

In the opinion of Bond Counsel, Lewis & Munday, A Professional Corporation, under existing law as presently interpreted, (i) interest on the 2011-A Bonds and the 2011-C Bonds is excluded from gross income for federal income tax purposes, (ii) interest on the 2011-A Bonds and the 2011-C Bonds is not an item of tax preference for purposes of the alternative minimum tax on individuals and corporations, and (iii) the 2011 Bonds and the interest thereon are exempt from all taxation imposed by the laws of the State of Michigan except inheritance and estate taxes and taxes on gains realized from the sale, payment or other disposition thereof, in each case to the extent and subject to the conditions described under "TAX MATTERS" and Appendix E. Interest on the 2011-B Bonds is not excluded from gross income for federal income tax purposes under the Internal Revenue Code of 1986, as amended.

\$500,675,000**CITY OF DETROIT, MICHIGAN****\$379,590,000**

**Water Supply System Revenue
Senior Lien Bonds, Series 2011-A**

\$17,195,000

**Water Supply System Revenue
Senior Lien Bonds, Series 2011-B
(Federally Taxable)**

\$103,890,000

**Water Supply System Revenue Refunding
Senior Lien Bonds, Series 2011-C**

Dated: Date of Delivery**Due:** July 1, as shown on inside cover

The Water Supply System Revenue Senior Lien Bonds, Series 2011-A (the "2011-A Bonds"), the Water Supply System Revenue Senior Lien Bonds, Series 2011-B (Federally Taxable) (the "2011-B Bonds"), and the Water Supply System Revenue Refunding Senior Lien Bonds, Series 2011-C (the "2011-C Bonds," and collectively with the 2011-A Bonds and the 2011-B Bonds, the "2011 Bonds") are being issued by the City of Detroit, County of Wayne, State of Michigan (the "City") pursuant to Act No. 94, Public Acts of Michigan, 1933, as amended, and a certain ordinance. The 2011 Bonds will be held in book-entry form only, fully registered in the name of Cede & Co., as nominee for The Depository Trust Company, New York, New York ("DTC"). DTC will act as securities depository for the 2011 Bonds. Purchasers will not receive certificates representing their interests in the 2011 Bonds. Individual purchases of the 2011 Bonds will be made in book-entry form in the principal amount of \$5,000 or integral multiples thereof. So long as Cede & Co. is the registered owner of the 2011 Bonds, principal of, premium, if any, and interest on the 2011 Bonds will be paid directly to Cede & Co., as nominee for DTC, by U.S. Bank National Association, Detroit, Michigan, as Transfer Agent. See "THE 2011 BONDS-Book-Entry-Only System." The 2011 Bonds will bear interest from their dated date, payable on each January 1 and July 1, commencing July 1, 2012.

The proceeds of the 2011-A Bonds will be used to finance a portion of the costs of the Water Supply System capital improvement program, funding the reserve requirements attributable to the 2011-A Bonds, paying swap termination fees with respect to certain swap contracts associated with Water Supply System Bonds, and paying costs of issuance associated with the 2011-A Bonds. The proceeds of the 2011-B Bonds will be used to finance a portion of the costs of the Water Supply System capital improvement program consisting of swap termination fees with respect to certain swap contracts associated with Water Supply System Bonds, funding the reserve requirements attributable to the 2011-B Bonds, and paying costs of issuance associated with the 2011-B Bonds. See "PLAN OF FINANCING." The proceeds of the 2011-C Bonds will be used to refund certain outstanding Water Supply System Revenue Bonds, funding the reserve requirements attributable to the 2011-C Bonds, and to pay cost of issuance associated with the 2011-C Bonds. See "PLAN OF REFUNDING." Certain 2011 Bonds are subject to mandatory or optional redemption prior to maturity. See "THE 2011 BONDS — Redemption Provisions." U.S. Bank National Association, Detroit, Michigan, in its capacity as Trustee, has certain duties in connection with the 2011 Bonds and other bonds outstanding on a parity therewith, as more particularly described herein.

The principal of and interest on the 2011 Bonds are payable solely from the Pledged Assets under the Bond Ordinance (as defined herein), including the net revenues of the City's Water Supply System. See "SECURITY AND SOURCES OF PAYMENT FOR THE 2011 BONDS."

The 2011 Bonds are not general obligations of the City and do not constitute indebtedness of the City for purposes of computing its debt limitations imposed by constitutional, statutory or charter provisions. The 2011 Bonds also do not constitute a charge against the general credit or taxing power of the City, nor is the City liable for the payment of the 2011 Bonds except from the sources herein described.



THIS COVER PAGE CONTAINS INFORMATION FOR QUICK REFERENCE ONLY. IT IS NOT A SUMMARY OF THE 2011 BONDS. INVESTORS MUST READ THE ENTIRE OFFICIAL STATEMENT TO OBTAIN INFORMATION ESSENTIAL TO THE MAKING OF AN INFORMED INVESTMENT DECISION.

The 2011 Bonds are offered when, as and if issued by the City and received by the Underwriters, subject to approval of their legality by Bond Counsel, Lewis & Munday, A Professional Corporation, Detroit, Michigan, and certain other conditions. Certain legal matters will be passed upon for the City by Miller, Canfield, Paddock, and Stone, P.L.C. and certain legal matters will be passed upon for the Underwriters by Bodman PLC, Detroit, Michigan. The 2011 Bonds are expected to be available for delivery through the facilities of DTC on or about December 22, 2011.

Siebert Brandford Shank & Co., L.L.C.**J.P. Morgan**

**BofA Merrill Lynch
Loop Capital Markets**

**BMO Capital Markets
Morgan Stanley**

December 20, 2011

MATURITY SCHEDULE

\$379,590,000

CITY OF DETROIT, MICHIGAN

WATER SUPPLY SYSTEM REVENUE SENIOR LIEN BONDS, SERIES 2011-A

\$111,735,000 SERIAL BONDS

<u>Maturity July 1</u>	<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Yield</u>	<u>CUSIP (Base: 251256)¹</u>	<u>Maturity July 1</u>	<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Yield</u>	<u>CUSIP (Base:251256)¹</u>
2012	\$5,500,000	3.000%	0.830%	AY9	2021	\$4,215,000	5.000%	3.710%	BH5
2013	\$3,280,000	5.000%	1.330%	AZ6	2022	\$4,195,000	5.250%	3.910%*	BJ1
2014	\$3,410,000	5.000%	1.860%	BA0	2023	\$4,170,000	5.250%	4.100%*	BK8
2015	\$3,550,000	5.000%	2.360%	BB8	2024	\$4,140,000	5.250%	4.280%*	BL6
2016	\$3,695,000	5.000%	2.550%	BC6	2025	\$4,085,000	5.250%	4.440%*	BM4
2017	\$3,845,000	5.000%	2.740%	BD4	2026	\$4,020,000	5.250%	4.570%*	BN2
2018	\$4,000,000	5.000%	3.020%	BE2	2027	\$3,930,000	5.250%	4.690%*	BP7
2019	\$3,160,000	5.000%	3.270%	BF9	2037	\$49,315,000	5.750%	5.000%*	BT9
2020	\$3,225,000	5.000%	3.530%	BG7					

\$ 14,665,000	5.000% Term Bonds, due July 1, 2031	Yield 5.080%	CUSIP 251256 BQ5 ¹
\$ 28,890,000	5.000% Term Bonds, due July 1, 2036	Yield 5.230%	CUSIP 251256 BR3 ¹
\$224,300,000	5.250% Term Bonds, due July 1, 2041	Yield 5.350%	CUSIP 251256 BS1 ¹

\$17,195,000

CITY OF DETROIT, MICHIGAN

WATER SUPPLY SYSTEM REVENUE SENIOR LIEN BONDS, SERIES 2011-B

(Federally Taxable)

\$1,725,000	2.496% Term Bonds, due July 1, 2013	Yield 2.496%	CUSIP 251256 AU7 ¹
\$1,970,000	3.607% Term Bonds, due July 1, 2016	Yield 3.607%	CUSIP 251256 AV5 ¹
\$3,760,000	5.000% Term Bonds, due July 1, 2021	Yield 5.070%	CUSIP 251256 AW3 ¹
\$9,740,000	6.000% Term Bonds, due July 1, 2033	Yield 6.160%	CUSIP 251256 AX1 ¹

\$103,890,000

WATER SUPPLY SYSTEM REVENUE REFUNDING SENIOR LIEN BONDS, SERIES 2011-C

\$59,260,000 SERIAL BONDS

<u>Maturity July 1</u>	<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Yield</u>	<u>CUSIP (Base: 251256)¹</u>	<u>Maturity July 1</u>	<u>Principal Amount</u>	<u>Interest Rate</u>	<u>Yield</u>	<u>CUSIP (Base: 251256)¹</u>
2012	\$1,225,000	3.000%	0.830%	BU6	2025	\$11,035,000	5.250%	4.440%*	BY8
2021	\$2,700,000	5.000%	3.710%	BV4	2026	\$11,615,000	5.250%	4.570%*	BZ5
2023	\$9,965,000	5.250%	4.100%*	BW2	2027	\$5,000,000	5.250%	4.690%*	CA9
2024	\$10,490,000	5.250%	4.280%*	BX0	2027	\$7,230,000	4.500%	4.750%	CC5
\$44,630,000		5.000% Term Bonds, due July 1, 2041		Yield 5.290%		CUSIP 251256 CB7 ¹			

* Copyright, American Bankers Association. CUSIP data herein are provided by Standard & Poor's, CUSIP Service Bureau, a division of The McGraw-Hill Companies, Inc. The CUSIP numbers listed above are being provided solely for the convenience of Bondowners only at the time of issuance of the 2011 Bonds and the City does not make any representation with respect to such numbers nor undertake any responsibility for their accuracy now or at any time in the future. The CUSIP number for a specific maturity is subject to being changed after the issuance of the 2011 Bonds as a result of various subsequent actions including, but not limited to, a refunding in whole or in part of such maturity or as a result of the procurement of secondary market portfolio insurance or other similar enhancement by investors that is applicable to all or a portion of certain maturities of the 2011 Bonds.

¹ Priced at the stated yield to the July 1, 2021 call date.

CITY OF DETROIT

MAYOR
DAVE BING

CITY COUNCIL
CHARLES PUGH, President

GARY BROWN, President, Pro Tem
KENNETH V. COCKREL, JR.
SAUNTEEL JENKINS
BRENDA JONES

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ANDRE SPIVEY
JAMES TATE
JOANN WATSON

CITY CLERK
JANICE M. WINFREY

CHIEF OPERATING OFFICER
CHRIS BROWN

FINANCE DIRECTOR
CHERYL R. JOHNSON

WATER AND SEWERAGE DEPARTMENT

DEPUTY DIRECTOR
DARRYL A. LATIMER

ASSISTANT DIRECTOR FINANCIAL SERVICES
JAMES GEORGE

BOARD OF WATER COMMISSIONERS
JAMES FAUSONE, Chair

FRED BARNES
MARY E. BLACKMON
LINDA FORTE

BRADLEY KENOYER
JAMES F. THROWER, Vice-Chair
J. BRYAN WILLIAMS

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Financial Advisor

THE FOSTER GROUP, LLC,
Feasibility Consultant

KPMG LLP,
Independent Certified Public Accountants

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This Official Statement has been prepared by the City and provides certain information relating to the City and its Water Supply System in connection with the sale of the 2011 Bonds. This Official Statement is distributed in connection with the sale of the 2011 Bonds and may not be reproduced or used, in whole or in part, for any other purpose. No dealer, broker, salesman or other person has been authorized by the City or the Underwriters to give any information or to make any representations with respect to the City or its 2011 Bonds other than those contained in this Official Statement and, if given or made, such other information or representations must not be relied upon as having been authorized by the City or the Underwriters. 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 respective 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.

This Official Statement does not constitute an offer to sell or a solicitation of an offer to buy, nor shall there be any sale of the 2011 Bonds by any person in any jurisdiction in which it is unlawful for such person to make such offer, solicitation or sale. The information and expressions of opinion herein are subject to change without notice, and neither the delivery of this Official Statement nor any sale made hereunder shall, under any circumstances, create any implication that there has been no change in the affairs of the Water Supply System or the City since the date hereof.

Upon issuance, the 2011 Bonds will not be registered under the Securities Act of 1933, as amended, and will not be listed on any stock or other securities exchange, and neither the Securities and Exchange Commission nor any other federal, state, municipal or other governmental entity, other than the City, will have passed upon the accuracy or adequacy of this Official Statement.

