving effect to clause (ii) on the preceding sentence, the Authority shall determine the applicable Requirement for any Subaccount established with respect to a Series of Bonds all or a portion of which are being refunded by calculating the



Requirement as if the Bonds which are being refunded had been refunded on the last day of the preceding Fiscal Year. (Section 513)

#### Certain Notices

So long as the SRF Bonds are outstanding, the Authority agrees to provide to the Trust notice of any draw pursuant to the provisions described under the heading Priority of Funds in Event of Debt Service Fund Shortfall or Priority of Funds in Event of Subordinated Debt Service Fund Shortfall or any draw on the Community Obligation and Revenue Enhancement Fund or Debt Service Reserve Fund for the purpose of paying debt service on any Secured Bond. (Sixth Supplemental Resolution Section 308)

#### Operating Reserve Fund

(a) Moneys in the Operating Reserve Fund shall be transferred to the Operating Fund to be applied to the payment of Operating Expenses upon delivery of a Certificate of an Authorized Representative of the Authority to the effect that moneys on deposit in the Operating Fund are insufficient therefor. The Trustee shall also apply moneys in the Operating Reserve Fund as provided under the headings Priority of Funds in Event of Debt Service Fund Shortfall and Priority of Funds in Event of Subordinated Debt Service Fund Shortfall.

(b) If on any December 31 or June 30 Revenues are insufficient to make the deposits to the Operating Reserve Fund required to be made from the Reserve Fund, or if on any date the Authority delivers a Certificate to the Trustee to the effect that moneys in the Operating Fund and the Operating Reserve Fund are insufficient to meet Operating Expenses then due and payable then, subject to any transfers to be made on such date provided under the headings Priority of Funds in Event of Debt Service Fund Shortfall and Priority of Funds in Event of Subordinated Debt Service Fund Shortfall, the Trustee shall withdraw and apply the necessary moneys to provide for such insufficiency from the following Funds and Accounts in the following order: (i) the General Fund; (ii) amounts in the Revolving Loan Fund not yet committed to loans to Local Bodies; (iii) the Rate Stabilization Fund; (iv) the Water Pollution Abatement Fund; (v) the Renewal and Replacement Reserve Fund; and (vi) the Insurance Reserve Fund. On each June 30, excesses in the Operating Reserve Fund shall be transferred to the Revenue Fund. (Section 514)

#### Insurance Reserve Fund

(a) Moneys in the Insurance Reserve Fund may be applied by the Authority only to the purpose and in the manner provided for the proceeds of insurance set forth in the General Bond Resolution. The Trustee shall also apply moneys in the Insurance Reserve Fund as provided under the headings Priority of Funds in Event of Debt Service Fund Shortfall and Priority of Funds in Event of Subordinated Debt Service Fund Shortfall.

(b) If on any day on which a transfer from the Revenue Fund to the Insurance Reserve Fund is required pursuant to the General Bond Resolution Revenues are insufficient to make the deposits to the Insurance Reserve Fund required by General Bond Resolution to be made from the Revenue Fund, or if on any date the Authority delivers a Certificate to the Trustee to the effect that moneys in the Insurance Reserve Fund are insufficient to meet claims properly payable from such Fund then due and payable then, subject to any transfers to be made on such date provided under the headings Priority of Funds in Event of Debt Service Fund Shortfall, Priority of Funds in Event of Subordinated Debt Service Fund Shortfall and Operating Reserve Fund, the Trustee shall withdraw and apply the necessary moneys to provide for such insufficiency from the following Funds and Accounts in the following order: (i) the General Fund; (ii) amounts in the Revolving Loan Fund not yet committed to loans to Local Bodies; (iii) the Rate Stabilization Fund; (iv) the Water Pollution Abatement Fund and (v) the Renewal and Replacement Reserve Fund. On each June 30 excesses in the Insurance Reserve Fund shall be transferred to the Revenue Fund. (Section 515)

#### Renewal and Replacement Reserve Fund

(a) Moneys in the Renewal and Replacement Reserve Fund shall be applied as hereinafter provided to the Cost of any Capital Improvement which is not provided for by moneys available in the Construction Fund or the

Operating Fund. The Trustee shall withdraw from such Fund and deposit in one or more special separate Subaccounts established for such purpose in the Construction Fund or, if the Authority has by resolution determined to subsequently finance such Capital Improvement by the issuance of Secured Bonds in a Subaccount relating to such Secured Bonds, any amount requested by the Authority but only upon receipt of a certificate of an Authorized Representative (i) specifying the Capital Improvement to which such amount will be applied, its estimated Cost and estimated completion date and (ii) certifying (a) that such Capital Improvement is reasonably required for the continued operation of the System or the maintenance of Revenues, (b) that all or a portion of the Cost of such Capital Improvement was not included in the Cost of Capital Improvements to be financed in whole or in part from the Operating Fund and (c) that only the Cost of such Capital Improvement that is in excess of the amounts available therefor in such Fund, is being or has previously been requisitioned from the Renewal and Replacement Reserve Fund. Upon completion of such Capital Improvement, any amount so deposited and not necessary to pay the Cost of such Capital Improvement shall be redeposited in the Renewal and Replacement Reserve Fund. The Trustee shall also apply moneys in the Renewal and Replacement Reserve Fund as provided under the headings Priority of Funds in the Event of Debt Service Fund Shortfall, Priority of Funds in Event of Subordinated Debt Service Shortfall, Operating Reserve Fund and Insurance Reserve Fund.

(b) If on any day on which a transfer from the Reserve Fund to the Renewal and Replacement Reserve Fund is required provided under the headings Priority of Funds in Event of Debt Service Fund Shortfall, Priority of Funds in Event of Subordinated Debt Service Shortfall, Operating Reserve Fund and Insurance Reserve Fund Revenues are insufficient to make the deposits to the Renewal and Replacement Reserve Fund required to be made from the Revenue Fund, or if on any date the Authority delivers a Certificate to the Trustee to the effect that moneys in the Renewal and Replacement Reserve Fund are insufficient to meet the Costs of a Capital Improvement to be funded as described in paragraph (a) above then due and payable then, subject to any transfers to be made on such date provided under the headings Priority of Funds in Event of Debt Service Fund Shortfall, Priority of Funds in Event of Subordinated Debt Service Shortfall, Operating Reserve Fund and Insurance Reserve Fund, the Trustee shall withdraw and apply the necessary moneys to provide for such insufficiency from the following Funds and Accounts in the following order: (i) the General Fund; (ii) amounts in the Revolving Loan Fund not yet committed to loans to Local Bodies; (iii) the Rate Stabilization Fund and (iv) the Water Pollution Abatement Fund.

(c) On each June 30, excesses in the Renewal and Replacement Fund shall be transferred to the Revenue Fund or shall be retained in the Renewal and Replacement Fund upon the delivery of a Certificate of an Authorized Representative of the Authority to the effect that such amounts being retained are necessary to meet the Costs of Capital Improvements properly payable from such Fund as described in paragraph (a) above. (Section 516)

#### Water Pollution Abatement Fund

(a) Moneys in the Water Pollution Abatement Fund shall be transferred as directed by the Authority for the payment of Water Pollution Abatement Obligations upon receipt by the Trustee of the Certificate of an Authorized Representative that moneys in respect to Water Pollution Abatement Obligations are due and payable by the Authority. The Trustee shall also apply moneys in the Water Pollution Abatement Fund as described under the headings Priority of Funds in Event of Debt Service Fund Shortfall, Priority of Funds in Event of Subordinated Debt Service Fund Shortfall, Operating Reserve Fund, Insurance Reserve Fund and Renewal and Replacement Reserve Fund.

(b) On each June 30, excesses in the Water Pollution Abatement Fund shall be transferred to the Revenue Fund. (Section 516A)

#### Rate Stabilization Fund

Moneys shall be transferred to the Rate Stabilization Fund from the General Fund as provided in the General Bond Resolution. Moneys in the Rate Stabilization Fund may be transferred to a separate Subaccount of the Construction Fund upon receipt of a Certificate of an Authorized Representative to the effect that such moneys are necessary to pay the Costs of Projects for which no other funds in the Construction Fund are available. Moneys in the Rate Stabilization Fund shall be transferred to the Revenue Fund upon delivery to the Trustee of a Certificate of an Authorized Representative of the Authority or in accordance with the provisions of an Operating Budget. The Trustee shall also apply moneys in the Rate Stabilization Fund as described under the headings Priority of Funds in

Event of Debt Service Fund Shortfall, Priority of Funds in Event of Subordinated Debt Service Fund Shortfall, Operating Reserve Fund, Insurance Reserve Fund and Renewal and Replacement Reserve Fund. Moneys in the Rate Stabilization Fund shall also be transferred to the Note Payment Fund and applied to the payment of principal of and interest on Bond Anticipation Notes to the extent provided in any Supplemental Resolution authorizing such notes. (Section 517)

#### Revolving Loan Fund

Moneys in the Revolving Loan Fund shall be used to make loans on such terms and conditions as the Authority may deem appropriate to Local Bodies receiving water or sewer service from the Authority for the purpose of financing capital improvements to be made to the water distribution and waste-water collection systems of such Local Bodies. Repayments of principal and interest on such loans shall be transferred upon receipt by the Authority to the Trustee and deposited in the Revolving Loan Fund unless the Authority shall instruct the Trustee that repayments of interest on such loans are to be deposited in the Revenue Fund. Any such interest payments deposited in the Revenue Fund shall be deemed "Revenues." Any such loans and repayments, together with any notes or other instruments evidencing such loans and any security provided therefor and the rights to receive such repayments, and any amounts on deposit in the Revolving Loan Fund committed to funding such loans may be pledged as security for any Indebtedness incurred pursuant to the General Bond Resolution for the purpose of funding such loans. The Trustee shall also apply moneys in the Revolving Loan Fund as described under the headings Priority of Funds in Event of Debt Service Fund Shortfall, Priority of Funds in Event of Subordinated Debt Service Fund Shortfall, Operating Reserve Fund, Insurance Reserve Fund and Renewal and Replacement Reserve Fund. (Section 518)

#### General Fund

(a) Moneys in the General Fund shall be transferred to the Rate Stabilization Fund upon delivery to the Trustee of a Certificate of an Authorized Representative of the Authority (i) to the effect that, for the previous Fiscal Year, the requirements of the Combined Bond Coverage Requirement shall have been satisfied and (ii) setting forth the amount of Revenues Available for Bond Debt Service for such period in excess of Combined Bond Coverage Requirement for such period which are then on deposit in the General Fund to be transferred by the Trustee to the Rate Stabilization Fund, provided that the transfer shall not be in an amount greater than such excess. The Trustee shall also transfer moneys in the General Fund to a separate subaccount of the Construction Fund upon receipt of a Certificate of an Authorized Representative to the effect that such moneys are necessary to pay the Costs of Projects for which no other funds in the Construction Fund are available. Moneys in the General Fund may also be transferred to the Redemption Account and applied to the redemption of Secured Bonds. The Trustee shall also apply moneys in the General Fund as described under the headings Priority of Funds in Event of Debt Service Fund Shortfall, Priority of Funds in Event of Subordinated Debt Service Fund Shortfall, Operating Reserve Fund, Insurance Reserve Fund and Renewal and Replacement Reserve Fund. Moneys in the General Fund shall also be transferred to the Note Payment Fund and applied to the payment of principal of and interest on Bond Anticipation Notes to the extent provided in any Supplemental Resolution authorizing such notes.