IN CONNECTION WITH THIS OFFERING, THE UNDERWRITERS MAY OVER-ALLOT OR EFFECT TRANSACTIONS WHICH STABILIZE OR MAINTAIN THE MARKET PRICE OF THE 2011 BONDS AT A LEVEL ABOVE THAT WHICH MIGHT OTHERWISE PREVAIL IN THE OPEN MARKET. SUCH STABILIZING, IF COMMENCED, MAY BE DISCONTINUED AT ANY TIME.

This Official Statement contains forward-looking statements, which can be identified by the use of the future tense or other forward-looking terms such as “may,” “intend,” “will,” “expect,” “anticipate,” “plan,” “management believes,” “estimate,” “continue,” “should,” “strategy,” or “position” or the negatives of those terms or other variations of them or by comparable terminology. In particular, any statements express or implied, concerning future receipts of federal grants or the ability to generate cash flow to service indebtedness are forward-looking statements. Investors are cautioned that reliance on any of those forward-looking statements involves risks and uncertainties and that, although the City management believes that the assumptions on which those forward-looking statements are based are reasonable, any of those assumptions could prove to be inaccurate. As a result, the forward-looking statements based on those assumptions also could be incorrect, and actual results may differ materially from any results indicated or suggested by those assumptions. In light of these and other uncertainties, the inclusion of a forward-looking statement in this Official Statement should not be regarded as a representation by the City or that its plans and objectives will be achieved. All forward-looking statements are expressly qualified by the cautionary statements contained in this paragraph. The City does not undertake any duty to update any forward-looking statements.

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

\$500,675,000
CITY OF DETROIT, MICHIGAN

\$379,590,000
Water Supply System Revenue
Senior Lien Bonds, Series 2011-A

\$17,195,000
Water Supply System Revenue
Senior Lien Bonds, Series 2011-B
(Federally Taxable)

\$103,890,000
Water Supply System Revenue Refunding
Senior Lien Bonds, Series 2011-C

INTRODUCTION

The Official Statement provides certain information in connection with the issuance by the City of Detroit, Michigan (the “City”) of its Water Supply System Revenue Senior Lien Bonds, Series 2011-A (the “2011-A Bonds”), the Water Supply System Revenue Senior Lien Bonds, Series 2011-B (Federally Taxable) (the “2011-B Bonds”), and Water Supply System Revenue Refunding Senior Lien Bonds, Series 2011-C (the “2011-C Bonds,” and collectively with the 2011-A Bonds and the 2011-B Bonds, the “2011 Bonds”). The 2011-A Bonds, the 2011-B Bonds, and the 2011-C Bonds are sometimes referred to in this Official Statement individually as a “Series.” For definitions of certain capitalized terms used but not otherwise defined in this Official Statement, see Appendix C – “Bond Ordinance.”

Authorization

The 2011 Bonds are authorized under the Revenue Bond Act of 1933, Act No. 94, Public Acts of Michigan, 1933, as amended (the “Act”), and are being issued pursuant to an Amended and Restated Bond Ordinance adopted by the City Council on January 26, 2005 (the “Bond Ordinance”), as supplemented by a Resolution adopted by the City Council on April 5, 2011 (the “Bond Resolution”), and a Sale Order of the Finance Director of the City, dated December 15, 2011 (the “Sale Order”). The Bond Ordinance, the Bond Resolution and the Sale Order are collectively referred to as the “Authorizing Documents.”

Senior Lien Bonds, Second Lien Bonds, SRF Junior Lien Bonds

The Bond Ordinance constitutes a contract between the City and the holders of all bonds issued thereunder (collectively referred to herein as the “Water Supply System Bonds”). All bonds issued and to be issued under the Bond Ordinance are payable solely from the Pledged Assets, which include the Net Revenues of the Water Supply System and amounts available in certain funds and accounts established under the Bond Ordinance. Water Supply System Bonds secured by a senior lien on Pledged Assets, including the 2011 Bonds, constitute and are sometimes referred to in this Official Statement as “Senior Lien Bonds.” All Water Supply System Bonds issued under the Bond Ordinance that are not Senior Lien Bonds constitute “Junior Lien Bonds,” and are secured by a lien on Pledged Assets that is junior to the lien securing all Senior Lien Bonds. Among Junior Lien Bonds, Water Supply System Bonds issued as “Second Lien Bonds” are secured by a lien on Pledged Assets that is superior to the liens securing all other Junior Lien Bonds, and Water Supply System Bonds issued as State Revolving Fund (“SRF”) Junior Lien Bonds are secured by a lien on Pledged Assets that is junior to the liens securing all other Junior Lien Bonds. In addition to being subordinate in lien to all other Water System Bonds, SRF Junior Lien Bonds do not have a debt service reserve fund. There are currently no outstanding Junior Lien Bonds other than Second Lien Bonds and SRF Junior Lien Bonds.

See “DEBT SERVICE AND OUTSTANDING INDEBTEDNESS” and “SECURITY AND SOURCES OF PAYMENT FOR THE 2011 BONDS”.

Water Supply System

The Water Supply System (sometimes referred to herein as the “System”) is owned by the City and is operated, managed and accounted for by the City as a separate enterprise fund through the Water and Sewerage Department (the “Department”), which is established under the City Charter. All funds and accounts of the Water Supply System are maintained separate from other City funds, including those of the City’s Sewage Disposal System. See “FINANCIAL PROCEDURES – Cash Management.” The Department is headed by a seven-member board appointed by the Mayor, known as the Board of Water Commissioners (the “Board of Commissioners” or the “Board”), which meets monthly. Four members of the Board (each being a resident of the City) are appointed by the Mayor of the City. Key executives of the Counties of Macomb, Oakland, and Wayne each nominate a member to the Board for appointment by the Mayor of the City. The Department and the Board oversee both the Water Supply System and the Sewage Disposal System. See “THE WATER AND SEWERAGE DEPARTMENT.”

The Water Supply System is one of the largest in the nation in terms of water produced and population served, as the Department is responsible for treatment and distribution of water to most southeast Michigan. The System’s service area covers 981 square miles in Wayne, Oakland, Macomb, Lapeer, Genesee, Washtenaw, St. Clair, and Monroe counties. The Department currently serves an estimated population of 3.8 million, with suburban wholesale customers comprising approximately 80% of the total. See “THE WATER SUPPLY SYSTEM” and Appendix A – “Feasibility Report.”

PLAN OF FINANCING

The 2011-A Bonds and the 2011-B Bonds are being issued to finance capital improvements to the Water Supply System and to terminate the entire, existing interest rate swap portfolio of the Water Supply System. The City expects to terminate all of its outstanding Water Supply System interest rate swaps in order to reduce its swap risk.

System Improvements

The 2011-A Bonds will be used to finance a portion of the cost of the Water Supply System capital improvement program, including (a) making certain additional repairs, extensions and improvements to the System, (b) financing the payment of swap termination fees with respect to the (i) four interest rate swap agreements relating to the Water Supply System Revenue Refunding Second Lien Bonds, Series 2001-C, (ii) the two interest rate swap agreements relating to the Water Supply System Revenue Senior Lien Bonds, Series 2005-B, (iii) the two interest rate swap agreements relating to the Water Supply System Revenue Second Lien Bonds, Series 2006-B, (iv) the \$150,000,000 notional amount forward starting swap with Morgan Stanley Capital Services LLC, and (v) the \$50,000,000 notional amount forward starting swap with SBS Financial Products Company, LLC (collectively, the “Tax-exempt Swap Termination Fees”) (see the chart under “INTEREST RATE SWAP AGREEMENTS”, below, for additional information regarding such interest rate swaps), (c) funding the Reserve Requirement (as defined in the Bond Ordinance) attributable to the 2011-A Bonds, and (d) paying certain costs of issuance relating to the 2011-A Bonds. Proceeds of the 2011-A Bonds, except for the amount deposited in the Reserve Fund to meet the Reserve Requirement allocable to the 2011-A Bonds, will be deposited in the Construction Fund established under the Bond Ordinance and may be used only for the costs of the Project (as defined in the Bond Resolution), to pay the Tax-exempt Swap Termination Fees, and for payment of costs of issuance. In accordance with the Act and the Bond Ordinance, investment income derived from the Construction Fund is transferred to the Receiving Fund. Any balances remaining in the Construction Fund after completion of the Project may be used in the discretion of the City for meeting the requirements of the Senior Lien Bond Reserve Account, and to the extent such monies are not needed to meet the requirements of the Senior Lien Bond Reserve Account, for meeting the Second Lien Bond Reserve Account or for further additions and improvements to the System or, in the event no such expenditure is made, must be transferred to the Interest and Redemption Fund, or, to the Second Lien Interest and Redemption Fund, as the City shall determine. See “SECURITY AND SOURCES OF PAYMENT FOR THE 2011 BONDS—Bond Ordinance Flow of Funds” and “THE CAPITAL IMPROVEMENT PROGRAM.”

The 2011-B Bonds will be to finance a portion of the cost of the Water Supply System capital improvement program consisting of (a) financing the payment of swap termination fees with respect to the interest rate swap agreements relating to (i) the Water Supply System Revenue Second Lien Bonds, Series 2003-B, (ii) the Water

Supply System Revenue Refunding Senior Lien Bonds, Series 2003-C, (iii) the Water Supply System Revenue Refunding Senior Lien Bonds, Series 2003-D, (iv) the Water Supply System Revenue Refunding Second Lien Bonds, Series 2004-A, and (v) the Water Supply System Revenue Refunding Senior Lien Bonds, Series 2004-B (the “Taxable Swap Termination Fees”) (see the chart under “INTEREST RATE SWAP AGREEMENTS”, below, for additional information regarding such interest rate swaps), (b) funding the Reserve Requirement (as defined in the Bond Ordinance) attributable to the 2011-B Bonds, and (c) paying certain costs of issuance relating to the 2011-B Bonds. Proceeds of the 2011-B Bonds, except for the amount deposited in the Reserve Fund to meet the Reserve Requirement for the 2011-B Bonds, will be deposited in the Construction Fund established under the Bond Ordinance and may be used only to pay Taxable Swap Termination Fees, and for payment of costs of issuance.

The Feasibility Report attached to this Official Statement as part of Appendix A (the “Feasibility Report”) sets forth a detailed description of the City’s five year capital improvement program (the “Capital Improvement Program”) for the Water Supply System. As shown in Table 5 of the Feasibility Report, the Project being financed with proceeds of the 2011 Bonds includes portions of the Capital Improvement Program which are to be constructed during 2012, 2013 and during a portion of 2014. Other portions of the Capital Improvement Program are to be financed from operating revenues and from the proceeds of future bond issues. See Table 6 of the Feasibility Report and see “FINANCIAL OPERATIONS” herein for a discussion of the projected revenues and additional revenue requirements. The City may from time to time, and at any time, modify its Capital Improvement Program by adding, deleting or modifying the individual projects and by changing the priority scheduling of completing the individual projects, all without notice to or consent of Bondholders.

PLAN OF REFUNDING

Proceeds of the 2011-C Bonds will be used (a) advance refund (including defeasing certain bonds to maturity) the City’s Water Supply System Revenue Bonds as Refunded Bonds described in the table below (the “Refunded Bonds”), (b) funding the Reserve Requirement (as defined in the Bond Ordinance) attributable to the 2011-C Bonds, and (c) paying certain costs of issuance relating to the 2011-C Bonds.

Refunded Bonds

<u>Series</u>	<u>Maturity Date</u>	<u>Interest Rate</u>	<u>Principal Amount</u>	<u>Redemption or Maturity Date</u>	<u>Redemption Price</u>
1997-A	07/01/2027	5.00	\$57,095,000	01/23/2012	100.00
2003-A	07/01/2021	5.00	3,050,000	07/01/2013	100.00
1995-A	07/01/2012	5.55	3,670,000	07/01/2012*	100.00
1997-A	07/01/2012	5.75	9,310,000	07/01/2012*	100.00
1997-A	07/01/2013	6.00	6,150,000	07/01/2013*	100.00
2003-B	07/01/2012	3.74	2,175,000	07/01/2012*	100.00
2003-B	07/01/2013	3.87	2,800,000	07/01/2013*	100.00
2003-B	07/01/2014	4.00	2,505,000	07/01/2014*	100.00
2006-A	07/01/2012	5.00	6,605,000	07/01/2012*	100.00
2006-A	07/01/2013	5.00	3,000,000	07/01/2013*	100.00

* Defeased to Maturity Date.

Pursuant to the terms of an Escrow Deposit Agreement (the “Escrow Agreement”) by and between the City and U.S. Bank National Association, Detroit, Michigan, as Escrow Agent (the “Escrow Agent”), the City will deposit proceeds of the 2011-C Bonds, other than the amount needed to fund the Reserve Requirement attributable to the 2011-C Bonds and to pay certain costs of issuance, in trust with the Escrow Agent in an irrevocable escrow account for the Refunded Bonds, which will be used to purchase certain direct obligations of the United States of America, or obligations the principal of and interest on which are guaranteed by the United States of America, or a combination thereof (collectively, the “Government Obligations”). The Government Obligations will bear interest at such rates and will be scheduled to mature at such times and in such amounts so that, when paid in accordance with their respective terms, sufficient moneys will be available therefrom, together with any uninvested cash (i) to pay interest on the Refunded Bonds when it becomes due on and prior to their redemption date; and (ii) to redeem the

Refunded Bonds at the redemption price or maturity amounts shown on their redemption or maturity date. Principal of and interest on the Government Obligations will be held in trust and used solely for the payment of the principal of and interest on the Refunded Bonds, subject only to the payment to the City in accordance with the Escrow Agreement of any cash not required for such purposes.

THE 2011 BONDS

General

The 2011 Bonds are being issued in denominations of \$5,000 or integral multiples thereof. The 2011 Bonds will mature in the years and amounts and bear interest at the rates set forth on the inside cover of this Official Statement. The 2011 Bonds will be dated the date of their initial delivery. Interest on the 2011 Bonds will accrue from the date of delivery and will be payable on July 1, 2012, and semiannually on each July 1 and January 1 thereafter (each an “Interest Payment Date”). Interest on the 2011 Bonds will be computed using a 360-day year and twelve 30-day months. Interest on the 2011 Bonds will be payable when due by check or draft mailed by the Transfer Agent or, upon the request of the owner of \$1,000,000 or more in principal amount of the 2011 Bonds, by wire transfer.

Redemption Provisions

Optional Redemption. The 2011 Bonds maturing on or before July 1, 2021 are not subject to redemption prior to maturity. The 2011 Bonds or portions thereof in multiples of \$5,000, scheduled to mature on July 1, 2022, and thereafter, are subject to redemption at the option of the City, as a whole or in part on any date on or after July 1, 2021, in such order of maturity as the City shall determine and within any maturity by lot, at redemption prices equal to the principal amount thereof, without premium, plus accrued interest to the date fixed for redemption.

Mandatory Sinking Fund Redemption. The 2011 Bonds listed below (the “Term Bonds”) are subject to mandatory redemption in part at a redemption price equal to 100% of the principal amount thereof to be redeemed, plus accrued interest to the date fixed for redemption, from moneys to be deposited by the City in the Sinking Fund established for such Series under the Bond Resolution on the dates and in the principal amounts set forth in the tables below.

<u>2011-A Bonds Maturing July 1, 2031</u>	
<u>Redemption Date (July 1)</u>	<u>Principal Amount</u>
2028	\$3,935,000
2029	3,910,000
2030	3,350,000
2031 [†]	3,470,000

[†] Final maturity Date.

2011-A Bonds Maturing July 1, 2036

<u>Redemption Date (July 1)</u>	<u>Principal Amount</u>
2032	\$ 3,590,000
2033	3,725,000
2034	3,850,000
2035	3,990,000
2036 [†]	13,735,000

2011-A Bonds Maturing July 1, 2041

<u>Redemption Date (July 1)</u>	<u>Principal Amount</u>
2038	\$52,150,000
2039	54,885,000
2040	57,770,000
2041 [†]	59,495,000

2011-B Bonds Maturing July 1, 2013

<u>Redemption Date (July 1)</u>	<u>Principal Amount</u>
2012	\$1,065,000
2013 [†]	660,000

2011-B Bonds Maturing July 1, 2016

<u>Redemption Date (July 1)</u>	<u>Principal Amount</u>
2014	\$685,000
2015	630,000
2016 [†]	655,000

2011-B Bonds Maturing July 1, 2021

<u>Redemption Date (July 1)</u>	<u>Principal Amount</u>
2017	\$680,000
2018	715,000
2019	750,000
2020	790,000
2021 [†]	825,000

[†] Final maturity Date.

2011-B Bonds Maturing July 1, 2033

<u>Redemption Date (July 1)</u>	<u>Principal Amount</u>
2022	\$865,000
2023	915,000
2024	735,000
2025	780,000
2026	650,000
2027	690,000
2028	730,000
2029	775,000
2030	825,000
2031	870,000
2032	925,000
2033 [†]	980,000

2011-C Bonds Maturing July 1, 2041

<u>Redemption Date (July 1)</u>	<u>Principal Amount</u>
2037	\$8,075,000
2038	8,480,000
2039	8,905,000
2040	9,350,000
2041 [†]	9,820,000

[†] Final maturity Date.

The principal amount of Term Bonds of a maturity to be redeemed on the dates set forth above shall be reduced by the principal amount of Term Bonds of the same maturity and series that have been redeemed (other than by application of Sinking Fund Redemption Requirements) or otherwise acquired by the City and delivered to the Transfer Agent prior to giving the notice of redemption described below. The City may satisfy any Sinking Fund Redemption Requirement by the purchase and surrender of Term Bonds of the same maturity and series in lieu of calling such Term Bonds for mandatory redemption.

General Redemption Provisions. Any 2011 Bonds to be redeemed will be redeemed only in Authorized Denominations. 2011 Bonds duly called for redemption will cease to bear interest on and after the date fixed for redemption, whether or not presented for payment, provided that funds are on hand with the Transfer Agent to redeem such 2011 Bonds. An Owner of a 2011 Bond selected for redemption in part, upon surrender of such 2011 Bond for redemption, shall receive without cost a new 2011 Bond of the same Series and interest rate, and in the principal amount of the unredeemed portion of such 2011 Bond which was surrendered. Any new 2011 Bond issued will be executed by the City and authenticated by the Transfer Agent.

Notice of Redemption. The Transfer Agent will mail notice of redemption to the Owners of the 2011 Bonds not less than 30 days prior to the date fixed for redemption. So long as DTC or its nominee is the owner of the 2011 Bonds, the Transfer Agent will send any notice of redemption only to DTC, as described in "Book-Entry-Only System" below.

GENERAL 2011 BOND PROVISIONS

Transfer of 2011 Bonds

So long as DTC or its nominee is the Owner of the 2011 Bonds, beneficial ownership interests in the 2011 Bonds may only be transferred through a DTC Direct Participant or Indirect Participant and recorded on the book-entry-only system operated by DTC. In the event the book-entry system is discontinued, any 2011 Bond may be transferred by the Owner in person or by his duly authorized attorney or legal representative, upon surrender of the

2011 Bond to the Transfer Agent for cancellation, together with a duly executed written instrument of transfer in a form approved by the Transfer Agent. Whenever any 2011 Bonds are surrendered for transfer, the Transfer Agent will authenticate and deliver a new 2011 Bond or Bonds of the same Series in Authorized Denominations for the same aggregate principal amount and bearing the same interest rate as the surrendered 2011 Bond. The Transfer Agent will require the Owner requesting the transfer to pay any tax or other governmental charge required to be paid with respect to the transfer. The Transfer Agent will not be required to issue, register the transfer of, or exchange any 2011 Bond during a period beginning at the opening of business 15 days immediately before the day of the mailing of a notice of redemption of 2011 Bonds selected for redemption and ending at the close of business on the day of that mailing, or to register the transfer of or exchange any 2011 Bond selected for redemption in whole or in part, except the unredeemed portion of the 2011 Bonds being redeemed in part.

Book-Entry-Only System

The Depository Trust Company (“DTC”), New York, NY, will act as securities depository for the 2011 Bonds. The 2011 Bonds will be issued as fully-registered securities registered in the name of Cede & Co. (DTC’s partnership nominee) or such other name as may be requested by an authorized representative of DTC. One fully-registered bond certificate will be issued for each maturity of the 2011 Bonds of each Series, each in the aggregate principal amount of such maturity, and will be deposited with DTC.

DTC, the world’s largest securities depository, is a limited-purpose trust company organized under the New York Banking Law, a “banking organization” within the meaning of the New York Banking Law, a member of the Federal Reserve System, a “clearing corporation” within the meaning of the New York Uniform Commercial Code, and a “clearing agency” registered pursuant to the provisions of Section 17A of the Securities Exchange Act of 1934. DTC holds and provides asset servicing for over 3.5 million issues of U.S. and non-U.S. equity, issues, corporate and municipal debt issues, and money market instruments (from over 100 countries) that DTC’s participants (“Direct Participants”) deposit with DTC. DTC also facilitates the post-trade settlement among Direct Participants of sales and other securities transactions in deposited securities through electronic computerized book-entry transfers and pledges between Direct Participants’ accounts. This eliminates the need for physical movement of securities certificates. Direct Participants include both U.S. and non-U.S. securities brokers and dealers, banks, trust companies, clearing corporations, and certain other organizations. DTC is a wholly owned subsidiary of The Depository Trust & Clearing Corporation (“DTCC”). DTCC is the holding company for DTC, National Securities Clearing Corporation, Fixed Income Clearing Corporation, all of which are registered clearing agencies. DTCC is owned by the users of its regulated subsidiaries. Access to the DTC system is also available to others such as both U.S. and non-U.S. securities brokers and dealers, banks, trust companies and clearing corporations that clear through or maintain a custodial relationship with a Direct Participant, either directly or indirectly (“Indirect Participants”). DTC has a Standard & Poor’s rating of AA+. The DTC Rules applicable to its Participants are on file with the Securities and Exchange Commission. More information about DTC can be found at www.dtcc.com.

Purchases of the 2011 Bonds under the DTC system must be made by or through Direct Participants, which will receive a credit for the 2011 Bonds on DTC’s records. The ownership interest of each actual purchaser of each 2011 Bond (“Beneficial Owner”) is in turn to be recorded on the Direct and Indirect Participants’ records. Beneficial Owners will not receive written confirmation from DTC of their purchase. Beneficial Owners are, however, expected to receive written confirmations providing details of the transaction, as well as periodic statements of their holdings, from the Direct or Indirect Participant through which the Beneficial Owner entered into the transaction. Transfers of ownership interests in the 2011 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 2011 Bonds, except in the event that use of the book-entry system for the 2011 Bonds is discontinued.

To facilitate subsequent transfers, all 2011 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 the 2011 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 2011 Bonds; DTC’s records reflect only the identity of the Direct Participants to whose accounts such 2011 Bonds are credited, which may or may not be the Beneficial Owners. The Direct and Indirect Participants will remain responsible for keeping account of their holdings on behalf of their customers.

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

Redemption notices shall be sent to DTC. If less than all of the 2011 Bonds of a Series are being redeemed, DTC's practice is to determine by lot the amount of the interest of each Direct Participant in such issue to be redeemed.

Neither DTC nor Cede & Co. (nor such other DTC nominee) will consent or vote with respect to the 2011 Bonds unless authorized by a Direct Participant in accordance with DTC's MMI Procedures. Under its usual procedures, DTC mails an Omnibus Proxy to the City as soon as possible after the record date. The Omnibus Proxy assigns Cede & Co.'s consenting or voting rights to those Direct Participants to whose accounts the 2011 Bonds are credited on the record date (identified in a listing attached to the Omnibus Proxy).

Principal and interest payments with respect to the 2011 Bonds will be made to Cede & Co., or such other nominee as may be requested by an authorized representative of DTC. DTC's practice is to credit Direct Participants' accounts upon DTC's receipt of funds and corresponding detail information from the City or the Transfer Agent, on the payable date in accordance with their respective holdings shown on DTC's records. Payments by Participants to Beneficial Owners will be governed by standing instructions and customary practices, as is the case with securities held for the accounts of customers in bearer form or registered in "street name," and will be the responsibility of such Participant and not of DTC, the Transfer Agent or the City, subject to any statutory or regulatory requirements as may be in effect from time to time. Payment of principal and interest to Cede & Co. (or such other DTC nominee as may be requested by an authorized representative of DTC) is the responsibility of the City or the Transfer Agent, disbursement of such payments to Direct Participants will be the responsibility of DTC, and disbursement of such payments to the Beneficial Owners will be the responsibility of Direct and Indirect Participants.