(b) On any date, subject to the requirements of the shortfall provisions of the Debt Service Fund, the Subordinated Debt Service Fund, the Operating Reserve Fund, the Insurance Reserve Fund and the Renewal and Replacement Reserve Fund, the Authority may, by a Certificate of its Authorized Representative and without any further showing, direct that moneys be transferred from the General Fund to any Fund or Account established under the General Bond Resolution other than the Revenue Fund, the Operating Fund, the Principal and Interest Accounts in the Debt Service Fund and the Rate Stabilization Fund. (Section 519)

#### Note Payment Fund

(a) The Authority shall deposit into a separate account the Note Payment Fund the proceeds of any Secured Bonds issued to provide for the payment of Bond Anticipation Notes of the Authority as directed by the Supplemental Resolution for such Secured Bonds and shall deposit amounts transferred pursuant to the General Bond Resolution as described in paragraph (a) under the heading Subordinated Debt Service Fund and paragraph (a) under the heading General Fund.



(b) Moneys on deposit in a subaccount of the Note Payment Fund shall be applied to the payment of the Bond Anticipation Notes with respect to which such subaccount was established upon receipt by the Trustee of a Certificate of the Authority as required by General Bond Resolution. Any moneys remaining in a subaccount of the Note Payment Fund after payment of the Bond Anticipation Notes with respect to which such account was established shall be transferred to and deposited in a separate subaccount established within the Construction Fund. (Section 520)

#### Depositaries

All moneys or securities held by the Trustee under the provisions of the General Bond Resolution shall constitute trust funds and the Trustee may, and shall, if directed in writing by an Authorized Representative of the Authority, deposit such moneys or securities with one or more Depositaries in trust for the Trustee. Moneys or securities in the Operating Fund shall be deposited by the Authority with one or more Depositaries in trust for the authority. All moneys or securities deposited under the provisions of the General Bond Resolution with the Trustee or any Depositary shall be held in trust and applied only in accordance with the provisions of the General Bond Resolution, and each of such Funds established by the General Bond Resolution shall be a trust fund for the purposes thereof. Each Depositary holding moneys or securities in trust for the Trustee shall be a bank or trust company organized under the laws of the Commonwealth or a national banking association (having its principal office with the Commonwealth), having capital stock, surplus and undivided earnings aggregating at least \$100,000,000 (or such greater amount as set forth in a Supplemental Resolution) 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 General Bond Resolution. (Section 521)

#### Investment of Certain Funds

(a) Moneys held in the Debt Service Fund, the Subordinated Debt Service Fund, and the Note Payment Fund shall be invested and reinvested by the Trustee to the fullest extent practicable in Investment Securities of the type described in clause (a), (b), (c), (d), (f), (h), (i), (j), (k), (l) or (m) of the definition of Investment Securities in the General Bond Resolution. Moneys held in the Debt Service Reserve Fund, the Subordinated Debt Service Reserve Fund, and the Community Obligation and Revenue Enhancement Fund, shall be invested and reinvested by the Trustee to the fullest extent practicable in Investment Securities of the type described in clause (a), (b), (c), (d), (i), (j), (k), (l) or (m) of the definition of Investment Securities which mature not later than fifteen years from the date of such investment. Moneys held in any other Fund or Account established under the General Bond Resolution may be invested and reinvested in Investment Securities. The Trustee shall make all such investments of moneys held by it in accordance with written instructions from any Authorized Representative of the Authority, which may for this purpose include one or more investment advisors designated in writing by such Representative from time to time. In making any investment in any Investment Securities with moneys in any Fund or Account established under the General Bond Resolution, the Authority and the Trustee may combine such moneys with moneys in any other Fund or Account. Moneys in any Fund or Account shall be invested so as to mature not later than such times as shall be necessary to provide moneys when needed for payments to be made from such Fund or Account.

(b) Interest and other investment earnings on any moneys or investments in the Funds and Accounts, other than the Construction Fund, the Operating Fund, the Note Payment Fund, the Debt Service Fund, the Debt Service Reserve Fund, the Subordinated Debt Service Reserve Fund and the Community Obligation and Revenue Enhancement Fund shall be paid into the Revenue Fund on the last Business Day of each month. Interest and other investment earnings on any moneys or investments in the Operating Fund, the Debt Service Fund, the Subordinated Debt Service Fund and the Note Payment Fund shall be retained in the Fund in which such earnings accrued; provided that the Authority may direct that the earnings on moneys in the Operating Fund may be deposited in the Revenue Fund. Interest and other investment earnings on any moneys or investments in the Debt Service Fund, the Debt Service Reserve Fund, and the Community Obligation and Revenue Enhancement Fund shall be paid on the last Business Day of each month, first to the Interest Account of the Debt Service Fund and second to the Principal Account of the Debt Service Fund; and interest and any other investment earnings on the Subordinated Debt Service Reserve Fund shall be paid on the last Business Day of each month, first to the Interest Account of the Subordinated Debt Service Fund and second to the Principal Account of the Subordinated Debt Service Fund; provided, however, that the Authority may direct that investment earnings on any moneys or investments in the Debt Service Fund,

Community Obligation and Revenue Enhancement Fund or the Subordinated Debt Service Reserve Fund may be deposited for such period of time as the Authority may determine in the Revenue Fund or the Construction Fund if the authority shall obtain a Bond Counsel's Opinion to the effect that such application of earnings shall not adversely affect the exclusion of interest on any Tax Exempt Indebtedness from gross income of the holder for federal income tax purposes. Interest and other investment earnings on any other moneys of investments in Construction Fund attributable to any subsequent series of Secured Bonds shall be paid on the last Business Day of each month, to the related Subaccounts of the Debt Service Fund (or the Subordinated Debt Service Fund if so specified in the applicable Supplemental Resolution) first to the Interest Account and second to the Principal Account; provided, however, that the Authority may from time to time direct that all or a portion of such earnings may be retained in the Construction Fund for any period of time if there shall be provided a Certificate of an Authorized Officer of the Authority on the date of such direction and on each July 1 thereafter, so long as such direction remains in effect, (i) certifying for the most recent preceding period of twelve consecutive months, Revenues Available for Bond Debt Service were at least equal to the Combined Bond Coverage Requirement for both the current the Combined Bond Coverage Requirement and (ii) projecting that Revenues Available for Bond Debt Service will be at least equal to and, if the period so directed by Authority includes it, the following fiscal year. Earnings retained in the Construction Fund will not be included in the calculation of Revenues Available for Bond Debt Service. For purposes of this paragraph, interest shall not include the return of accrued interest paid in connection with the purchase of any investment.

(c) Notwithstanding the foregoing, the Authority may direct that investment earnings reasonably expected to be subject to the requirements of section 148(f) of the Code or the Treasury Regulations applicable thereto may be deposited directly to the Rebate Fund to the extent desirable to comply with the requirements of section 148(f) of the Code or the Treasury Regulations applicable thereto. (Section 523 and Second Supplemental Resolution Section 401)

(d) Pursuant to the provisions described in paragraph (b), investment earnings derived from moneys on deposit from time to time in the Construction Fund and the Subordinated Debt Service Fund attributable to the SRF Bonds shall be transferred on the last Business Day of each month to the related Subaccounts of the Subordinated Debt Service Fund, first to the Interest Subaccount and second to the Principal Subaccount. (Sixth Supplemental Resolution Section 304, Tenth Supplemental Resolution Section 304 and Fourteenth Supplemental Resolution Section 304)

#### Valuation and Sale of Investments

Obligations purchased as an investment of moneys in any Fund created under the provisions of the General Bond Resolution shall be deemed at all times to be a part of such Fund and any profit realized from the liquidation of such investment shall be credited to such Fund and any loss resulting from the liquidation of such investment shall be charged to such Fund.

In computing the amount in any Fund created under the provisions of the General Bond Resolution for any purpose provided in the General Bond Resolution, obligations purchased as an investment of moneys therein shall be valued at the amortized cost of such obligations or the market value thereof, whichever is lower. Any deficiency resulting from a decrease in the valuation of investments held in the Debt Service Reserve Fund may be disregarded for purposes of calculating deposits required from the Revenue Fund (but not for purposes of deposits required to make the amount on deposit in each Subaccount of the Debt Service Reserve Fund equal to the applicable Series Debt Service Reserve Fund Requirement) provided that the amount on deposit in the Debt Service Reserve Fund is at least 95% of the Debt Service Fund Requirement. The accrued interest paid in connection with the purchase of any obligation shall be included in the value thereof until interest on such obligation is paid. Such computation shall be made annually on June 30 for all Funds and at such other times as the Authority shall determine or as may be required by the General Bond Resolution. (Section 524)

#### Rebate Fund

Upon the issuance, sale and delivery of any Series of Indebtedness subject to the Rebate Fund Requirement, the Trustee shall establish a separate account within the Rebate Fund for such Series. Funds on deposit in the Rebate Fund shall be applied as set forth in the applicable Supplemental Resolution. Unless otherwise

specified in the applicable Supplemental Resolution, interest or other income derived from the investment or deposit of moneys in the Rebate Fund shall be transferred to the Revenue Fund. (Section 525)

#### Holding of Special Deposits

Except as otherwise provided in any Supplemental Resolution, (i) any Grant Receipts held by or for the account of the Authority in connection with the System which are required to be applied under the terms of the applicable Grant Agreement directly to the payment of Costs of acquisition, construction or alteration of a Project which is the subject of such Grant Agreement and (ii) any Grant Receipts or other moneys which have been pledged to the payment of any Special Subordinated Indebtedness issued pursuant to the provisions of the Operating Reserve Fund described in paragraph (a)(i) or (b) under the heading Special Subordinated Indebtedness (including, without limitation, proceeds of any such indebtedness) and (iii) any moneys which are subject to refund by the Authority or held for the account of others including, without limitation, any amounts which, under any agreement by the Authority providing for adequate separation of such amounts from Revenues, are collected by the Authority on behalf of others for services rendered or commodities provided to customers of the System, any amounts deducted by the Authority from wage and salary payments to the employees of the Authority, any amounts contributed by the Authority to any pension or retirement fund or system which amounts are held in trust for the benefit of the employees of the Authority and any amounts held as deposits and (iv) any state debt service assistance which the Authority elects not to include in Revenues, together with any investments of such Grant Receipts or other moneys and interest and profits thereon to the extent such interest and profits are also pledged, segregated or held for the account of others or subject to refund to others, may be held by the Authority in such manner and in such depositories or accounts, outside of the various Funds and Accounts established by the General Bond Resolution, as the Authority may otherwise by resolution provide. At the election of the Authority such Grant Receipts and other moneys may be deposited in separate accounts maintained by the Authority with the Trustee or any other Depository; moneys described in clause (iv) above shall be deposited by the Trustee in the Debt Service Fund or the Subordinated Debt Service Fund upon the instructions of the Authority, which instructions shall specify the timing and amount of each such deposit and the Account or Accounts of such Funds to which the deposits are to be made. (Section 526)

#### Covenants of the Authority

In the General Bond Resolution, the Authority covenants, among other things, as follows:

##### Covenant as to Rates and Charges; Debt Service Coverage Ratio

(a) The Authority shall for each Fiscal Year fix and adjust Rates and Charges with respect to its Waterworks and Sewer Operations, which Rates and Charges shall be adopted by the Authority's Board of Directors strictly in accordance with the provisions of the Act as in effect on the date of adoption of the General Bond Resolution and which adoption shall be conclusive and final and not subject to supervision or regulation by any office, department, division, commission, board, bureau or agency of the Commonwealth or any of its political subdivisions, so as to provide funds, in the aggregate and separately, with respect to costs and operations allocable to the Waterworks and Sewer Operations at least sufficient with other revenues of the Authority, if any, available therefor (i) to pay all Current Expenses, (ii) to pay all Debt Service on Indebtedness of the Authority as the same becomes due and payable, (iii) to create and maintain all reserves established pursuant to the General Bond Resolution or reasonably required by any other agreement securing Indebtedness of the Authority or as otherwise determined by the Authority to be necessary or desirable, (iv) to pay all costs of maintenance and replacement of the System, and costs of improving, extending and enlarging the System as determined by the Authority to be necessary or desirable, to be funded as Current Expenses in order to carry out the purposes of the Authority, (v) to provide for payments to the Commonwealth for debt service as provided in the Act, and (vi) to pay or provide for all amounts which the Authority may be obligated to pay or provide for by any law or contract including the General Bond Resolution or other agreement securing Indebtedness of the Authority and including any amount to be repaid to the Commonwealth to reimburse the Commonwealth for the debt service paid by the Commonwealth on a bond issued under Section 5(f) of the Act. The charges of the Authority for delivery of water and for sewage collection, disposal and treatment services shall be established as charges of general application to be borne by the local body utilizing such services (provided, however, that the Authority reserves the right to impose charges of special application in

accordance with the Act) and shall be established at a level sufficient to meet the revenue requirements of the Authority as described in this paragraph.

(b) Without limiting the provisions described in paragraph (a) above, the Authority shall fix and adjust Rates and Charges, which Rates and Charges shall be adopted by the Authority's Board of Directors strictly in accordance with the provisions of the Act as in effect on the date of adoption of the General Bond Resolution and which adoption shall be conclusive and final and not subject to supervision or regulation by any office, department, division, commission, board, bureau or agency of the Commonwealth or any of its political subdivisions, sufficient to provide Revenues Available for Bond Debt Service in each Fiscal Year at least equal to the Combined Bond Coverage Requirement.

(c) Without limiting the provisions described in paragraph (a) or (b) above, the Authority shall fix and adjust Rates and Charges, which Rates and Charges shall be adopted by the Authority's Board of Directors strictly in accordance with the provisions of the Act as in effect on the date of adoption of the General Bond Resolution and which adoption shall be conclusive and final and not subject to supervision or regulation by any office, department, division, commission, board, bureau or agency of the Commonwealth or any of its political subdivisions, sufficient to provide Revenues Available for Subordinated Debt Service in each Fiscal Year at least equal to the coverage requirement, if any, set forth in a Supplemental Resolution in connection with a Series of Subordinated Bonds.

(d) The Primary Bond Coverage Ratio and the Supplemental Bond Coverage Ratio may be adjusted from time to time by the Authority by the adoption of a Supplemental Resolution provided that: (i) the Authority shall have provided evidence to the Trustee that the details of such adjustment have been provided in writing to each Rating Agency then assigning a rating on Outstanding Secured Bonds and that each such Rating Agency has either (x) confirmed in writing that such adjustment will not adversely affect such ratings or (y) issued a rating on a Series of Bonds to be issued which is not less than the rating assigned by such Rating Agency to Outstanding Bonds of such category, or any other evidence satisfactory to the Trustee that such adjustment will not adversely affect the then current ratings, if any, assigned to any Outstanding Secured Bonds by and Rating Agency; and (ii) the Primary Bond Coverage Ratio shall not be less than 1.1; and (iii) no such adjustment shall cause the sum of (x) the Primary Bond Coverage Ratio and (y) the Supplemental Bond Coverage Ratio to be less than 1.2.

(e) If in any Fiscal Year Revenues shall not satisfy the requirements described in paragraph (a) above, or Revenues Available for Bond Debt Service or Revenues Available for Subordinated Debt Service shall not satisfy the requirements described in paragraph (b) or (c) above, respectively, then the Authority shall not be deemed to be in default under the General Bond Resolution so long as it shall have complied or is diligently proceeding to comply with the requirements described in paragraphs (f) and (g) below.

(f) On or before the last day of each Fiscal Year the Authority shall review the adequacy of its rates, fees, rentals and other charges with respect to the System and the Authority's other corporate purposes to satisfy the requirements described under this heading for the next succeeding Fiscal Year. If such review, or any report of a Consulting Engineer or Rate Consultant provided in connection with such review or in accordance with any section hereof, indicates that the rates, fees, rentals and other charges with respect to the System and the Authority's other corporate purposes are, or are likely to be, insufficient to meet the requirements described under this heading for the next succeeding Fiscal Year, or if it otherwise appears at any time during such Fiscal Year that rates, fees, rentals and other charges with respect to the System and the Authority's other corporate purposes are or are likely to be insufficient to meet such requirements, the Authority shall promptly take such steps as are permitted by law and as are necessary to cure or avoid the deficiency.

(g) Within one hundred and eighty (180) days of the close of each Fiscal Year while Bonds are Outstanding, the Authority shall deliver to the Trustee a certificate of an Authorized Representative stating, if such was the case, that the Authority satisfied the requirements described in paragraphs (a), (b) and (c) above in such Fiscal Year or, if such was not the case, specifying in reasonable detail the corrective steps taken by the Authority so that it will comply with such requirements in the then current Fiscal Year. Such certificate shall be accompanied by a Certificate of the Accountant in accordance with the General Bond Resolution setting forth the amounts for the preceding Fiscal Year which are necessary to determine compliance with the requirements described in paragraph (a), (b) or (c) above. If the amounts set forth in the certificate of the accountants indicate that the Authority was not in compliance for such Fiscal Year with the provisions described in paragraph (a), (b) or (c) above, the Consulting

Engineer or Rate Consultant shall review the adequacy of the Authority's rates, fees, rentals and other charges with respect to the System and shall recommend changes necessary for the Authority to be in compliance with the provisions described in paragraphs (a), (b) and (c) above by the end of the then current Fiscal Year. The Authority covenants, to the extent permitted by and in accordance with the Act, to use its best efforts to effect such changes as are so recommended by the Consulting Engineer or Rate Consultant. (Section 705)

#### Trust Combined Debt Service Coverage Ratio

So long as any SRF Bonds are outstanding, the Authority covenants to fix and adjust Rates and Charges, which Rates and Charges shall be adopted by the Authority's Board of Directors strictly in accordance with the provisions of the Act as in effect on the date of adoption of the General Bond Resolution sufficient to maintain the Secured Bond Debt Service Coverage Ratio for each Fiscal Year at a level of at least 1.10, after providing for all required Supplemental Bond Coverage Deposits and to include in its certificate submitted pursuant to the provisions of the General Bond Resolution described in paragraph (g) under the heading Covenant as to Rates and Charges; Debt Service Coverage Ratio a statement of compliance therewith, provided that if in any Fiscal Year the Authority fails to maintain such ratio at such level then the Authority shall not be deemed to be in default by reason of such failure so long as it shall have complied or be diligently proceeding to comply with the requirements described in paragraphs (f) and (g) under the heading Covenant as to Rates and Charges; Debt Service Coverage Ratio as though maintenance of the Secured Bond Debt Service Coverage Ratio were expressly referred to in such paragraphs (f) and (g). (Sixth Supplemental Resolution Section 305)

#### Sale, Lease or Encumbrance of Property

(a) Except as provided under this heading and authorized under the Act, no part of the System shall be sold, mortgaged, leased or otherwise disposed of or encumbered.

(b) The Authority may from time to time sell or exchange or otherwise dispose of at any time and from time to time any property or facilities constituting part of the System which either (1) are worn out or obsolete or (2) in the opinion of the Authority are no longer useful in the operation of the System and, if the market value of such property or facilities to be sold or otherwise disposed of in any Fiscal Year, as determined by the Authority, is in excess of one tenth of one percent (.1%) of the book value of the entire System, the Authority delivers to the Trustee a certificate of an Authorized Representative stating, in the opinion of the signer, that the sale, exchange or other disposition of such property or facilities will not impair the ability of the Authority to satisfy the Rates and Charges covenants in the then current or any future Fiscal Year. Any proceeds of such sale, exchange or other disposition not used to replace the property so sold or exchanged shall be deposited by the Authority in the Revenue Fund.

(c) To the extent permitted by the Act, the Authority may mortgage, grant security interests in, or otherwise encumber any real or personal property included in the System, or may lease any lessee any real or personal property to be used in the operation of the System, provided that the aggregate annual payments required to be made by the Authority under all such mortgages, security interests, encumbrances and leases shall not in any Fiscal Year exceed twenty-five percent (25%) of the total Current Expenses for such Fiscal Year as shown in the Current Expense Budget then in effect. The proceeds of sale, if any, of any such property mortgaged or otherwise encumbered, after satisfying the mortgage, security interest or other encumbrance secured by the same, shall be deposited in the Revenue Fund. Until so deposited, such proceeds shall not be deemed Revenues under the General Bond Resolution.

(d) To the extent permitted by the Act, the Authority may lease as lessor or make contracts or grant licenses for the operation of, or grant easements or other rights with respect to, any part of the System if such lease, contract, license, easement or right does not, in its opinion (as evidenced, in the event of any such lease, contract, license, easement or right which extends for more than one year or which is irrevocable, by a Certificate of an Authorized Representative delivered to the Trustee), impede the operation by the Authority of the System. Except as detailed under the heading Special Subordinated Indebtedness, any payments to the Authority under or in connection with any such lease, contract, license, easement or right (except any such payments specifically excluded from the definition of Revenues) shall constitute Revenues under the General Bond Resolution. (Section 706)



### Operation, Maintenance and Reconstruction

(a) The Authority shall operate, or cause to be operated, the System properly and in a sound, efficient and economical manner and shall maintain, preserve, and keep the same or cause the same to be maintained, preserved, and kept in good repair and operating condition, and shall from time to time make, or cause to be made, all necessary and proper repairs, replacements and renewals so that the operation of the System may be properly and advantageously conducted, and, if any useful part of the System is damaged or destroyed or taken through the exercise of eminent domain, the Authority shall, as expeditiously as practicable, commence and diligently prosecute the replacement or reconstruction of such damaged or destroyed part so as to restore the same to use and the replacement of such part so taken; provided, however, that nothing in the General Bond Resolution shall require the Authority to operate, maintain, preserve, repair, replace, renew or reconstruct any part of the System if there shall have been filed with the Trustee (1) a certificate of an Authorized Representative stating that in the opinion of the signer (a) abandonment of operation of such part is economically justified and (b) failure to operate, maintain, preserve, repair, replace, renew or reconstruct such part will not impair the ability of the Authority to satisfy the Rates and Charges covenants in the current or any future Fiscal Year, and (2) a certificate of a Consulting Engineer concurring in such opinion of the Authorized Representative if the book value of such part of the System exceeds one percent (1%) of the book value of the entire System.