DTC may discontinue providing its services as securities depository with respect to the 2011 Bonds at any time by giving reasonable notice to the City or the Transfer Agent. Under such circumstances, in the event that a successor securities depository is not obtained, bond certificates are required to be printed and delivered.

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

The information in this section concerning DTC and DTC's book-entry system has been obtained from sources that the City believes to be reliable, but neither the City nor the Underwriters take any responsibility for the accuracy thereof. The City and the Underwriters cannot and do not give any assurances that DTC, the Direct and Indirect Participants or others will distribute payments of principal and interest with respect to the 2011 Bonds paid to Cede & Co. or another DTC nominee as the Owner, or will distribute any redemption or other notices to the Beneficial Owners, or that they will do so on a timely basis or will serve and act in the manner described in this Official Statement. The City and the Underwriters are not responsible or liable for the failure of DTC or any Participant to make any payment or give any notice to a Beneficial Owner with respect to the 2011 Bonds or an error or delay relating thereto.

SOURCES AND USES OF FUNDS

The sources and uses of funds are approximately as follows:

	<u>2011-A Bonds</u>	<u>2011-B Bonds</u>	<u>2011-C Bonds</u>	<u>Total</u>
<u>Sources:</u>				
Par Amount of Bonds	\$379,590,000.00	\$17,195,000.00	\$103,890,000.00	\$500,675,000.00
Net Premium/Discount	<u>3,418,577.60</u>	<u>(204,448.00)</u>	<u>1,360,132.65</u>	<u>4,574,262.25</u>
Totals	\$383,008,577.60	\$16,990,552.00	\$105,250,132.65	\$505,249,262.25
<u>Uses:</u>				
Swap Termination Payments	\$ 211,808,429.00	\$10,113,000.00	\$ 0	\$221,921,429.00
Construction Fund	156,873,436.76	6,214,804.43	0	163,088,241.19
Deposit to Reserve Account	11,179,207.78	506,405.53	1,314,386.69	13,000,000.00
Deposit to Escrow Fund	0	0	103,059,120.80	103,059,120.80
Bond Issuance Expenses ¹	<u>3,147,504.06</u>	<u>156,342.04</u>	<u>876,625.16</u>	<u>4,180,471.26</u>
Total Uses:	\$383,008,577.60	\$16,990,552.00	\$105,250,132.65	\$505,249,262.25

¹ Includes underwriting discount, printing costs, rating agency fees, legal and financial advisor fees, rounding amount, and other costs of issuance. Any excess bond issuance expenses will be transferred to the Construction Fund.

DEBT SERVICE AND OUTSTANDING INDEBTEDNESS

As of December 22, 2011, there will be \$1,914,355,000 principal amount of Water System Senior Lien Bonds outstanding, \$642,040,000 principal amount of Water System Second Lien Bonds, and \$21,904,245 principal amount of SRF Junior Lien Bonds outstanding. Currently, there are no Junior Lien Bonds other than Second Lien Bonds and SRF Junior Lien Bonds outstanding. The following schedules set forth various information with respect to outstanding Water System Bonds, including total outstanding Water System Bonds debt service.

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Water Supply System Revenue Bonds and Revenue Refunding Bonds

<u>Senior Lien Bonds</u>	<u>Original Principal Amount</u>	<u>Outstanding as of December 22, 2011</u>
Water Supply System Revenue & Revenue Refunding Bonds, Series 1993	\$ 193,805,000	\$ 24,725,000
Water Supply System Revenue Refunding Bonds, Series 1995-B	60,485,000	8,480,000
Water Supply System Revenue (Senior Lien) Bonds, Series 1997-A	215,300,000	13,430,000
Water Supply System Revenue Senior Lien Bonds, Series 2001-A	302,485,000	73,790,000
Water Supply System Revenue Senior Lien Bonds, Series 2003-A	234,805,000	178,785,000
Water Supply System Revenue Refunding Senior Lien Bonds, Series 2003-C	46,355,000	29,660,000
Water Supply System Revenue Refunding Senior Lien Bonds, Series 2003-D	151,370,000	141,200,000
Water Supply System Revenue Refunding Senior Lien Bonds, Series 2004-B	163,590,000	136,730,000
Water Supply System Revenue Senior Lien Bonds, Series 2005-A	105,000,000	92,480,000
Water Supply System Revenue Senior Lien Bonds, Series 2005-B	195,000,000	191,295,000
Water Supply System Revenue Refunding Senior Lien Bonds, Series 2005-C	126,605,000	113,375,000
Water Supply System Revenue Senior Lien Bonds, Series 2006-A	280,000,000	264,105,000
Water Supply System Revenue Refunding Senior Lien Bonds, Series 2006-D	146,590,000	145,625,000
Water Supply System Revenue Senior Lien Bonds, Series 2011-A	379,590,000	379,590,000
Water Supply System Revenue Senior Lien Bonds, Series 2011-B	17,195,000	17,195,000
Water Supply System Revenue Refunding Senior Lien Bonds, Series 2011-C	103,890,000	103,890,000
Total Senior Lien Bonds	\$2,722,065,000	\$1,914,355,000
<u>Second Lien Bonds</u>		
Water Supply System Revenue Second Lien Bonds, Series 2001-C	\$ 192,290,000	\$ 188,915,000
Water Supply System Revenue Second Lien Bonds, Series 2003-B	172,945,000	41,770,000
Water Supply System Revenue Refunding Second Lien Bonds, Series 2004-A	77,010,000	72,745,000
Water Supply System Revenue Second Lien Bonds, Series 2006-B	120,000,000	119,900,000
Water Supply System Revenue Refunding Second Lien Bonds, Series 2006-C	220,645,000	218,710,000
Total Second Lien Bonds	\$ 782,890,000	\$ 642,040,000
<u>SRF Junior Lien Bonds</u>		
Water Supply System Revenue Bonds, Series 2005-SRF-1	\$ 15,265,000	\$ 10,443,159
Water Supply System Revenue Bonds, Series 2005-SRF-2	10,710,000	5,744,219
Water Supply System Revenue Bonds, Series 2006-SRF-1	6,035,000	3,905,926
Water Supply System Revenue Bonds, Series 2008-SRF	<u>6,500,000</u>	<u>1,810,941</u>
Total SRF Junior Lien Bonds	\$ 38,510,000	\$ 21,904,245 ¹
Total Water Supply System Bonds	\$3,543,465,000	2,578,299,245

¹ Original Principal Amount reflects maximum stated amount of State Revolving Fund Bonds issued as part of the State of Michigan's Revolving Loan Program; outstanding amount reflects principal amount of loan by Department. As the Department draws additional amounts from time to time hereafter, the outstanding principal amounts of such Bonds will correspondingly increase.

Source: The Department

WATER SUPPLY SYSTEM DEBT SERVICE SCHEDULE

Fiscal Year Ending¹	Outstanding Senior Lien Debt Service²	<u>2011-A Bonds</u>		<u>2011-B Bonds</u>		<u>2011-C Bonds</u>		Total Senior Lien Debt Service²	Outstanding Second Lien Debt Service²	Total SRF Junior Lien Debt Service³	Total System Debt Service
		<u>Principal</u>	<u>Interest</u>	<u>Principal</u>	<u>Interest</u>	<u>Principal</u>	<u>Interest</u>				
2012	\$93,545,587	\$5,500,000	\$10,427,268	\$1,065,000	\$465,420	\$1,225,000	\$2,758,409	\$114,986,684	\$36,411,519	\$2,165,550	\$153,563,753
2013	\$100,511,717	\$3,280,000	\$19,696,463	\$660,000	\$859,932	\$0	\$5,217,363	\$130,225,474	\$40,435,093	\$2,234,591	\$172,895,158
2014	\$110,560,324	\$3,410,000	\$19,532,463	\$685,000	\$843,458	\$0	\$5,217,363	\$140,248,607	\$40,449,988	\$2,297,700	\$182,996,294
2015	\$110,581,574	\$3,550,000	\$19,361,963	\$630,000	\$818,750	\$0	\$5,217,363	\$140,159,649	\$43,031,712	\$2,378,606	\$185,569,967
2016	\$110,701,001	\$3,695,000	\$19,184,463	\$655,000	\$796,026	\$0	\$5,217,363	\$140,248,852	\$42,911,012	\$2,378,950	\$185,538,814
2017	\$110,684,554	\$3,845,000	\$18,999,713	\$680,000	\$772,400	\$0	\$5,217,363	\$140,199,029	\$42,923,588	\$2,373,469	\$185,496,085
2018	\$110,126,241	\$4,000,000	\$18,807,463	\$715,000	\$738,400	\$0	\$5,217,363	\$139,604,466	\$43,481,775	\$2,377,109	\$185,463,351
2019	\$101,688,956	\$3,160,000	\$18,607,463	\$750,000	\$702,650	\$0	\$5,217,363	\$130,126,431	\$51,912,300	\$2,374,819	\$184,413,550
2020	\$101,674,606	\$3,225,000	\$18,449,463	\$790,000	\$665,150	\$0	\$5,217,363	\$130,021,581	\$51,911,750	\$2,376,597	\$184,309,928
2021	\$98,608,994	\$4,215,000	\$18,288,213	\$825,000	\$625,650	\$2,700,000	\$5,217,363	\$130,480,219	\$51,940,538	\$2,377,381	\$184,798,138
2022	\$101,794,469	\$4,195,000	\$18,077,463	\$865,000	\$584,400	\$0	\$5,082,363	\$130,598,694	\$51,964,138	\$2,377,181	\$184,940,013
2023	\$91,770,969	\$4,170,000	\$17,857,225	\$915,000	\$532,500	\$9,965,000	\$5,082,363	\$130,293,056	\$51,984,150	\$2,371,050	\$184,648,256
2024	\$91,473,494	\$4,140,000	\$17,638,300	\$735,000	\$477,600	\$10,490,000	\$4,559,200	\$129,513,594	\$52,011,938	\$2,378,872	\$183,904,403
2025	\$91,457,644	\$4,085,000	\$17,420,950	\$780,000	\$433,500	\$11,035,000	\$4,008,475	\$129,220,569	\$52,055,088	\$2,380,541	\$183,656,197
2026	\$91,538,944	\$4,020,000	\$17,206,488	\$650,000	\$386,700	\$11,615,000	\$3,429,138	\$128,846,269	\$52,096,613	\$2,376,163	\$183,319,044
2027	\$91,432,244	\$3,930,000	\$16,995,438	\$690,000	\$347,700	\$12,230,000	\$2,819,350	\$128,444,731	\$52,223,725	\$2,375,738	\$183,044,194
2028	\$104,604,894	\$3,935,000	\$16,789,113	\$730,000	\$306,300	\$0	\$2,231,500	\$128,596,806	\$52,332,013	\$415,250	\$181,344,069
2029	\$104,557,144	\$3,910,000	\$16,592,363	\$775,000	\$262,500	\$0	\$2,231,500	\$128,328,506	\$51,787,125	\$415,125	\$180,530,757
2030	\$104,600,800	\$3,350,000	\$16,396,863	\$825,000	\$216,000	\$0	\$2,231,500	\$127,620,162	\$51,307,000	\$0	\$178,927,162
2031	\$104,552,256	\$3,470,000	\$16,229,363	\$870,000	\$166,500	\$0	\$2,231,500	\$127,519,619	\$51,300,875	\$0	\$178,820,494
2032	\$104,617,963	\$3,590,000	\$16,055,863	\$925,000	\$114,300	\$0	\$2,231,500	\$127,534,625	\$51,294,750	\$0	\$178,829,375
2033	\$104,970,937	\$3,725,000	\$15,876,363	\$980,000	\$58,800	\$0	\$2,231,500	\$127,842,600	\$51,284,375	\$0	\$179,126,975
2034	\$104,612,538	\$3,850,000	\$15,690,113	\$0	\$0	\$0	\$2,231,500	\$126,384,150	\$51,735,500	\$0	\$178,119,650
2035	\$128,228,425	\$3,990,000	\$15,497,613	\$0	\$0	\$0	\$2,231,500	\$149,947,538	\$7,870,375	\$0	\$157,817,913
2036	\$0	\$13,735,000	\$15,298,113	\$0	\$0	\$0	\$2,231,500	\$31,264,613	\$125,263,750	\$0	\$156,528,363
2037	\$0	\$49,315,000	\$14,611,363	\$0	\$0	\$8,075,000	\$2,231,500	\$74,232,863	\$0	\$0	\$74,232,863
2038	\$0	\$52,150,000	\$11,775,750	\$0	\$0	\$8,480,000	\$1,827,750	\$74,233,500	\$0	\$0	\$74,233,500
2039	\$0	\$54,885,000	\$9,037,875	\$0	\$0	\$8,905,000	\$1,403,750	\$74,231,625	\$0	\$0	\$74,231,625
2040	\$0	\$57,770,000	\$6,156,413	\$0	\$0	\$9,350,000	\$958,500	\$74,234,913	\$0	\$0	\$74,234,913
2041	\$0	\$59,495,000	\$3,123,488	\$0	\$0	\$9,820,000	\$491,000	\$72,929,488	\$0	\$0	\$72,929,488
TOTAL	\$2,468,896,273	\$379,590,000	\$475,681,443	\$17,195,000	\$11,174,635	\$103,890,000	\$101,691,559	\$3,558,118,910	\$1,251,920,689	\$38,424,691	\$4,848,464,289

SOURCE: The Department

¹ Amounts due July 1 are shown as debt service for the preceding Fiscal Year ending June 30 (the amounts actually required to be set aside in that Fiscal Year). For example, debt service payments due July 1, 2012 are shown in the Fiscal Year ending June 30, 2012.