(b) The Authority shall establish and enforce reasonable rules and regulations governing the operation, use and services of the System. All compensation, salaries, fees and wages paid by the Authority in connection with the maintenance, repair and operation of the System shall be reasonable.

(c) Nothing in the General Bond Resolution shall be deemed to preclude the Authority from undertaking such other Projects or exercising such other powers unrelated to the operation of the System as may be permitted from time to time under the Act and approved by its Board of Directors. (Section 707)

### Insurance and Condemnation

(a) The Authority shall at all times either (i) keep all property which is a part of the System and which is of an insurable nature and of the character usually insured by water or sewer utility systems similar to the Authority insured against loss of damage by fire and from other causes customarily insured against and in such relative amounts as are customary, and also at all times maintain insurance against loss or damage from such hazards and risks to persons and the property of others as are usually insured against by water or sewer utility systems similar to the Authority or (ii) maintain the Insurance Reserve Fund at the Insurance Reserve Fund Requirement. In determining the amounts and types of insurance to be maintained as provided under this heading, the Authority may rely upon the advice of a Consulting Engineer or an insurance consultant of recognized standing selected by the Authority and satisfactory to the Trustee. All policies of insurance shall be payable to the Authority or to the Trustee. On or before the last day of each Fiscal Year, the Authority shall deliver to the Trustee a certificate of an Authorized Representative listing the types and amounts of insurance then maintained by the Authority as provided under this heading and the insurers therefor.

(b) All proceeds of insurance maintained pursuant to paragraph (a) above shall be applied as provided in the General Bond Resolution. Such application may include the redemption of Secured Bonds of the Series to which such moneys relate on the first date on which such Secured Bonds may be called without premium (unless the Authority shall elect to call such Secured Bonds earlier at a premium).

(c) If any property or facility comprising part of the System shall be taken through the exercise of the power of eminent domain, the Authority shall apply the proceeds of any award received on account of such taking to the replacement of the property or facility so taken or deposit such proceeds in the Renewal and Replacement Reserve Fund or the Operating Reserve Fund to the extent that the costs of such replacement were paid from the Renewal and Replacement Reserve Fund or the Operating Reserve Fund, unless the Authority determines in accordance with the General Bond Resolution not to replace such property or facility. Any proceeds of such award not applied to such replacement or remaining after such work has been completed shall be deposited in the Revenue Fund, except that any proceeds resulting from the taking of all or substantially all of the System shall be deposited with the Trustee in the Redemption Account of the Debt Service Fund for the purpose of redemption of Secured Bonds or for the defeasance of Secured Bonds as provided in the General Bond Resolution. (Section 708)

### Consulting Engineer: Rate Consultant

The Authority shall, until the Secured Bonds and the interest thereon shall have been paid or provision for such payment shall have been made, for the purpose of performing and carrying out the duties imposed on the Consulting Engineer by the General Bond Resolution, employ an independent engineer or engineering firm having a nationwide and favorable repute for skill and experience in such work and, except in the case of the firm serving as Consulting Engineer at the time of the adoption of the General Bond Resolution, who shall be reasonably acceptable to the Trustee. (Section 710)

The Authority shall, until the Secured Indebtedness and the interest thereon shall have been paid or provision for such payment shall have been made, for the purpose of performing and carrying out the duties imposed on the Rate Consultant by the General Bond Resolution, employ an independent accountant or firm of independent accountants, or a management consultant or management consulting firm, or independent engineer or engineering firm (which may also be the Consulting Engineer), having, in any case, a nationwide and favorable repute for skill and experience in such work and, except in the case of the firm serving as the Rate Consultant at the time of the adoption of the General Bond Resolution, who shall be reasonably acceptable to the Trustee. (Section 711)

### Operating Budget

(a) Not less than thirty (30) days prior to the beginning of each Fiscal Year the Authority shall prepare and deliver to the Trustee a preliminary Operating Budget, and not less than one day prior to the beginning of each Fiscal Year, shall adopt, in accordance with applicable powers, procedures, responsibilities and limitations established by the Act for adoption of the Current Expense Budget, and file with the Trustee a copy of the Operating Budget, duly certified by an Authorized Representative of the Authority, showing on a monthly basis the estimated Operating Expenses to be paid from the Operating Fund and Commonwealth Obligations to be paid from the Commonwealth Obligation Fund, as well as the Revenues or other moneys held under the General Bond Resolution estimated to be available to pay such Operating Expenses and Commonwealth Obligations (including the amount of each item constituting a component thereof) for the ensuing Fiscal Year, together with any other information required to be set forth therein by the General Bond Resolution; provided, however, that the Operating Budget for the Fiscal Year, or portion thereof, in which the first Series of Secured Bonds is issued, may be adopted by any Authorized Officer. Such Operating Budget may set forth such additional information as the Authority may determine. The Authority shall not incur aggregate Operating Expenses and Commonwealth Obligations in any Fiscal Year in excess of the amount budgeted in the Operating Budget, as amended and supplemented for such Fiscal Year, except in case of emergency or as required by law and shall promptly file with the Trustee a written report of any such excess expenditure signed by an Authorized Representative and as soon as practicable thereafter adopt and file with the Trustee an amendment to the Operating Budget.

(b) In conjunction with the adoption and filing, or any amendment, of the Operating Budget, the Authority shall certify the Operating Reserve Fund Requirement for the Fiscal Year to which such Budget relates; provided that (i) the Operating Reserve Fund Requirement shall not be less than one-sixth (1/6) of the annual Operating Expenses set forth in such Budget and (ii) the Authority's certificate shall be consistent with the latest recommendation of the Consulting Engineer made in conjunction with its report pursuant to the General Bond Resolution. In addition, the Authority shall at the same time certify the Renewal and Replacement Reserve Fund Requirement for the Fiscal Year to which such Budget relates; provided that the Authority's certificate shall be consistent with the latest recommendation of the Consulting Engineer made pursuant to the General Bond Resolution. In addition, the Authority will certify the assumed interest rate on each Series of Variable Rate Indebtedness then Outstanding for which deposits will be required to be made from the Reserve Fund to the Debt Service Fund and the Subordinated Debt Service Fund pursuant to the General Bond Resolution. If the Authority shall not certify the Operating Reserve Fund Requirement or the Renewal and Replacement Reserve Fund Requirements as aforesaid, the requirement for the Fiscal Year shall be the Requirement in effect for the previous Fiscal Year until the new requirement is certified as aforesaid. Notwithstanding the foregoing, the initial Operating Reserve Fund Requirement and Renewal and Replacement Reserve Fund Requirement shall be as set forth in the Supplemental Resolution authorizing the first series of Secured Bonds under the General Bond Resolution.

(c) If for any reason the Authority shall not have adopted the Operating Budget as provided in the General Bond Resolution, the Operating Budget for the then current Fiscal Year shall be deemed to be the Operating Budget for the ensuing Fiscal Year until a new Operating Budget is adopted.

(d) The Authority may at any time adopt an amended Operating Budget for the then current or ensuing Fiscal Year, but no such amended Operating Budget shall supersede any prior Budget until the Authority shall have filed with the Trustee and the Advisory Board a copy of such amended Operating Budget and shall have complied in all respects with the requirements of the Act applicable to the Current Expense Budget in adopting any amended Operating Budget.

(e) In addition to the Authority's right to amend the Operating Budget pursuant to the General Bond Resolution, the Authority may reallocate amounts budgeted to specific items or months within the Operating Budget then in effect at any time by delivery of a Certificate of its Authorized Representative provided that no such reallocation shall result in an increase in the sum of the aggregate Operating Expenses and Commonwealth Obligations for the Fiscal Year covered by such Operating Budget. (Section 712)

#### Capital Budget

(a) Not less than forty-five (45) days prior to the beginning of each Fiscal Year the Authority shall prepare and file with the Trustee a proposed program of Projects to be undertaken by the Authority during such Fiscal Year and the next two ensuing Fiscal Years, identifying the Projects to be carried out, the estimated Costs thereof and the period of construction thereof, together with a proposed Capital Budget for the Projects to be undertaken in at least the first of such Fiscal Years. Not less than one day prior to the beginning of each Fiscal Year the Authority shall adopt and file with the Trustee a final Capital Budget for the Projects or parts thereof to be undertaken by the Authority in such Fiscal Year. The Capital Budget shall show all projected expenditures as well as the sources of moneys projected to be available to meet the same. The Capital Budget shall further identify the Projects to be undertaken, the nature of the work, the estimated Costs thereof and the estimated completion date of each Project.

(b) The Authority may from time to time amend or supplement the Capital Budget for the Fiscal Year then in progress by filing with the Trustee a certificate of an Authorized Representative setting forth the amendment or supplement. (Section 713)

#### Accounts and Reports

(a) The Authority shall maintain its books and accounts in accordance with generally accepted accounting principles applicable to water or sewer utilities such as the Authority and in accordance with such other principles of accounting as the Authority deems appropriate. Said books and accounts shall at all times be subject to the inspection of the Trustee and the Holder or Holders of not less than one percent (1%) in principal amount of Outstanding Secured Bonds of any category or their representatives duly authorized in writing.

(b) The Authority shall annually, within one hundred eighty (180) days after the close of each Fiscal Year, file with the Trustee a copy of an annual report for such year, accompanied by financial statements, audited by and containing the report of an independent Accountant relating to the operations and properties of the System for such Fiscal Year and setting forth in reasonable detail its financial condition as of the end of such year and the income and expenses for such year, and including a summary of the receipts in and disbursements from the Funds and Accounts maintained under the General Bond Resolution during such Fiscal Year and the amounts held therein at the end of such Fiscal Year. Each report of such accountant or firm of accountants shall state that the financial statements of the Authority were prepared in accordance with generally accepted accounting principles, or shall state in what respects such financial statements do not conform with such generally accepted accounting principles. If in connection with such annual audit such Accountant submits any written recommendations as to internal accounting controls or related matters, such recommendations shall also be filed with the Trustee. Each annual report shall be accompanied by a certificate of the accountant or firm of accountants auditing the same to the effect that in the course of and within the scope of their examination of such financial statements made in accordance with generally accepted auditing standards nothing came to their attention that would lead them to believe that a default had occurred under the General Bond Resolution or, if such is not the case, specifying the nature of the default.