² All figures exclude prior net swap payments and debt service on the Refunded Bonds.

³ Based on projected drawdown and expenditure of SRF-funded projects.

INTEREST RATE SWAP AGREEMENTS

On December 20, 2011, the City terminated all of its outstanding Water Supply System interest rate swaps in order to reduce its swap risk.

SECURITY AND SOURCES OF PAYMENT FOR THE 2011 BONDS

Nature of Obligations

Water System Bonds and Ancillary Obligations are self-liquidating obligations of the City, payable solely from the Pledged Assets defined below under the Bond Ordinance. “Ancillary Obligations” are obligations incurred by the City with respect to particular Water System Bonds and consist of Hedge Obligations and Reimbursement Obligations. “Hedge Obligations” are payment obligations under any hedge agreements, such as the periodic net payments and any termination payments that the City is required to make under interest rate swap agreements. “Reimbursement Obligations” are repayment obligations under any credit enhancement and liquidity facilities, such as bond insurance, letters of credit, interest rate swap insurance and standby bond purchase agreements. The fees and expenses payable by the City in connection with such hedge agreements, credit enhancement and liquidity facilities (“Ancillary Obligation Fees and Expenses”) are treated separately from payments on Water System Bonds and Ancillary Obligations under the Bond Ordinance and have a different payment priority, as described under “Priority Lien and Payment Status” below.

Revenues, Net Revenues and Pledged Assets

The Bond Ordinance defines “Revenues” as the revenues of the City from the Water Supply System construed in accordance with the Act, and includes amounts receivable by the City under any interest rate swaps and hedge agreements in connection with Water Supply Bonds, including any net payments and termination payments payable to the City, and income earned and gain realized from investment of amounts in the various funds and accounts established under the Bond Ordinance, other than the Construction Fund for any fiscal year earnings on the Construction Fund are not credited to the Receiving Fund by the Board. “Net Revenues” are defined as all Revenues except those transferred to the Operation and Maintenance Fund.

“Pledged Assets” under the Bond Ordinance consist of:

- Net Revenues;
- Funds and accounts established by the Bond Ordinance (except the Operation and Maintenance Fund and the Construction Fund) and investments of amounts credited to such funds and accounts; and
- Any income or gain realized from investments that are Pledged Assets to the extent that such income or gain is not Net Revenue.

Priority of Lien and Payment Status

Water System Bonds are secured under the Bond Ordinance in accordance with their relative priorities by a statutory lien on Pledged Assets, as described below. The Bond Ordinance permits the City to secure Ancillary Obligations by a lien on Pledged Assets having the same or a lower priority than the lien securing the particular Water System Bonds to which the Ancillary Obligations relate. Ancillary Obligation Fees and Expenses have a higher payment status than Water System Bonds and Ancillary Obligations, as described below.

- All Ancillary Obligation Fees and Expenses are paid from Revenues in the Operation and Maintenance Fund on the same basis as operating and administrative fees and expenses of the System, with the result being that they are paid before debt service on the Water System Bonds and before Ancillary Obligations.

- Senior Lien Bonds (including the 2011 Bonds) and Ancillary Obligations secured on a parity are secured by a first lien on Pledged Assets and rank first in the order of payment from Net Revenues; provided, that any lien securing Ancillary Obligations in respect of Senior Lien Bonds shall be subject to the rights of the holders of the City's outstanding Water Supply System Revenue Second Lien Bonds, Series 1995-A, except to the extent that such Ancillary Obligations arise in connection with a Financial Facility acquired to fund any portion of the Reserve Account or to be substituted for cash therein.
- Second Lien Bonds and Ancillary Obligations secured on a parity therewith are secured by a lien on Pledged Assets second only to the Senior Lien Bonds and their parity secured Ancillary Obligations, and rank second in order of payment from Net Revenues.
- Any other Junior Lien Bonds, if issued, would have a lien subordinate to the lien of all Senior Lien Bonds and Second Lien Bonds and their parity secured Ancillary Obligations, and would rank last in order of payment from Net Revenues.

Bond Ordinance Flow of Funds

In accordance with the requirements of the Act and the City Charter, the Bond Ordinance establishes certain funds for the System, separate from all other funds of the City. All Revenues are set aside as collected and credited to the Receiving Fund. As received, amounts credited to the Receiving Fund shall be transferred seriatim into the following funds and accounts but only within the respective limitations and only if the maximum amount within such limitation has been transferred to the preceding fund or account:

First: To the Operation and Maintenance Fund, a sum sufficient to provide for the payment of the next succeeding month's expenses of administration and operation of the System (including Ancillary Obligation Fees and Expenses) and such current expenses for the maintenance thereof as may be necessary to preserve the same in good repair and working order.

Second: To the Senior Lien Debt Service Account, an amount that, when added to all other amounts then on deposit therein, shall equal the Debt Service Installment Requirement for all Senior Lien Bonds and parity secured Ancillary Obligations as of the first day of such month.

Third: To the Senior Lien Bond Reserve Account, an amount that, when added to all other amounts then on deposit therein, shall equal the Reserve Requirement of Senior Lien Bonds.

Fourth: To the Interest and Redemption Fund established for each Priority of Junior Lien Bonds, beginning with the Second Lien Bonds and continuing in descending order of Priority of Lien to, and including, the Priority of Lien of Junior Lien Bonds:

- To the Debt Service Account established for such Priority of Lien, an amount that, when added to all other amounts then on deposit therein, shall equal the Debt Service Installment Requirement for Junior Lien Bonds and parity secured Ancillary Obligations of such Priority of Lien, as of the first day of such month; and
- To the Reserve Account, if any, established for such Priority of Lien, an amount that, when added to all other amounts then on deposit therein, shall equal the Reserve Requirement for such Priority of Lien of Junior Lien Bonds.

Fifth: To the Extraordinary Repair and Replacement Reserve Fund, the amount of the Extraordinary Repair and Replacement Minimum Requirement so long as the balance thereof is less than the Extraordinary Repair and Replacement Maximum Requirement, except that an amount withdrawn from such Fund pursuant to the Bond Ordinance shall be deducted from the Extraordinary Repair and Replacement Maximum Requirement in the Fiscal Year of withdrawal; and

Sixth: To the Improvement and Extension Fund, such amount, if any, that the Board of Commissioners may deem advisable; provided that no amount shall be deposited therein or credited thereto for so long as a borrowing from the Extraordinary Repair and Replacement Reserve Fund remains unpaid.

The use and application of amounts in the Funds and Accounts established by the Bond Ordinance are set forth in Appendix C – “Bond Ordinance.”

Rate Stabilization Fund

The Bond Ordinance authorizes the City to establish a Rate Stabilization Fund, the purpose of which is to enable the City to set aside Prior Revenues (as hereinafter defined), to augment Revenues in future years in order to satisfy the requirements of the Bond Ordinance with respect to rate covenants and the Additional Bonds Tests (as hereinafter defined); provided, however, that rates still must be set so as to produce Net Revenues, exclusive of any transfer from the Rate Stabilization Fund, in an amount at least equal to the principal of and interest on all Senior Lien and Second Lien Bonds coming due during any fiscal year in which monies are transferred from the Rate Stabilization Fund.

“Prior Revenues” are Revenues of the System that, in the fiscal year of receipt, remain in the Receiving Fund after all required deposits described above under “Bond Ordinance Flow of Funds,” and are otherwise available to be applied to any lawful purpose of the Water Supply System, and may be deposited into the Rate Stabilization Fund only if (a) such Prior Revenues are deposited in the fiscal year in which they are received or within 90 days after the end of the fiscal year in which they are received, (b) the amount of Prior Revenues deposited into the Rate Stabilization Fund is deducted from the amount of Net Revenue recognized in such fiscal year, and (c) after making such deposit, the amount of Net Revenues recognized in such fiscal year continues to meet the applicable rate coverage requirements of the Bond Ordinance (see “Operating and Rate Covenants” below). Amounts on deposit in the Rate Stabilization Fund are part of the Pledged Assets on which the Bond Ordinance creates a statutory lien to secure payment of all bonds issued on behalf of the System under the Bond Ordinance, in the order of their respective priorities. In addition, amounts on deposit in the Rate Stabilization Fund may be applied for any lawful purpose of the System. Any funding of the Rate Stabilization Fund is at the sole discretion of the Board of Commissioners. To date, the City has not transferred any funds into the Rate Stabilization Fund.

Reverse Flow of Funds

If amounts in the Receiving Fund are insufficient to provide for the current requirements of the Operation and Maintenance Fund and each Interest and Redemption Fund (including the Reserve Accounts, if any, therein) then any amounts or securities held in the Surplus Fund, the Improvement and Extension Fund, and the Extraordinary Repair and Replacement Reserve Fund shall be credited or transferred, first, to the Operation and Maintenance Fund, and second to the particular Interest and Redemption Fund, to the extent of the insufficiency therein from the aforesaid funds in the order listed.

Reserve Accounts and Reserve Requirements

The Bond Ordinance establishes a Senior Lien Bond Reserve Account and a Second Lien Bond Reserve Account, and provides that no Reserve Account is established for SRF Junior Lien Bonds. Under the Bond Ordinance, Reserve Accounts may be established by supplemental action of the Finance Director for other Junior Lien Bonds, but no Junior Lien Bonds other than Second Lien Bonds and SRF Junior Lien Bonds have been issued to date. Amounts in a Reserve Account may be used solely for the payment of the principal (and premium, if any) of and interest on the Water Supply System Bonds and Ancillary Obligations of the same Priority of Lien for which such Reserve Account was established, as to which there would otherwise be a default.

The Reserve Requirement for Senior Lien Bonds is the Maximum Annual Debt Service on all Senior Lien Bonds then outstanding for the current or any future Fiscal Year or the maximum amount permitted by the Internal Revenue Code of 1986, as amended (the “Code”). The Reserve Requirement for Second Lien Bonds is the Maximum Annual Debt Service on all Second Lien Bonds then outstanding for the current or any future Fiscal Year or the maximum amount permitted by the Code. If a Reserve Account is established for any other priority of Junior

Lien Bonds, the Reserve Requirement for such other Junior Lien Bonds shall be the amount set forth in the supplemental action establishing such Reserve Account, and if no amount is set forth, shall be the average Annual Debt Service on all Junior Lien Bonds of the same Priority of Lien then outstanding for the current or any future Fiscal Year or the maximum amount permitted by the Code.

Concurrently with the issuance of Water Supply System Bonds of a priority for which a Reserve Account has been or is being established, the Bond Ordinance requires there be credited to such Reserve Account the amount that, added to the amount on deposit in such account or credited thereto, equals the Reserve Requirement for the Water Supply System Bonds then to be issued and all Water Supply System Bonds of the same priority then outstanding. In connection with the sale of the 2011 Bonds, the Senior Lien Bond Reserve Account and the Second Lien Bond Reserve Account will be revalued, and any deposits necessary to satisfy the respective Reserve Requirement will be made at the time of the sale of the 2011 Bonds. The Bond Ordinance permits the use of Credit Enhancement to fund any Reserve Account or to substitute for amounts on deposit in a Reserve Account, if the provider is rated in the highest rating category of each Rating Agency then rating the Bonds having the benefit of such Reserve Account, and the City receives an opinion of nationally recognized bond counsel to the effect that such Credit Enhancement will not adversely affect the tax-exempt status of interest on any Bonds. There is no Bond Ordinance requirement that the rating of the Credit Enhancement which has been properly credited to a reserve Account be maintained. Accordingly, all Credit Enhancements are valued at their full face value for purposes of determining satisfaction of the applicable Reserve Account Requirement, regardless of their rating. If the Credit Enhancement were determined to have no value, as for example, if a court made such a determination in connection with the dissolution of the provider, then the City would be required to replenish the applicable Reserve Account as described herein under "SECURITY AND SOURCES OF PAYMENT FOR THE 2011 BONDS – Bond Ordinance Flow of Funds" and in Appendix C – "Bond Ordinance."

As of December 22, 2011 the Reserve Requirement for the Senior Lien Bond Reserve Account will be \$149,947,538 and available funding includes:

1. Cash and Investments: \$33,088,211.
2. Forward Supply Agreement in the form of commercial paper as follows:
 - Morgan Stanley Forward Supply Agreement dated November 1, 2001 that is earning 6.012%, has a value of \$23,461,000 and matures on July 1, 2033.
3. Credit Enhancement in the form of surety policies provided by the following surety bond providers in the amounts noted:
 - (a) Financial Guaranty Insurance Company ("FGIC") surety policy unconditionally guarantying the payment of principal of and interest on any Senior Lien Bonds up to a maximum aggregate available amount of \$16,729,163 and with a termination date of July 1, 2029.
 - (b) FGIC surety policy unconditionally guarantying the payment of principal of and interest on any Senior Lien Bonds up to a maximum aggregate available amount of \$15,954,125 and with a termination date of July 1, 2033.
 - (c) MBIA Insurance Corporation ("MBIA") surety policy unconditionally guarantying the payment of the payment of principal of and interest on any Senior Lien Bonds up to a maximum aggregate available amount of \$24,970,000 and with a termination date equal to the earlier of July 1, 2034 or the date on which the Series 2003(A) Bonds are no longer outstanding.
 - (d) FGIC surety policy unconditionally guarantying the payment of principal of and interest on any Senior Lien Bonds up to a maximum aggregate available amount of \$4,000,000 and with a termination date of July 1, 2035.

(e) Assured Guaranty Municipal (“AGM,” formerly Financial Security Assurance Inc.) surety policy unconditionally guarantying the payment of principal of and interest on any Senior Lien Bonds up to a maximum aggregate available amount of \$3,000,000 and with a termination date equal to the earlier of July 1, 2034 or the date on which the Series 2006(A) and Series 2006(D) Bonds are no longer outstanding.

(f) MBIA surety policy unconditionally guarantying the payment of principal of and interest on any Senior Lien Bonds up to a maximum aggregate available amount of \$29,000,000 and with a termination date equal to the earlier of July 1, 2027 or the date on which the City has made all payments required on senior lien water revenue bonds.

As of December 22 2011, the Reserve Requirement for the Second Lien Bond Reserve Account will be \$63,815,622 and available funding includes:

1. Cash and Investments: \$19,660,030.
2. Credit Enhancement in the form of surety policies provided by the following surety bond providers in the amounts noted:

(a) FGIC surety policy unconditionally guarantying the payment of principal of and interest on any Second Lien Bonds up to a maximum aggregate available amount of \$6,815,645 and with a termination date of July 1, 2033.

(b) MBIA surety policy unconditionally guarantying the payment of the payment of principal of and interest on any Second Lien Bonds up to a maximum aggregate available amount of \$29,000,000 and with a termination date equal to the earlier of July 1, 2032 or the date on which the Series 2003(B) Bonds are no longer outstanding.

(c) AGM surety policy unconditionally guarantying the payment of principal of and interest on any Second Lien Bonds up to a maximum aggregate available amount of \$10,000,000 and with a termination date equal to the earlier of July 1, 2036 or the date on which the Bonds and Series 2006(C) Bonds are no longer outstanding.

The table below summarizes the funding of the Reserve Requirements for the Senior Lien Reserve Account and Second Lien Reserve Account as of December 22, 2011.

	Senior Lien Bonds	Second Lien Bonds	Aggregate System
Reserve Requirement	\$149,947,538	\$63,815,622	\$213,763,159
Funding Amounts ¹ :			
Cash and Investments	33,088,211	19,660,030	52,748,241
Forward Supply Agreements	23,461,000	0	23,461,000
Credit Enhancement	93,653,288	45,815,645	139,468,933
Total Funding Amounts	\$150,202,499	\$65,475,675	\$215,678,174

¹ In prior offering documents of the City with respect to its Water Revenue System Bonds, value of Cash and Investments, and Forward Supply Agreements were reflected as original cost. The Cash and Investments and Forward Supply Agreements are now reflected as market value.

Operating and Rate Covenants

Pursuant to the Act, the City has covenanted under the Bond Ordinance to maintain the System in good repair and working order and to make all needed and proper repairs, replacements, additions and betterments so that the System may at all times be operated properly and advantageously and so that the value and efficiency of the System shall at all times be maintained.

The Bond Ordinance requires that rates be fixed and revised from time to time as may be necessary to produce the greater of:

1. The amounts required to provide for:
 - a. payment of operating and maintenance expenses of the System;
 - b. payment of Indebtedness (see below) coming due for the fiscal year;
 - c. creation and maintenance of reserves required by the Bond Ordinance; and
 - d. such other expenditures and funds for the System as the Bond Ordinance may require; and
2. The Required Combined Coverage.

The City has covenanted at all times to fix and maintain rates for services furnished by the System as shall be sufficient to provide for the foregoing and to repay any transfer from the Extraordinary Repair and Replacement Reserve Fund.

For purposes of the rate covenant, “Required Combined Coverage” is determined by dividing the projected Net Revenues for the fiscal year of calculation by the prescribed Indebtedness coming due during such fiscal year. The coverage requirements for determining Required Combined Coverage for the rate covenant are as follows:

<u>Priority of Indebtedness:</u>	<u>Percentage:</u>
Senior Lien Indebtedness	120%
Second Lien Indebtedness (together with Senior Lien Indebtedness)	110%
SRF Junior Lien Bonds (together with Senior Lien and Second Lien Indebtedness)	100%

The Bond Ordinance defines “Indebtedness” as (i) principal of and interest on Water Supply System Bonds outstanding in the Fiscal Year of calculation, (ii) Reimbursement Obligations, and (iii) amounts payable by the City under a Hedge by reason of the early termination thereof. The City may take into account transfers from the Rate Stabilization Fund in calculating compliance with the rate covenant, but the City shall also comply with the rate covenant by maintaining rate coverage percentages of at least 100% without taking into account any transfers from the Rate Stabilization Fund.

The Bond Ordinance provides that the interest rate on Water Supply System Bonds that are Variable Rate Securities shall be calculated as 125% of the annualized average daily rate borne by such Variable Rate Securities for the 12 calendar month period ending immediately before the month of calculation, or if such Variable Rate Securities have been outstanding for less than a full fiscal year on the date of calculation, the interest rate shall be calculated as 125% of the average of the SIFMA Municipal Index (formerly know as the BMA Municipal Index), for the five-year period ending not more than one week before the date of calculation. For purposes of determining if Water Supply System Bonds are Fixed Rate Securities, a rate is “fixed” if the economic effect of the Water Supply System Bond bearing interest at a fixed rate is produced by a Qualified Hedge or by Counterpart Securities (as defined in the Bond Ordinance), and a rate is “variable” if the economic effect of the Water Supply System Bond bearing interest at a variable rate is produced by a Qualified Hedge. For purposes of determining the fixed or variable nature of a Water Supply System Bond rate the economic effect of a Water Supply System Bond is determined at the time the related hedge is entered into. The City currently has no outstanding un-hedged Variable Rate Securities.

Enforceability of Rates

The Act provides that the rates charged for services furnished by any public improvement constructed under the Act shall not be subject to supervision or regulation by any State bureau, board, commissioner or other like instrumentality or agency thereof.

Additional Bonds

The City may not incur any obligations payable from Pledged Assets except for Water Supply System Bonds, Ancillary Obligations and Ancillary Obligation Fees and Expenses, and no obligations of the City may be secured by a lien on Pledged Assets except as provided in the Bond Ordinance.

Coverage Requirements. The coverage requirements for determining the Required Combined Coverage for the issuance of additional Water Supply System Bonds are as follows:

<u>Priority of Water Supply System Bonds:</u>	<u>Percentage:</u>
Senior Lien Bonds	120%
Second Lien Bonds (together with Senior Lien Bonds)	110%
SRF Junior Lien Bonds (together with Senior Lien and Second Lien Bonds)	100%

The Bond Ordinance provides that a coverage percentage shall be established in connection with the issuance of a new priority of Water Supply System Bonds and that such percentage shall not be less than 100%. If any additional Water Supply System Bonds are to be issued to refund Outstanding Water Supply System Bonds, the Annual Debt Service to be used for determining the Required Combined Coverage shall be the Annual Debt Service on the refunding Water Supply System Bonds and not the Annual Debt Service on the Water Supply System Bonds to be refunded. “Annual Debt Service” is a defined term in the Bond Ordinance, and reference is made to Appendix C — “Bond Ordinance” for the definition and the rules for determining Annual Debt Service.

General Authority. The City may issue additional Water Supply System Bonds of any Priority of Lien for repairs, extensions, enlargements, and improvements to the System (including repaying amounts withdrawn from the Extraordinary Repair and Replacement Reserve Fund), refunding all or a part of any Outstanding Water Supply System Bonds and paying the costs of issuing such additional Water Supply System Bonds, including deposits, if any, to be made to any Reserve Account established or to be established for such additional Water Supply System Bonds or any other Water Supply System Bonds if, but only if, there is Required Combined Coverage under either the Projected Net Revenues Test or the Historical Net Revenues Test (the “Additional Bonds Tests”).

Projected Net Revenues Test. For purposes of determining the Required Coverage Requirement, the numerator is the projected Net Revenues of the System for the then current or the next succeeding fiscal year, and the denominator is the maximum composite Annual Debt Service in any fiscal year on Outstanding Water Supply System Bonds and the additional Water Supply System Bonds to be issued.

- Projected Net Revenues may include 100% of the estimated increase in Net Revenues to accrue as a result of the acquisition of the repairs, extensions, enlargements and improvements to the System to be paid for in whole or in part from the proceeds of the additional Water Supply System Bonds.
- In projecting Net Revenues, the City shall engage the services of and be guided by a consultant of national reputation for advising municipalities with respect to setting rates and charging for the use of water supply systems.

Historical Net Revenues Test. For purposes of determining the Required Coverage Requirement, the numerator is the actual Net Revenues of the System for the immediately preceding audited fiscal year and the denominator is the maximum composite Annual Debt Service in any future fiscal year on Outstanding Water Supply System Bonds and the additional Water Supply System Bonds to be issued.

- Instead of the immediately preceding audited fiscal year, the City may use any audited fiscal year ending not more than sixteen months prior to the date of delivery of such additional Water Supply System Bonds.

- If any change in the rates, fees and charges of the System has been authorized at or prior to the date of sale of such additional Water System Bonds, the Net Revenues for the particular preceding fiscal year shall be augmented by an amount reflecting the effect of such change had the System's billings during such fiscal year been at the increased rates.
- Net Revenues for the particular preceding audited fiscal year also may be augmented by 100% of the estimated increase in Net Revenues to accrue as a result of the acquisition of the repairs, extensions, enlargements and improvements to the System to be paid for in whole or in part from the proceeds of such additional Water Supply System Bonds and 100% of any acquisition, extension or connection which was made subsequent to the end of the particular preceding audited fiscal year.
- With respect to augmentation of Net Revenues, the City shall engage the services of and receive the certificate of a consultant of national reputation for advising municipalities with respect to setting rates and charges for the use of water supply systems regarding the existence of such conditions.
- Audited financial statements may be relied upon if no augmentation of Net Revenues is required.

Debt Service Reduction – An Additional Means of Refunding. The City may issue additional Water Supply System Bonds of any Priority of Lien without regard to the above tests for the purpose of refunding all or part of Water Supply System Bonds then Outstanding and paying costs of issuing such additional Water Supply System Bonds, including deposits which may be made to any Reserve Account established or to be established for such additional Water Supply System Bonds or any other Water Supply System Bonds if, but only if: (i) the combined Annual Debt Service coming due in the current fiscal year and each fiscal year thereafter until maturity on (A) the additional Water Supply System Bonds and (B) giving effect to the refunding, all Outstanding unrefunded Water Supply System Bonds of equal and higher Priority of Lien, is less than (ii) the combined Annual Debt Service coming due in the current fiscal year and each fiscal year thereafter until maturity on all Water Supply System Bonds of an equal and higher Priority of Lien, without giving effect to the refunding.