(c) Within one hundred twenty (120) days after the close of every third Fiscal Year following the Fiscal Year in which the initial Series of Bonds under the General Bond Resolution is issued, the Authority shall file with the Trustee a copy of a certificate of a Consulting Engineer setting forth in reasonable detail (1) its finds as to whether the properties of the System have been maintained during such three-year period, and are then being maintained, in good repair and sound operating condition, (2) its estimate of the amount, if any, required to be expended to place such properties in such condition and the approximate time required therefor, (3) its recommendations, if any, as to improved management and proper maintenance, repair, and operation of, and capital improvements to, the System during the ensuing three-year period, (4) its recommendations as to the adequacy of the Renewal and Replacement Reserve Fund Requirement and the then current Operating Budget and Capital Budget and (5) its recommendations as to the adequacy of the Authority's rates, fees, rentals and other charges. If such certificate sets forth that the properties of the System are not then being maintained in good repair and sound operating condition, the Authority shall restore the properties to good repair and sound operating condition as promptly as is practicable. (Section 714)

#### Rates for Services

So long as any Secured Indebtedness is Outstanding, no free service related to the System shall be furnished by the Authority to any Local Body or to any person, firm, or corporation, except as set forth below. Any service rendered by the System to any Local Body or person, firm, or corporation shall be charged at the same rate and in the same manner in which any other user, within the same classification, is or would be charged for similar service. For purposes of this section, the Authority may make classifications among users of the System as permitted by the Act, which classifications may be based on reasonable distinctions related to the Authority's corporate purposes. The Authority may continue provisions for subsidization of water charges to which any Local Body is entitled in accordance with contract or other lawful obligations assumed by the Authority as successor to the MDC or otherwise entered into by the Authority prior to the adoption of the General Bond Resolution. (Section 715)

#### Non-Payment of Rates; Certification to Commonwealth Treasurer

(a) The Authority may in its discretion determine when an overdue payment shall constitute a Local Body Default, and be so certified, until such time as any such payment shall have been overdue for twelve months, whereupon the Authority shall certify such default as a Local Body Default. The Authority may make, with respect to any moneys received from a Local Body, reasonable allocations between its charges to such Local Body for the provision of waterworks or sewer services. The Authority shall notify the Trustee within thirty (30) days of any overdue Payment that remains unpaid, of the existence of such overdue payment and shall promptly notify the Trustee upon the declaration of such default as a Local Body Default. Within five Business Days of the determination of a Local Body Default, the Authority shall send to each Local Body receiving waterworks services, if such default was with respect to waterworks services or sewer services, if such Default was with respect to sewer services from the Authority, including the defaulting Local Body, a notice, a copy of which shall be sent to the Trustee, specifying (i) that a Local Body Default has occurred; (ii) the amount of such Local Body Default; (iii) that unless such default is cured an allowance equal to such amount, including any interest or late charges on the overdue amount, shall be incorporated into the charges to each Local Body in connection with the Authority's next ensuing rate-setting process; and (iv) the approximate amount by which the Rates and Charges to be assessed against each Local Body shall be increased on account of the inclusion of such allowance in Rates and Charges. Further, the Authority shall by the earlier of (x) eighteen months from the date of such Local Body Default or (y) the next establishment by the Authority of its Rates and Charges following the Local Body Default which can feasibly incorporate the allowance referred to above, provided that the defaulting Local Body shall not have cured its default, assess each Local Body, including the defaulting Local Body, a pro rata share, based on each Local Body's share of total charges for water and sewer services, respectively, of the amount of such Local Body Default, including any interest or charges on the overdue amount, which assessment shall be in addition to the Rates and Charges required to comply with the Rates and Charges covenants of the General Bond Resolution. The Authority shall provide the Trustee with written evidence that such assessment has been made.

(b) In addition to the requirements described in paragraph (a) above, the Authority shall take such steps as may be necessary under the provisions of the Act to collect delinquent rates or charges, and to enforce liens for non-payment of rates or charges, in a practicable and timely manner. Without limiting the foregoing, in the event that any Local Body, which has received a certification of the Authority's charges, shall fail to pay the same to

the Authority when due after demand by the Authority, the Authority shall promptly certify to the Treasurer and Receiver General of the Commonwealth the amount owing to the Authority by said Local Body in accordance with Section 10(b) of the Act. The Authority shall promptly certify its charges to each Local Body and, in the event of a Local Body's failure to pay the Authority's charges, shall promptly demand the payment of same. (Section 716)

#### Tax Covenants

The General Bond Resolution includes several covenants by the Authority as to federal and state tax matters, including a general covenant to take, or require to be taken, such action as may from time to time be required to assure the continued exclusion from the federal gross income of holders of any Series of Tax Exempt Indebtedness and the continued exemption from Massachusetts income taxation of the interest on Indebtedness, including, without limitation, the preparation and filing of any statements required to be filed by the Authority in order to establish and maintain such tax exclusion and exemption. In addition, the Authority shall not take, or permit to be taken on its behalf, any action which would adversely affect the exclusion from federal gross income, or the exemption from Massachusetts income taxation, of the interest on any Series of Tax Exempt Indebtedness.

#### Notice to Rating Agencies of Certain Contracts

The Authority shall notify each Rating Agency, prior to executing any interest rate exchange, cap or other hedge agreement of the general terms of such agreement, whether payments under such agreement are payable as Special Payment Obligations or as Operating Expenses. (Section 512)

#### Supplemental Resolutions

##### Supplemental Resolutions Effective Upon Filing with Trustee

For any one or more of the following purposes and at any time or from time to time, a Supplemental Resolution may be adopted by the Authority, which upon the filing with the Trustee of a copy thereof certified by an Authorized Representative, shall be fully effective in accordance with its terms:

- (a) to close the General Bond Resolution against, or provide limitations and restrictions in addition to the limitations and restrictions contained in the General Bond Resolution on, the authentication and delivery of Secured Bonds or the issuance of other Indebtedness;
- (b) to add to the covenants and agreements of the Authority in the General Bond Resolution other covenants and agreements to be observed by the Authority which are not contrary to or inconsistent with the General Bond Resolution as theretofore in effect including any covenants necessary for compliance with the Code, including without limitation Section 148(f) thereof or regulations promulgated thereunder;
- (c) to add to the limitations and restrictions in the General Bond Resolution other limitations and restrictions to be observed by the Authority which are not contrary to or inconsistent with the General Bond Resolution as theretofore in effect;
- (d) to surrender any right, power or privilege reserved to or conferred upon the Authority by the terms of the General Bond Resolution, but only if the surrender of such right, power or privilege is not contrary to or inconsistent with the covenants and agreements of the Authority contained in the General Bond Resolution;
- (e) to authorize Secured Bonds of a Series and, in connection therewith specify and determine the matters and things referred to in the General Bond Resolution with respect to conditions precedent to delivery of Secured Bonds, and also any other matters and things relative to such Secured Bonds which are not contrary to or inconsistent with the General Bond Resolution as theretofore in effect, or to amend, modify or rescind any such authorization, specification or determination at any time prior to the first authentication and delivery of such Secured Bonds including, without limiting the generality of the foregoing, provisions amending or modifying the General Bond Resolution to provide for the issuance of Secured Bonds in book-entry form or in coupon form payable to bearer;

(f) to confirm, as further assurance, any pledge under, and the subjection to any lien or pledge created or to be created by, the General Bond Resolution, of the Revenues or of any other moneys, securities or funds;

(g) to modify the Primary Bond Coverage Ratio or the Supplemental Bond Coverage Ratio in accordance with the provisions of the General Bond Resolution;

(h) to modify any of the provisions of the General Bond Resolution in any respect whatsoever, provided that (i) such modification shall be, and be expressed to be, effective only after all Bonds or Subordinated Bonds of any Series affected by the amendment Outstanding at the date of the adoption of such Supplemental Resolution shall cease to be Outstanding, and (ii) such Supplemental Resolution shall be specifically referred to in the text of all Bonds or Subordinated Bonds of any Series authenticated and delivered after the date of the adoption of such Supplemental Resolution and of Bonds or Subordinated Bonds issued in exchange therefor or in place thereof;

(i) to modify the definition of Investment Securities as directed by the Authority's Board of Directors provided that the Authority shall have provided evidence to the Trustee that the details of such modification have been provided in writing to each Rating Agency then assigning a rating on Outstanding Secured Bonds and that each such Rating Agency has either (x) confirmed in writing that such modification will not adversely affect such ratings or (y) issued a rating on a Series of Bonds to be issued which is not lower than the rating assigned by such Rating Agency to Outstanding Bonds prior to such modification, or any other evidence satisfactory to the Trustee that modification will not adversely affect the then current ratings, if any, assigned to the Secured Bonds by any Rating Agency; or

(j) to subject to the General Bond Resolution additional revenues, security or collateral. (Section 801)

#### Supplemental Resolutions Effective upon Consent of Trustee

(a) For any one or more of the following purposes and at any time or from time to time, a Supplemental Resolution may be adopted, which, upon (i) the filing with the Trustee of a copy thereof certified by an Authorized Representative, and (ii) the filing with the Authority of an instrument in writing made by the Trustee consenting thereto shall be fully effective in accordance with its terms:

(1) to cure any ambiguity, supply any omission, or cure or correct any defect or inconsistent provision in the General Bond Resolution; or

(2) to insert such provisions clarifying matters or questions arising under the General Bond Resolution as are necessary or desirable and are not contrary to or inconsistent with the General Bond Resolution as theretofore in effect; or

(3) to provide for additional duties of the Trustee.

(b) Any such Supplemental Resolution may also contain one or more of the purposes permitted in Supplemental Resolutions that are effective upon filing with the Trustee, and in that event, the consent of the Trustee required as described under this heading shall be applicable only to those provisions of such Supplemental Resolution as shall contain one or more of the purposes set forth in paragraph (a) above. (Section 802)

#### Supplemental Resolutions Effective with Consent of Bondholders

At any time or from time to time, a Supplemental Resolution may be adopted subject to consent by holders of any Secured Bonds in accordance with and subject to the provisions of the General Bond Resolution relating to amendments, which Supplemental Resolution, upon the filing with the Trustee of a copy thereof certified by an Authorized Representative and upon compliance with the provisions of the General Bond Resolution, shall become fully effective in accordance with its terms as provided in the provisions of the General Bond Resolution relating to amendments. (Section 803)

## Amendments

### Mailing of Notice of Amendment

Any provision in the General Bond Resolution for the mailing of a notice or other paper to any holder of the Secured Bonds shall be fully complied with if it is mailed, by first-class mail, postage prepaid only (i) to each owner of Bonds or Subordinated Bonds, respectively, then Outstanding at his address appearing upon the registry books, and (ii) to the Trustee. (Section 901)

### Powers of Amendment

Any modification or amendment of the General Bond Resolution or of the rights and obligations of the Authority and of the holders of the Secured Bonds under the General Bond Resolution, in any particular, may be made by a Supplemental Resolution, with the written consent given as provided in the General Bond Resolution, (i) of the holders of at least two-thirds in principal amount of the Bonds Outstanding and two-thirds in principal amount of the Subordinated Bonds Outstanding at the time such consent is given and (ii) in case less than all of the several Series of Secured Bonds of then Outstanding are affected by the modification or amendment, of the holders of at least two-thirds in aggregate principal amount of the Secured Bonds the several Series so affected and Outstanding at the time such consent is given; provided, however, that if such modification or amendment will, by its terms, not take effect so long as any Secured Bonds of any specified like Series and maturity remain Outstanding, the consent of the holders of such Secured Bonds shall not be required and such Secured Bonds shall not be deemed to be Outstanding for the purpose of any calculation of Outstanding Secured Bonds as described in this paragraph. No such modification or amendment shall permit a change in the terms of redemption or maturity of the principal of any Outstanding Bond or Subordinated Bonds or of any installment of interest thereon or reduction in the principal amount or the Redemption Price thereof or in the rate of interest thereon without the consent of the holder of such Bond or Subordinated Bond, or shall reduce the percentages or otherwise affect the classes of Secured Bonds the consent of the holders of which is required to effect any such modification or amendment, or shall change or modify any of the rights or obligations of any Fiduciary without its written assent thereto. For the purposes of this paragraph, a Series shall be deemed to be affected by a modification or amendment of the General Bond Resolution if the same adversely affects or diminishes the rights of the holders of Secured Bonds of such Series. The Trustee in its discretion may make a determination, binding on holders of Secured Bonds, as to whether any particular Series or maturity would be affected by any modification or amendment of the General Bond Resolution. For the purposes of this paragraph, the holders of the Secured Bonds may include the initial holders thereof, regardless of whether such Secured Bonds are being held for immediate resale. (Section 902)

### Modifications by Unanimous Consent

Notwithstanding anything contained in the General Bond Resolution with respect to Supplemental Resolutions and amendments, the terms and provisions of the General Bond Resolution and the rights and obligations of the Authority and of the holders of Secured Bonds may be modified or amended in any respect upon the adopting and filing of a Supplemental Resolution and the consent of the holders of all Secured Bonds then Outstanding, such consent to be given as provided in the General Bond Resolution except that no notice to the holders of Secured Bonds either by mailing or publication shall be required; but no such modification or amendment shall change or modify any of the rights or obligations of any Fiduciary without the filing with the Trustee of the written assent thereto of such Fiduciary in addition to the consent of the holders of Secured Bonds. (Section 904)

### Events of Default

The occurrence of any one or more of the following events shall constitute an Event of Default under the General Bond Resolution:

(a) a default in the due and punctual payment of a Principal Installment or the Redemption Price of any Secured Bonds when and as the same shall become due and payable, whether at maturity or upon earlier redemption, or otherwise; or

(b) a default in the due and punctual payment of any installment of interest on any Secured Bonds, when and as such interest installment shall become due and payable; or

(c) default by the Authority in the performance or observance of any other of the covenants, agreements or conditions on its part or on the part of the Authority in the General Bond Resolution, any Supplemental Resolution or in the Secured Bonds contained, and such default shall continue for a period of forty-five days after written notice thereof stating that such notice is a "Notice of Default" to the Authority by the Trustee or to the Authority and to the Trustee by the holders of not less than a majority in principal amount of the Secured Bonds Outstanding; provided that such forty-five day period shall be extended to such longer period of time as the Trustee may deem appropriate in the event of defaults which by their nature will require such longer period of time to cure if the Authority shall commence such cure within such forty-five day period and pursue the same diligently to completion; or

(d) if the Authority (i) admits in writing its inability to pay its debts generally as they become due, (ii) commences voluntary proceeds in bankruptcy or seeking a composition of indebtedness, (iii) makes an assignment for the benefit of its creditors, (iv) consents to the appointment of a receiver of the whole or any substantial part of the System, or (v) consents to the assumption by any court of competent jurisdiction under any law for the relief of debtors of custody or control of the Authority or of the whole or any substantial part of the System.

Upon the happening and continuance of any Event of Default, the Trustee shall give notice of such occurrence to the registered holders of the Secured Bonds. 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, or if no Bonds are Outstanding, Subordinated Bonds Outstanding, the Trustee shall, in any such case, unless the principal of all the Secured Bonds then Outstanding shall already have become due and payable, declare the principal of all Secured Bonds then Outstanding shall already have become due and payable immediately, and upon any declaration the same shall become and be immediately due and payable, anything in the General Bond Resolution or in any of the Secured Bonds contained to the contrary notwithstanding. The right of the Trustee to make any such declaration as aforesaid, however, is subject to the condition that, if at any time after such declaration, but before the Secured Bonds shall have matured by their terms, all overdue installments of principal and interest upon the Secured Bonds, together with the reasonable and proper charges, expenses and liabilities of the Trustee, and all other sums then payable by the Authority under the General Bond Resolution (except the interest accrued since the next preceding interest date on the Bonds due and payable solely by virtue of such declaration) shall either be paid by or for the account of the Authority or provision satisfactory to the Trustee shall be made for such payment, and all defaults under the Secured Bonds or under the General Bond Resolution (other than the payment of principal and interest due and payable solely by reason of such declaration) shall be made good or be secured to the satisfaction of the Trustee or provision deemed by the Trustee to be adequate shall be made therefor, then and in every such case the holders of a majority in principal amount of the Bonds Outstanding, or if no Bonds are Outstanding, Subordinated Bonds Outstanding, by written notice to the Authority and to the Trustee, may rescind such declaration and annul such default in its entirety, or, if the Trustee shall have acted without a direction from the holders of the Secured Bonds as aforesaid at the time of such request, and if there shall not have been theretofore delivered to the Trustee written direction to the contrary by the holders of a majority in principal amount of the Bonds Outstanding or if no Bonds are Outstanding, Subordinated Bonds Outstanding, then any such declaration shall ipso facto be deemed to be rescinded and any such default and its consequences shall ipso facto be deemed to be annulled, but no such rescission and annulment shall extend to or affect any subsequent default or impair or exhaust any right or power consequent thereon. The Trustee shall not be liable for any decision made in good faith as to whether or not to declare all Secured Bonds to be due and payable. (Section 1001)

#### Application of Revenues and Other Moneys After Default

(a) The Authority covenants that if an Event of Default shall happen and shall not have been remedied, the Authority, upon demand of the Trustee, shall pay over or cause to be paid over to the Trustee (i) forthwith, any moneys, securities and funds then held by the Authority, or a Depository in any Fund, Account or Subaccount under the General Bond Resolution and (ii) as promptly as practicable after receipt thereof, the Revenues.

(b) During the continuance of an Event of Default, the Trustee shall apply such Revenues and the income therefrom as follows and in the following order:

(1) to the payment of the reasonable and proper fees, charges and expenses (including reasonable attorneys fees) of the Fiduciaries and of any engineer or firm of engineers or accountants or firm of accountants selected by the Trustee and to the payment of any fees and expenses required to keep any Financial Guaranties or Credit Facilities in full force and effect;

(2) to the payment of the amounts required for reasonable and necessary Operating Expenses, including reasonable and necessary reserves and working capital therefor, and for the reasonable repair and replacement of the System necessary to prevent loss of Revenues or to provide for the continued operation of the System, as certified to the Trustee by an independent engineer or firm of engineers of recognized standing (who may be an engineer or firm of engineers retained by the Authority for other purposes) selected by the Trustee;

(3) to the payment of the interest and principal or Redemption Price then due on the Bonds as follows:

(i) unless the principal of all of the Bonds shall be due and payable,

First: To the payment to the persons entitled thereto of all installments maturing, and, if the amount available shall not be sufficient to pay in full all installments maturing on the same date, then to the payment thereof ratably, according to the amounts due thereon, to the persons entitled thereto, without any discrimination or preference; and

Second: To the payment to the persons entitled thereto of the unpaid principal or Redemption Price of any Bonds which shall have become due, whether at maturity or by call for redemption, in the order of their due dates, and, if the amount available shall not be sufficient to pay in full all the Bonds due on any date, then to the payment thereof ratably, according to the amounts of principal or Redemption Price due on such date, to persons entitled thereto, without any discrimination or preference;

(ii) if the principal of all of the Bonds shall be due and payable, to the payment of the principal and interest then due and unpaid upon the Bonds without preference or priority of principal over interest or of interest over principal, or of any installment of interest over any other installment of interest, or of any Bond over any other Bond, ratably, according to the amounts due respectively for principal and interest, to the persons entitled thereto without any discrimination of preference;

(4) to the payment of the interest and principal or Redemption Price then due on the Subordinated Bonds in a manner similar to the payment of such amounts with respect to Bonds, as set forth above.

Any amounts on deposit in the Subordinated Debt Service Reserve Fund shall not be applied as set forth above to the payment of principal amount and interest on Bonds and any amounts on deposit in the Debt Service Fund and the Debt Service Reserve Fund shall not be applied as set forth above to the payment of the principal amount and interest on Subordinated Bonds.

(c) If and when all overdue installments of interest on all Secured Bonds, together with the reasonable and proper charges and expenses of the Trustee, and all other sums payable by the Authority under the General Bond Resolution, including the principal and Redemption Price of and accrued unpaid interest on all Secured Bonds which shall then be payable by declaration or otherwise, shall either be paid by or for the account of the Authority, or provision satisfactory to the Trustee shall be made for such payment, and all defaults under the General Bond



Resolution or the Secured Bonds shall be made good or secured to the satisfaction of the Trustee or provision deemed by the Trustee to be adequate shall be made therefor, the Trustee shall pay over to the Authority all such Revenues then remaining unexpended in the hands of the Trustee (except Revenues deposited or pledged, or required by the terms of the General Bond Resolution to be deposited or pledged, with the Trustee), and thereupon the Authority and the Trustee shall be restored, respectively, to their former position and rights under the General Bond Resolution, and all Revenues shall thereafter be applied as provided in the General Bond Resolution. (Section 1003)

#### Proceedings Brought by Trustee

(a) If an Event of Default shall happen and shall not have been remedied, then and in every such case, the Trustee, by its agents and attorneys, if the Trustee shall deem it advisable, may proceed to protect and enforce its rights and the rights of the holders of the Secured Bonds under the General Bond Resolution forthwith by a suit or suits in equity or at law, whether for the specific performance of any covenant herein contained, or in aid of the execution of any power herein 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 General Bond Resolution.

(b) The holders of a majority in principal amount of the Bonds at the time Outstanding, or if no Bonds are Outstanding, of Subordinated Bonds Outstanding, may direct by instrument in writing the time, method and place of conducting any proceeding for any remedy available to the Trustee, or exercising any trust or power conferred upon the Trustee, provided that the Trustee shall have the right to decline to follow any such direction if the Trustee shall be advised by counsel that the action or proceeding so directed may not lawfully be taken, or if the Trustee in good faith shall determine that the action or proceeding so directed would involve the Trustee in personal liability or be unjustly prejudicial to the holders of Secured Bonds not parties to such direction.

(c) Upon commencing a suit in equity or upon the commencement of judicial proceedings by the Trustee to enforce any right under the General Bond Resolution, the Trustee shall be entitled to exercise any and all rights and powers conferred in the General Bond Resolution and provided to be exercised by the Trustee upon the occurrence of an Event of Default; and, as a matter of right against the Authority, without notice or demand and without regard to the adequacy of the security for the Secured Bonds, the Trustee shall, to the extent permitted by law, be entitled to the appointment of a receiver of the moneys, securities and funds then held by the Authority in any Fund, Account or Subaccount under the General Bond Resolution and, subject to application of the Revenues, with all such powers as the court or courts making such appointment shall confer; but notwithstanding the appointment of any receiver, the Trustee shall be entitled to retain possession and control of and to collect and receive income from, any moneys, securities and funds deposited or pledged with it under the General Bond Resolution or agreed to provide to be delivered or pledged with it under the General Bond Resolution.