For a detailed discussion relating to the terms and conditions upon which additional Water Supply System Bonds may be issued, see Appendix C – “Bond Ordinance.” The City intends to issue additional Water Supply System Bonds for financing the System's current Capital Improvement Program. Such Water Supply System Bonds may be issued either as Senior Lien Bonds, Second Lien Bonds or SRF Junior Lien Bonds. See “THE CAPITAL IMPROVEMENT PROGRAM.”

Amendments without Consent

The Bond Ordinance may be amended or supplemented from time to time by a resolution or ordinance of City Council, as required or permitted by law, or by a sale order or other document signed by the Finance Director pursuant to a resolution or ordinance of City Council authorizing such action, without the consent of the Holders of Water Supply System Bonds:

- To issue Water Supply System Bonds of any priority;
- To add to the covenants and agreements of the City in the Bond Ordinance contained, other covenants and agreements thereafter to be observed or to surrender, restrict or limit any right or power reserved to or conferred upon the City (including but not limited to the right to issue Water Supply System Bonds or incur other Secured Obligations of, in either case, any priority);
- To make such provisions for the purpose of curing any ambiguity, or curing, correcting or supplementing any defective provisions contained in the Bond Ordinance, or in regard to

matters or questions arising under the Bond Ordinance, as the City may deem necessary or desirable;

- To increase the size or scope of the System; and
- To amend or supplement the Bond Ordinance in any respect with regard to Water Supply System Bonds of one or more Priorities of Lien so long as such amendment does not materially adversely affect the Holders of Outstanding Water Supply System Bonds.

The Bond Ordinance provides that no Holders of Water Supply System Bonds of a Priority of Lien shall be “materially adversely affected” for the purposes of the Bond Ordinance by the change of any coverage percentage established for Water Supply System Bonds of any other Priority of Lien, and no amendment of or supplement to the Bond Ordinance that provides for or facilitates the issuance of Water Supply System Bonds or incurs Ancillary Obligations or Ancillary Obligations Fees and Expenses, in either case, of any Priority of Lien shall “materially adversely affect” the Holders of Water Supply System Bonds of any other Priority of Lien for the purposes of the Bond Ordinance so long as such amendment does not change any coverage percentage established for such Priority of Lien or is not an amendment that requires the consent of the Holder of such Water Supply System Bonds because it (i) reduces the aforesaid percentage of Holders of Water Supply System Bonds required to consent to an amendment to the Bond Ordinance, (ii) extends the fixed maturity of such Holder’s Water Supply System Bonds or reduces the rate of interest thereon or extends the time of payment of interest, or reduces the amount of the principal or redemption premium thereof, or reduces or extends the time for payment of any premium payable on the redemption thereof or (iii) changes the Priority of Lien of such Water Supply System Bonds or deprives such Holder of the right to payment of such Water Supply System Bonds from Pledged Assets.

Trustee’s Responsibilities

The City has appointed U.S. Bank National Association, Detroit, Michigan as trustee (the “Trustee”) for the purpose of monitoring and enforcing compliance with the provisions of the Act and the Bond Ordinance. The funds and accounts established under the Bond Ordinance are not held by the Trustee, and the Trustee is not responsible for the administration, investment or disbursement of the monies allocated to such funds and accounts.

Bondholder Rights and Remedies

The Holder or Holders of Water Supply System Bonds representing in the aggregate not less than 20% of the entire principal amount thereof then Outstanding, may, by suit, action, mandamus or other proceedings, protect and enforce the statutory lien upon Pledged Assets, and may, by suit, action, mandamus or other proceedings, enforce and compel performance of all duties of the officers of the City, including the fixing of sufficient rates, the collection of Revenues, the proper segregation of the Revenues of the Water Supply System and the proper application thereof. The statutory lien upon Pledged Assets, however, shall not be construed to give the Holders of the Water Supply System Bonds the authority to compel the sale of the Water Supply System or any part thereof. So long as the Bond Insurer’s Policy is in effect, the Bond Insurer shall be deemed to be the sole holder of the Bonds for purposes of this provision. See Appendix C – “Bond Ordinance” for additional rights and remedies of Water Supply System Bondholders.

SPECIAL INVESTOR CONSIDERATIONS CONCERNING BANKRUPTCY OF THE CITY

The City has been experiencing financial challenges in recent years due, in part, to population declines and high unemployment leading to downgrades in the City's credit ratings and limited access to the capital markets. It is the City's intent to arrange its affairs and manage its budget to eliminate its current deficit and provide for future balanced financial operations. If, however, the City is unable to carry through on its efforts, its financial status could deteriorate further and its options to improve its fiscal health may be limited. The City is prohibited from voluntarily becoming a debtor under chapter 9 of the United States Bankruptcy Code, 11 U.S.C. § 101, *et seq.* ("Bankruptcy Code") without first complying with certain State Law requirements as described below under the caption "The Local Government and School District Fiscal Accountability Act". The Local Government and School District Fiscal Accountability Act, Act 4, Public Acts of Michigan, 2011 ("Act 4"), is currently the subject of a state-wide public referendum effort, and the constitutionality of Act 4 is being challenged in court. The effect of these challenges on the legislative authority contained in Act 4 to file petitions in bankruptcy is uncertain. In the absence of Act 4, the City would need to be otherwise specifically authorized to be a debtor under chapter 9 of the Bankruptcy Code by State law or by a governmental officer or organization empowered by State law to authorize the City to be a debtor under chapter 9 of the Bankruptcy Code. The Bankruptcy Code does not authorize municipalities to be subject to involuntary bankruptcy petitions.

The Local Government and School District Fiscal Accountability Act

Act 4 was enacted to assist any Michigan unit of local government in a fiscal emergency situation to remedy the emergency situation by requiring prudent fiscal management. Act 4 replaced the former Act 72, Public Acts of Michigan, 1990. Act 4 imposes a series of prerequisites, including permission of the Governor, before any consideration of a bankruptcy filing by a local unit of government. The State must first voluntarily conduct a preliminary review of the local unit's financial condition. If a local unit is found to be in severe financial stress, the State may require that the local unit enter into a consent agreement with the State to manage the financial stress. If a local unit is determined to be in a financial emergency, the State will appoint an Emergency Manager ("EM") to oversee operations of the local unit.

On December 21, 2011, the State Department of Treasury announced that it had completed its preliminary review and made a determination that the City was in a state of "probable financial stress" under Act 4. In accordance with Act 4, upon a finding of "probable financial stress," the Governor must appoint a review team to undertake a more extensive financial management review of the City. As of the date hereof, the Governor has not announced a timeline for the full review nor what steps or decisions would follow such review. If an EM were appointed for the City, such appointment would not affect the security for the 2011 Bonds or the use of Pledged Assets for payment of the 2011 Bonds. An EM is bound by State Law,¹ and under § 18(1) of Act 4 is required to develop a financial and operating plan for the local unit that includes, among other things, a provision for the payment in full of all scheduled debt service requirements on all bonds, notes and municipal securities of the local unit. In the event that the City were to file for bankruptcy after the occurrence of the required steps under Act 4, including permission of the Governor, the treatment of Pledged Assets after a bankruptcy filing is discussed below under the caption "Treatment of Pledged Assets after a Bankruptcy Filing."

Treatment of Pledged Assets after a Bankruptcy Filing

No Michigan municipality has successfully filed a petition for bankruptcy under the Bankruptcy Code. The lack of precedent in Michigan makes the risks associated with such a filing difficult to assess. As a general matter, however, bankruptcy courts have limited authority to direct the disposition of municipal assets in a federal bankruptcy filing.

Special counsel for the City has advised that, although the question is not free from doubt, in a case that is properly argued, if the City were to become a debtor under chapter 9 of the Bankruptcy Code, a court having jurisdiction over the case should hold that the Pledged Assets, intended to be used for the specific purpose of paying principal of and interest on the 2011 Bonds, constitute "special revenues" within the meaning of §902(2)(A) of the Bankruptcy Code subject to a security agreement created by the Authorizing Documents. The consequences of the

¹ This section does not address the oversight of the System by the U.S. District Court, whose authority would not be governed by Act 4.

Pledged Assets constituting “special revenues” subject to a security agreement created by the Authorizing Documents are that (i) the automatic stay under the Bankruptcy Code would not operate as a stay of application of pledged special revenues paid by the City to a trustee or to the holders of the 2011 Bonds to payment of indebtedness secured by the Pledged Assets, and (ii) special revenues acquired by the City after the commencement of the City’s bankruptcy case would remain subject to any lien resulting from a security agreement entered into by the City before the commencement of the City’s bankruptcy case. The Bond Ordinance, and the Authorizing Documents taken together as a whole, should come within the definition of such a “security agreement” under the Bankruptcy Code. The Bankruptcy Code allows the debtor in bankruptcy voluntarily to transfer the pledged special revenues to a trustee to pay bondholders or distribute the revenues to bondholders both before and after the commencement of the bankruptcy case. The Bankruptcy Code also preserves the lien on special revenues created by a pre-bankruptcy security agreement with the debtor in a municipal case after the commencement and during the continuation of the bankruptcy case.

If the City were to file a bankruptcy petition, the City has been advised by special counsel that the special revenues derived from the ownership and operation of the System will first need to be used to pay necessary administration, operating and maintenance expenses of the System prior to paying debt service. The Authorizing Documents are consistent with this approach, in accordance with the Act, and exclude amounts necessary for the administration, operation and maintenance of the System from the Pledged Assets.

Treatment of the Pledged Assets as “special revenues” in a City bankruptcy does not, however, guaranty that the City will maintain System rates as required under the Act and the Authorizing Documents, or collect and properly segregate the Revenues of the System or pay the Pledged Assets to holders of the 2011 Bonds.

Treatment of the Pledged Assets as “special revenues” in a City bankruptcy also does not guaranty that a court would not characterize the lien on the revenues as a “statutory lien” rather than a “security interest”, both within the meaning of the Bankruptcy Code, and therefore hold that the exception to the automatic stay under Bankruptcy Code § 922(d) and the continuation of the lien under Bankruptcy Code § 928 would not apply to any revenues received by the City after the filing of the bankruptcy petition. No reported case decision has found that a lien on “special revenues” constitutes a “statutory lien” within the meaning of the Bankruptcy Code and that the lien is therefore subject to the automatic stay under the Bankruptcy Code. The automatic stay would not prohibit the City from performing its statutory and contractual duties with respect to the use of Pledged Assets for payment of the 2011 Bonds. However, if the City were to cease performing such duties and paying the Pledged Assets to holders of the 2011 Bonds, the automatic stay would prohibit holders of the 2011 Bonds from commencing or continuing any action to collect their pre-bankruptcy claims against the City or to enforce their liens against the Pledged Assets, unless the permission of the bankruptcy court is first obtained. The Bankruptcy Code augments the automatic stay further by prohibiting the commencement or continuation of a judicial, administrative, or other action or proceeding against an officer or inhabitant of the debtor to enforce a claim against the debtor.

No Michigan municipality has successfully filed for bankruptcy under the Bankruptcy Code, and therefore a case brought before a bankruptcy court in Michigan would be a case of first impression in Michigan. One California district court decision, however, though not binding on a court in Michigan, has held that a “statutory lien” exists on pledged tax revenues where a statute imposes the lien, regardless of any voluntary steps that the issuing municipality must take, or any agreements that the municipality must enter into, under the authorizing statute for the lien to attach. The decision was based on a lien securing general obligation tax revenue anticipation notes and not bonds secured by a pledge of revenues constituting “special revenues” under Bankruptcy Code § 902(2)(A). If a court were to find that the Pledged Assets were secured by a “statutory lien” within the meaning of the Bankruptcy Code and not a “security agreement,” the lien on Pledged Assets acquired by the City during the bankruptcy case may not continue to attach to those revenues and the exception to the automatic stay under Bankruptcy Code §§ 922(d) and 928 for “special revenues” would not apply.