(d) Regardless of the happening of an Event of Default, the Trustee shall have the power to, but (unless requested in writing by the holders of a majority in principal amount of the Secured Bonds then Outstanding, and furnished with reasonable security and indemnity) shall be under no obligation to, institute and maintain such suits and proceedings, including, without limitation, proceedings for declaratory judgment or injunctive or other equitable relief, as it may determine shall be necessary or expedient to prevent any impairment of the security under the General Bond Resolution, any impairment of the ability of the Authority or the Trustee to satisfy any of its agreements or obligations hereunder, or the impairment of any protection provided by the General Bond Resolution of the interests of the holders of Secured Bonds by any acts which may be unlawful or in violation of the General Bond Resolution, and such suits and proceedings, including, without limitation, proceedings for declaratory judgment or injunctive or other equitable relief, as the Trustee may determine shall be necessary or expedient to preserve or protect its interest and the interests of the holders of any Secured Bonds. (Section 1004)

#### Restrictions on Action by Holders of Secured Bonds

No holder of any Secured Bond shall have any right to institute any suit, action or proceeding at law or in equity for the enforcement of any provision of the General Bond Resolution or the execution of any trust under the General Bond Resolution or for any remedy under the General Bond Resolution, unless such holder shall have

previously given to the Trustee written notice of the happening of an Event of Default, as provided in the General Bond Resolution, and the holders of at least a majority in principal amount of the Bonds then Outstanding, or if no Bonds are Outstanding of Subordinated Bonds Outstanding, shall have filed a written request with the Trustee, and shall have offered it reasonable opportunity, either to exercise the powers granted as provided under this heading or to institute such action, suit or proceeding in its own name, and unless such holders shall have offered to the Trustee adequate security and indemnity against the costs, expenses and liabilities to be incurred therein or thereby, and the Trustee shall have refused to comply with such request within a reasonable time; it being understood and intended that no one or more holders of Secured Bonds shall have any right in any manner whatever by his or their action to affect, disturb or prejudice the pledge created by the General Bond Resolution, or to enforce any right under the General Bond Resolution, except in the manner therein provided, and that all proceedings at law or in equity to enforce any provision of the General Bond Resolution shall be instituted, had and maintained in the manner provided in the General Bond Resolution and for the equal benefit of all holders of the Outstanding Bonds, in accordance with their rights and interests under the General Bond Resolution and all holders of Outstanding Subordinated Bonds, in accordance with their rights and interests under the General Bond Resolution. (Section 1005)

### The Trustee

#### Resignation of Trustee

The Trustee may at any time resign and be discharged of the duties and obligations created by the General Bond Resolution by giving not less than sixty days' written notice to the Authority and publishing notice thereof, at the Trustee's expense, specifying the date when such resignation shall take effect once in each week for two successive calendar weeks in an authorized newspaper, and such resignation shall take effect upon the day specified in such notice unless previously a successor shall have been appointed by the Authority or the holders of any Secured Bonds as provided in the General Bond Resolutions, in which event such resignation shall take effect immediately on the appointment of such successor. (Section 1107)

#### Removal of Trustee

The Trustee may be removed at any time by an instrument or concurrent instruments in writing, filed with the Trustee, and signed by the holders of a majority in principal amount of the Bonds then Outstanding, or if no Bonds are Outstanding, of the Subordinated Bonds then Outstanding, or their attorneys-in-fact duly authorized, excluding any Secured Bonds held by or for the account of the Authority. The Trustee may be removed at any time for any breach of trust or for acting or proceeding in violation of, or for failing to act or proceed in accordance with, any provision of the General Bond Resolution with respect to the duties and obligations of the Trustee, by any court of competent jurisdiction upon the application of the Authority or the holders of not less than 25% in aggregate principal amount of Bonds Outstanding, or if no Bonds are Outstanding, Subordinated Bonds Outstanding, excluding any Secured Bonds held by or for the account of the Authority. Notwithstanding the foregoing provisions, at the end of the fifth Fiscal Year following the Fiscal Year in which the first series of Secured Bonds is issued under the General Bond Resolution, and at the end of every fifth Fiscal Year thereafter, the Authority may remove the Trustee, except during the existence of an Event of Default, upon one hundred twenty (120) days written notice to the Trustee by filing with the Trustee an instrument signed by an Authorized Representative of the Authority. (Section 1108)

#### Appointment of Successor Trustee

(a) In case at any time the Trustee shall resign or shall be removed or shall become incapable of acting, or shall be adjudged a bankrupt or insolvent, or if a receiver, liquidator or conservator of the Trustee, or its property, shall be appointed, or if any public offering shall take charge or control of the Trustee, or of its property or affairs, a successor may be appointed by the holder of a majority in principal amount of the Bonds then Outstanding, or if no Bonds are Outstanding of the Secured Bonds then Outstanding, excluding any Secured Bonds held by or for the account of the Authority, by an instrument or concurrent instruments in writing signed and acknowledged by such holders of any Secured Bonds or by their attorneys-in-fact duly authorized and delivered to such successor trustee, notification thereof being given to the Authority and the predecessor Trustee; but (unless a successor trustee shall have been appointed by the holders of the Secured Bonds as aforesaid) the Authority by a duly executed



written instrument signed by an Authorized Representative shall forthwith appoint a Trustee to fill such vacancy until a successor Trustee shall be appointed by the holders of the Secured Bonds as authorized in the General Bond Resolution. The Authority shall publish notice of any such appointment made by it once in each week for two consecutive calendar weeks, in an authorized newspaper, the first publication to be made within 20 days after such appointment. Any successor Trustee appointed by the Authority shall, immediately and without further act, be superseded by a Trustee appointed by the holders of the Secured Bonds as authorized in the General Bond Resolution.

(b) If in a proper case no appointment of a successor trustee shall be made pursuant to the foregoing provisions of the General Bond Resolution within forty-five days after the Trustee shall have given to the Authority written notice as provided in the General Bond Resolution or after a vacancy in the office of the Trustee shall have occurred by reason of its inability to act, the Trustee or the holder of any Secured Bond may apply to any court of competent jurisdiction to appoint a successor trustee. Said court may thereupon, after such notice, if any, as such court may deem proper and prescribe, appoint a successor trustee.

(c) Any Trustee appointed under the provisions of the General Bond Resolution in succession to the Trustee shall be a bank or trust company organized under the laws of any state of a national banking association, and having a capital and surplus aggregating at least \$100,000,000, if there be such a bank or trust company or national banking association willing and able to accept the office on reasonable and customary terms and authorized by law to perform all the duties imposed upon it by the General Bond Resolution. (Section 1109)

#### Defeasance

(a) If the Authority shall pay or cause to be paid to the holders of all Secured Bonds then Outstanding, the Principal Installments and interest and Redemption Price, if any, to become due thereon, at the times and in the manner stipulated therein and in the General Bond Resolution, then, at the option of the Authority, expressed in an instrument in writing signed by an Authorized Representative and delivered to the trustee, the covenants, agreements and other obligations of the Authority to the holders of such Secured Bonds shall be discharged and satisfied. In such event, the Trustee shall, upon the request of the Authority, execute and deliver to the Authority all such instruments as may be desirable to evidence such discharge and satisfaction and the Fiduciaries shall pay over or deliver to the Authority all moneys, securities and funds held by them pursuant to the General Bond Resolution which are not required for the payment or redemption of Secured Bonds not theretofore surrendered for such payment or redemption.

(b) Secured Bonds for the payment or redemption of which moneys shall have been set aside and shall be held in trust by the Trustee (through deposit by the Authority of funds for such payment or redemption or otherwise) at the maturity or redemption date thereof shall be deemed to have been paid within the meaning and with the effect expressed in (a) above. Subject to the provisions described in paragraph (c) below, any Outstanding Secured Bonds shall prior to the maturity or redemption date thereof be deemed to have been paid within the meaning and with the effect expressed in paragraph (a) above if (i) in case any of said Secured Bonds are to be redeemed on any date prior to the maturity, the Authority shall have given to the Trustee irrevocable instructions accepted in writing by the Trustee to publish as provided in the General Bond Resolution notice of redemption of such Secured Bonds (other than the Secured Bonds which have been purchased by the Trustee at the direction of the Authority as hereinafter provided prior to the publication of such notice of redemption) on said date, (ii) there shall have been deposited with the Trustee either moneys in an amount which shall be sufficient, or Defeasance Obligations the principal installments of and/or the interest on which when due, without reinvestment, will provide moneys which, together with the moneys, if any, deposited with the Trustee at the same, time, shall be sufficient, to pay when due the Principal Installments or Redemption Price, if applicable, and interest due and to become due on said Secured Bonds on or prior to the redemption date or maturity date thereof, as the case may be, and (iii) in the event said Secured Bonds are not to be redeemed within the next succeeding 60 days, the Authority shall have given the Trustee in form satisfactory to it irrevocable instructions to publish, as soon as practicable, at least twice, at an interval of not less than seven days between publications, in the authorized newspapers a notice to the holders of such Secured Bonds that the deposit referred to in clause (i) above has been made with the Trustee and that said Secured Bonds are deemed to have been paid as provided under this heading and stating such maturity or redemption date upon which moneys are to be available for the payment of the Principal Installments or Redemption Price, if applicable, on said Secured Bonds (other than Secured Bonds which have been purchased by the Trustee at

the direction of the Authority as hereinafter provided prior to the publication of the notice of redemption referred to in clause (i)); provided, however, that in connection with the provision for payment of any Secured Bonds which are then in non-certificated form, the requirements of clause (iii) above shall be deemed satisfied upon mailing of the notice required by said clause (iii) by registered mail to the securities depository which is the registered owner, or whose nominee is the registered owner, of such Secured Bonds. The Trustee shall, as and to the extent necessary, apply moneys held by it as provided under this heading to the retirement of said Secured Bonds in amounts equal to the unsatisfied balances of any Sinking Fund Installments with respect to such Secured Bonds, all in the manner provided in the General Provisions.

The Trustee shall, if so directed by the Authority (x) prior to the maturity date of Secured Bonds deemed to have been paid as provided under this heading which are not to be redeemed prior to the maturity date or (y) prior to the publication of the notice of redemption referred to in clause (i) above with respect to any Secured Bonds deemed to have been paid as provided under this heading which are to be redeemed on any date prior to their maturity, apply moneys deposited with the Trustee in respect of such Secured Bonds and redeem or sell Defeasance Obligations so deposited with the Trustee and apply the proceeds thereof to the purchaser of such Secured Bonds and the Trustee shall immediately thereafter cancel all such Secured Bonds so purchased; provided, however, that the Trustee shall receive a certificate of the Accountant showing that the moneys and Defeasance Obligations remaining on deposit with the Trustee after the purchase and cancellation of such Secured 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 Secured Bonds, in respect of which such moneys and Defeasance Obligations are being held by the Trustee on or prior to the redemption date or maturity date thereof, as the case may be, and a Bond Counsel's opinion to the effect that such redemption or sale of such Defeasance Obligations will not adversely affect the exclusion of the interest on such Secured Bonds from gross income of the holders thereof for federal income tax purposes and that such redemption or sale otherwise complies with the provisions of the General Bond Resolution. Except as otherwise described in paragraphs (b) and (c) under this heading, neither Defeasance Obligations nor moneys deposited with the Trustee as described under this heading nor principal or interest payments on any such Defeasance Obligations shall be withdrawn or used for any purpose other than, but shall be held in trust for, the payment of the principal or Redemption Price, if applicable, and interest on said Secured Bonds; provided that any cash received from such principal or interest payments on such Defeasance Obligations deposited with the Trustee (A) to the extent such cash will not be required at any time for such purpose, shall be paid over to the Authority as received by the Trustee, free and clear of any trust, lien or pledged securing said Secured Bonds other otherwise existing under the General Bond Resolution, and (B) to the extent such cash will be required for such purpose at a later date, shall, to the extent practicable, be reinvested at the written direction of an Authorized Representative of the Authority in Defeasance Obligations maturing at times and in amounts sufficient to pay when due the principal or Redemption Price, if applicable, and interest to become due on said Secured Bonds on or prior to such redemption date or maturity date thereof, as the case may be, and interest earned from such reinvestment, shall be paid over to the Authority, as received by the Trustee free and clear of any lien or pledge securing said Secured Bonds or otherwise existing under the General Bond Resolution.

(c) For purposes of determining whether Variable Rate Indebtedness shall be deemed to have been paid prior to the maturity or redemption date thereof, as the case may be, by the deposit of moneys, or Defeasance Obligations and moneys, if any, in accordance with the second sentence of paragraph (b) under this heading, the interest to come due on such Variable Rate Indebtedness on or prior to the maturity date or redemption date thereof, as the case may be, shall be calculated at the maximum rate permitted by the terms thereof; provided, however, that if on any date, as a result of such Variable Rate Indebtedness having borne interest at less than such 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 Variable Rate Indebtedness is in excess of the total amount which would have been required to be deposited with the Trustee on such date in respect of such Variable Rate Indebtedness in order to satisfy the provisions described in the second sentence of paragraph (b) under this heading, the Trustee shall, if requested, by the Authority, pay the amount of such excess to the Authority free and clear of any lien or pledge securing the Secured Bonds or otherwise existing under the General Bond Resolution.

(d) Option Bonds shall be deemed to have been paid in accordance with the provisions described in the second sentence of paragraph (b) under this heading, only if, in addition to satisfying the requirements of clauses (i) and (iii) of such sentence, there shall have been deposited with the Trustee moneys in an amount which shall be sufficient to pay when due the maximum amount of principal of and premium, if any, and interest on such Bonds

which could become payable to the holders of such Option Bonds upon the exercise of any options provided to the holders of such Option Bonds; provided, however, that if, at the time a deposit is made with the Trustee pursuant to the provisions described in paragraph (b) under this heading, the options originally exercisable by the holder of an Option Bond are no longer exercisable, such Option Bond shall not be considered an Option Bond for purposes of this paragraph. If any portion of the moneys deposited with the Trustee for the payment of the principal of and premium, if any, and interest on Option Bonds is not required for such purpose the Trustee shall, if requested by the Authority, pay the amount of such excess to the Authority free and clear of any trust, lien or pledge securing said Option Bonds or otherwise existing under the General Bond Resolution.

(e) Anything in the General Bond Resolution to the contrary notwithstanding, any moneys held by a Fiduciary in trust for the payment and discharge of any of the Secured Bonds which remain unclaimed for two years after the date when such Secured Bonds have become due and payable, either at their stated maturity dates or by call for earlier redemption, if such moneys were held by the Fiduciary at such date, or for two years after the date of deposit of such moneys if deposited with the Fiduciary after the said date when such Secured Bonds become due and payable, shall, at the written request of the Authority, be repaid by the Fiduciary to the Authority, as its absolute property and free from trust, and the Fiduciary shall thereupon be released and discharged with respect thereto and the holders of any Secured Bonds shall look only to the Authority for the payment of such Secured Bonds; provided, however, that before being required to make any such payment to the Authority, the Fiduciary may, at the expense of the Authority, cause to be published at least twice, at an interval of not less than seven days between publications, in an authorized newspaper, a notice that said moneys remain unclaimed and that, after a date named in said notice, which date shall be not less than 30 days after the date of the first publication of such notice, the balance of such moneys then unclaimed will be returned to the Authority. (Section 1201)

#### Preservation and Inspection of Documents

All documents received by an Fiduciary under the provisions of the General Bond Resolution shall be retained in its possession and shall be subject at all reasonable times to the inspection of the Authority, any other Fiduciary, and any holder of any Secured Bonds and any person that the Trustee can reasonably determine is a beneficial owner of any Secured Bonds held by or on behalf of a securities depository, and their agents and their representatives, any of whom may make copies thereof. Upon the receipt of a written request by any such beneficial owner or any holder of any Secured Bonds, or their agents or their representatives, the Trustee shall provide copies of any reports or certificates delivered to the Trustee pursuant to any provision of the General Bond Resolution. At the direction of the Authority, the Trustee shall require the party requesting such reports or certificates to pay or reimburse the Trustee for the direct costs of reproducing and mailing such reports or certificates. (Section 1204)

#### No Recourse on the Secured Bonds

No recourse shall be had for the payment of the principal of or interest on the Secured Bonds or for any claim based thereon or on the General Bond Resolution against any member or officer of the Authority or any person executing the Secured Bonds. (Section 1206)

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**PROPOSED FORM OF OPINION OF BOND COUNSEL**

ROPES & GRAY LLP

ONE INTERNATIONAL PLACE BOSTON, MA 02110-2624 617-951-7000 F 617-951-7050  
 BOSTON NEW YORK SAN FRANCISCO WASHINGTON, D.C

[Date of Delivery]

Massachusetts Water Resources Authority  
 Charlestown Navy Yard  
 100 First Avenue  
 Boston, Massachusetts 02129

Re: \$416,455,000 Massachusetts Water Resources Authority  
 General Revenue Refunding Bonds, 2005 Series A (the "Bonds")

Ladies and Gentlemen:

We have acted as Bond Counsel in connection with the authorization, sale, issuance and delivery of the Bonds. In that capacity, we have examined the provisions of Chapter 372 of the Acts of 1984 of The Commonwealth of Massachusetts, as amended (the "Act"), the General Revenue Bond Resolution of the Massachusetts Water Resources Authority (the "Authority") adopted January 24, 1990, as amended and supplemented (the "General Resolution"), the Forty-Eighth Supplemental Resolution of the Authority adopted February 9, 2005 (the "Supplemental Resolution") and the Issuance Resolution of the Authority adopted February 9, 2005 (the "Issuance Resolution," and together with the General Resolution and the Supplemental Resolution, the "Resolutions"), and we have examined and are familiar with originals or copies, certified or otherwise identified to our satisfaction, of such records of the Authority, certificates of officers of the Authority and other documents and instruments, and have made such other investigation of facts and examination of Massachusetts and federal law, as we have deemed necessary or proper for the purpose of rendering this opinion. We also have examined a record of proceedings relating to the authorization, sale, issuance and delivery of the Bonds and copies identified to our satisfaction of one Bond of each maturity as executed. Capitalized terms used herein shall, unless otherwise specified, have the meanings set forth in the Resolutions.

The Bonds are being issued by means of a book entry system, with bond certificates immobilized at or on behalf of The Depository Trust Company, New York, New York ("DTC"), and not available for distribution to the public, evidencing ownership of the Bonds in Authorized Denominations, with transfers of beneficial ownership effected on the records of DTC and its participants pursuant to rules and procedures established by DTC and its participants.

Massachusetts Water Resources  
Authority

[Date of Delivery]

The Bonds are being issued to refund a portion of the Authority's Outstanding Bonds and to pay the Costs of Issuance of the Bonds.

Based upon our examination, we are of the following opinion:

The Authority is duly organized and validly existing under the Act as a body politic and corporate and a public instrumentality of The Commonwealth of Massachusetts, with the right and power under the Act to adopt the Resolutions, perform the agreements on its part contained therein and issue the Bonds.

The Bonds are general obligations of the Authority secured by the Resolutions and a pledge of the Revenues received by or for the account of the Authority and moneys on deposit in the funds and accounts pledged as security therefor under the Resolutions, and the Resolutions create the valid pledge and lien which they purport to create for the benefit of the holders of the Bonds, subject to the application of such pledged Revenues and moneys to the purposes and on the conditions permitted by the Resolutions.

The Bonds have been duly authorized, executed, authenticated and delivered and all conditions required by the Resolutions precedent to the issuance of the Bonds have been met. The Bonds are valid and binding general obligations of the Authority enforceable in accordance with their terms and entitled to the benefits and security of the Resolutions, subject only to applicable bankruptcy, insolvency, moratorium, reorganization or other laws affecting creditors' rights heretofore or hereafter enacted and to general equity principles.

The Resolutions have been duly and lawfully adopted by the Authority, are in full force and effect and are valid and binding agreements of the Authority enforceable in accordance with their respective terms, subject only to applicable bankruptcy, insolvency, moratorium, reorganization or other laws affecting creditors' rights heretofore or hereafter enacted and to general equity principles.

Under existing law, interest on the Bonds will not be included in gross income of holders of the Bonds for federal income tax purposes. This opinion is rendered subject to compliance by the Authority, subsequent to the issuance of the Bonds, with various requirements of the Internal Revenue Code of 1986, as amended. Failure to comply with such requirements could cause interest on the Bonds to become subject to federal income taxation retroactive to the date of issuance of the Bonds. Interest on the Bonds will not constitute an item of tax preference for purposes of computing the alternative minimum tax imposed on individuals and corporations; however, interest on the Bonds will be taken into account in determining "adjusted current earnings" for the purpose of computing the alternative minimum tax imposed upon certain corporations. We express no opinion as to other federal tax consequences resulting from holding the Bonds.

Massachusetts Water Resources  
Authority

[Date of Delivery]

The Bonds, their transfer and the income therefrom, including any profit made on the sale thereof, are exempt from taxes imposed by existing Massachusetts laws, although the Bonds and the interest thereon may be included in the measure of estate and inheritance taxes and of certain corporation excise and franchise taxes. We express no opinion as to the taxability of the Bonds, their transfer and the income therefrom, including any profit made on the sale thereof, under the laws of states other than Massachusetts.

For federal and Massachusetts tax purposes, interest includes original issue discount. Original issue discount with respect to a Bond is equal to the excess, if any, of the stated redemption price at maturity of such Bond over the initial offering price thereof to the public, excluding underwriters and other intermediaries, at which price a substantial amount of all Bonds with the same maturity was sold. Original issue discount accrues actuarially over the term of a Bond.

Very truly yours,

Ropes & Gray LLP

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**FINANCIAL GUARANTY INSURANCE POLICY**  
**MBIA Insurance Corporation**  
**Armonk, New York 10504**

Policy No. [NUMBER]

MBIA Insurance 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 [PAYING AGENT/TRUSTEE] 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, unless the Insurer elects, in its sole discretion, to pay in whole or in part any principal due by reason of 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]**  
**[LEGAL NAME OF ISSUE]**

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 U.S. Bank Trust National Association, 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 U.S. Bank Trust National Association, U.S. Bank Trust National Association 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 Issuer, 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.

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].

**MBIA Insurance Corporation**

\_\_\_\_\_  
President

Attest:

\_\_\_\_\_  
Assistant Secretary

**SPECIMEN**

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