¹ The applicability of the exception to the automatic stay for lien special revenues acquired after the commencement of a bankruptcy case is currently a subject of litigation in Jefferson County, Alabama, where a state court-appointed receiver controls the county’s sewer system. *See, In re Jefferson County, Alabama*, a political subdivision of the State of Alabama, Case No. 11-05736-TBB9, pending in the United States Bankruptcy Court for the Northern District of Alabama, Southern Division. Unlike the present situation where the City currently has the power to voluntarily distribute the Pledged Assets to bondholders in accordance with the Authorizing Documents, in Jefferson County, the receiver was appointed prior to the County’s bankruptcy filing to act on behalf of bondholders and exercise control over the county’s sewer system.

Further, treatment of the Pledged Assets as “special revenues” in a City bankruptcy case would not guarantee that the City could not grant liens on the Pledged Assets to a creditor offering financing to the City during the bankruptcy case, modify the payment terms of the 2011 Bonds pursuant to a plan proposed in the bankruptcy case, or both. The bankruptcy court could authorize the debtor to obtain credit secured by a senior, priming lien on property of the bankruptcy estate already encumbered by existing liens, but only if the bankruptcy court determines that there is or will be adequate protection of the interests of the holders of those existing liens on the property on which the senior or equal lien is proposed to be granted. Similarly, although the City may be able to confirm a plan of adjustment that modifies the terms of the 2011 Bonds, if the holders of the bonds, as a class, vote to reject a plan and object to confirmation of a plan, the plan cannot be confirmed unless the plan: (1) allows the holders of the bonds to retain their lien on the revenues that secure their claim and makes deferred cash payments to the holders of the bonds equal to the total value of the revenues that secure their claim, as of the effective date of the plan; or (2) proposes to sell the revenues that secure the holders of the bonds, subject to the bondholders’ rights, if any, to bid in their claim at the sale, and provided that the bondholders’ lien will attach to the proceeds of the sale; or (3) provides for the holders of the bonds to receive what the bankruptcy court determined to be the indubitable equivalent of their claim.

THE WATER AND SEWERAGE DEPARTMENT

Organization

The Water Supply System is owned by the City and is operated, managed and accounted for by the City as a separate enterprise fund (the “Water Fund”) through the Department. The Department was established under the City Charter and is empowered to supply water within and outside the City. The Department is governed by a seven-member Board of Water Commissioners (the “Board”) appointed by the Mayor and operates out of its own 20-story office building in downtown Detroit.

Under the City Charter, the Board has the authority to establish rates for water service. As a result of the resolution of certain issues in litigation, the Bylaws of the Board of Water Commissioners were recently amended to require a majority of five votes to approve rates. The City Council will vote on rates charged to customers in Detroit, but will not have the power to vote on rates charged to suburban customers. See “LITIGATION” and “FINANCIAL PROCEDURES – Rates.” Certain contracting and other policy-making powers of the Board are subject to the approval or rejection by the City Council and the approval or veto by the Mayor.

Sewage disposal service to the residents of the City and to a substantial portion of the Water Supply System service area outside the City is also provided by the City through the Department. However, the sewage system is operated, managed and accounted for as a separate enterprise fund of the City apart from the Water Fund.

An Order dated November 4, 2011 of the United States District Court, Eastern District of Michigan, Southern Division (the “Court”) provides the Department a large degree of autonomy from the other City departments that have provided services to the Department in the past.¹

The Order of November 4, 2011 provides that the Department shall have its own divisions of purchasing, human resources, law, budget and finance. They will provide services to the Department that have, in the past, been provided by the City’s departments of Purchasing, Human Resources, Law, Budget and Finance. The heads of the Department’s new divisions will report to the Director of the Department, not to the directors of the other City departments.

The Order also provides that notwithstanding anything in the City Charter or state law, the Board shall have authority to approve legal settlements, claims, collective bargaining agreements, budgets and contracts. The City Council’s authority to approve the Department’s contracts is limited to personal services contracts over \$150,000, goods or commodities contracts over \$2,000,000, professional services contracts over \$2,000,000 and construction contracts over \$5,000,000.

¹ See “LITIGATION – Detroit Water and Sewage Department Litigation,” below for a summary of the Court’s involvement in Department affairs.

The Order also provides that the Department shall develop its own, Department specific job titles and shall enter into its own collective bargaining agreements with the unions that represent its employees instead of being a party to City-wide collective bargaining agreements.

The Department believes that these terms of the Order will result in greater efficiency in its operations and will enable the Department to perform its tasks in a timely manner.

The Board

In February 2011, pursuant to an Order of the Court¹, the procedure by which members of the Board are appointed was revised. Pursuant to the Stipulated Order, the Board would continue to be comprised of seven members. Four members of the Board (each being a resident of the City) would be appointed by the Mayor of the City. Key executives of the counties of Macomb, Oakland and Wayne would each nominate a member to the Board for appointment by the Mayor of the City. Each Board member must meet certain qualifications regarding professional experience and will be compensated by the Department. The members serve four-year terms and the terms are staggered so that not more than two members' terms expire each year. Board members must be citizens of the United States and residents of Michigan. The current members of the Board are as follows (dates in parentheses are dates of original appointment to the Board):

James Fausone, Chair (2011). Mr. Fausone is a resident of Canton Township. He is a partner in Fausone Bohn LLP, of Northville, where he practices business law, municipal law, veterans disability law, and environmental law. He was also president of an environmental remediation, industrial service, and waste transportation company for three years. Mr. Fausone holds dual bachelor's degrees in environmental engineering and oceanography from the University of Michigan and earned his law degree from Gonzaga University. He was elected a Schoolcraft College trustee, and a Canton Public Library trustee. He is a Director of the University of Michigan College of Engineering – Civil and Environmental Engineering board, and the Livonia Chamber of Commerce, among other affiliations.

James F. Thrower, Vice Chair (2010). Mr. Thrower is president and CEO of Jamjomar Inc. and the owner of seven McDonald restaurants in Detroit and the surrounding metropolitan area. Following a career in professional football playing as a defensive back for the Detroit Lions and Philadelphia Eagles, he served as loan executive and executive assistant to the board chairman of the National Association for the Advancement of Colored People, regional manager of public issues and planning at Michigan Consolidated Gas, and director of community affairs at Stroh's Brewery. Mr. Thrower is affiliated with several corporate and community groups that include the McDonald's Operators National Advertising Committee, National Black McDonalds Operations Association, Ronald McDonald Children's Charities, National Football League Alumni Players Association, National Association for the Advancement of Colored People Golden Heritage, and the Omega Psi Phi fraternity. He holds a Bachelor of Science degree in English and Physical Education from East Texas University.

Mary E. Blackmon (1989). Mrs. Blackmon is the immediate past President of the Board. She is a retiree of Ameritech, where she served as a Director of Public Relations and Associate Director of Urban and Civic Affairs. She is a current member of the Wayne County Regional Educational Service Agency Board of Education, where she has served since 1982. Mrs. Blackmon also served for 10 years as a member of the Detroit Board of Education. She has served on several committees for the Southeast Michigan Council of Governments (SEMCOG), where she is a Vice President. A graduate of Leadership Detroit, Mrs. Blackmon remains active in a number of civic and community organizations

Fred Barnes (2011). Mr. Barnes is a registered professional engineer from Sterling Heights. He owns and operates Fred W. Barnes Associates Inc., a consulting engineering firm. Before starting his own company, he was a Senior Project Engineer with Atwell-Hicks Inc., where he managed engineering projects and supervised engineers, planners, and designers. Mr. Barnes, a former Chief Engineer for the Office of the Macomb County Public Works Commissioner, was involved with the design, operation, and maintenance of more than 700 county drains,

¹ See "LITIGATION – Detroit Water and Sewage Department Litigation," below for a summary of the Court's involvement in Department affairs.

supervision of two CSO facilities, as well as the review of residential and commercial developments for 24 years. He holds a bachelor's degree from the U.S. Military Academy at West Point.

Linda Forte (2011). Ms. Forte, a Senior Vice President at Comerica Inc., brings more than 30 years of business, finance, and commercial banking expertise to the board. A member of Comerica's senior leadership team, she is responsible for defining and driving business strategies that establish Comerica as a leader in diversity and corporate responsibility practices. Ms. Forte earned her bachelor's degree from Bowling Green State University and received her master's of business administration degree in finance and accounting from the University of Michigan. She serves as a Director of the Economic Development Corporation of the City of Detroit and serves on many other agency and organization boards as well.

Bradley Kenoyer (2011). Mr. Kenoyer brings more than a decade of cross-functional problem-solving experience in delivering customer-driven results to technical and service quality issues for Ford Motor. An honoree of the Ford/Massachusetts Institute of Technology/University of Detroit Mercy program for engineering excellence, Mr. Kenoyer holds a bachelor's degree in mechanical engineering from Rensselaer Polytechnic Institute and earned a master's degree in product development from the University of Detroit Mercy. He has served on the Board of Directors of Preservation Wayne and has volunteered at the Ruth Ellis Center.

J. Bryan Williams (2011). Mr. Williams is an attorney with the Dickinson Wright law firm. Mr. Williams, a resident of Birmingham, practices in the areas of corporate and municipal law. He has served as counsel to the Oakland County Water Resources Commissioner in municipal bond financings, and has a wealth of experience in providing counsel to both privately and publicly-held companies. He earned a bachelor's degree at the University of Notre Dame and received his juris doctor degree from the University of Michigan. He is a member of the City of Birmingham Planning Board, and a past member of the Board of Directors of the Economic Club of Detroit. He is also a past vice chairman of the Detroit Regional Chamber of Commerce.

Currently, the Board appoints, with the approval of the Mayor, a Director and Deputy Director who serve at the pleasure of the Board and are responsible for day to day operations of the Department. The Court's November 4 order establishes specific hiring and termination procedures for future Directors. "See LITIGATION – Detroit Water and Sewerage Department Litigation."

Management and Personnel

The Department's budget for Fiscal Year 2012 provides funding for 2,767 positions, of which 951 positions are classified as strictly Sewage Disposal System and 206 positions are classified as strictly Water Supply System. The remaining 1,606 positions are budgeted in the administrative and support divisions, which provide service to both the Sewage Disposal System and Water Supply Systems. The cost associated with these positions is allocated to the two systems either on the basis of actual time spent on projects or on estimates developed by the Department. The Department estimates that approximately 50% to 60% of the time allocation of the work force in these areas is attributable to the Water Supply System.

The Department is currently organized into nine operating groups: Engineering, Asset Maintenance, Financial Services, Wastewater Operations, Water Supply Operations, Information Technology, Systems Integration and Operations, Public Affairs, and Process Quality and Control. Each of the operating groups is headed by an Assistant Director or a Division Manager. Together with the Director and Deputy Director, this group serves as the Executive Management Team, which also includes key managers in the capital management, contract procurement, quality control, and human resources divisions. The Department's key personnel and their qualifications are summarized below.

Sue McCormick, Director (January 2, 2012). On November 17 the Board unanimously approved the appointment of Ms. Sue McCormick as the new Director of the Department, commencing January 2, 2012. Prior to her employment with the Department, Ms. McCormick was the Public Services Area Administrator for the City of Ann Arbor, Michigan, where she managed that city's entire physical infrastructure, including the water and sewer system. She first joined Ann Arbor city government as Water Utilities Director in January 2001. Prior to that, she was employed for 22 years by the Lansing Board of Water and Light, serving as environmental chemist, environmental laboratory manager, manager of water and steam planning, water technical support manager and

business development manager. McCormick is active in the 58,000-member American Water Works Association (AWWA), a prominent international organization for water industry professionals. She has served as AWWA-Michigan Director and as an association Vice President.

Darryl A. Latimer, Deputy Director. Mr. Latimer was named Deputy Director on February 15, 2010, after having served as Contracts and Grants General Manager since March 2003. Previously, he was the Head Governmental Analyst in Contracts and Grants, leading the Consultant and Local Economic Development Units. Mr. Latimer has been with the Department since 1989, and with the City of Detroit since 1985. Mr. Latimer holds a Bachelor of Science degree in General Studies from Wayne State University and a Master of Science degree in General Business Administration from Central Michigan University.

Assistant Director - Asset Maintenance – Vacant

Samuel A. Smalley, Assistant Director – Wastewater Operations. Mr. Smalley was named to his current position in October 2010. He joined the Department in June of 2007 after having spent two years participating in the Department's customer outreach program as a customer representative. Since May of 2008, he has served as the Assistant Director of Asset Maintenance, where he was responsible for maintaining and upgrading the physical assets including infrastructure, facilities, and equipment. Mr. Smalley is a registered professional engineer in California and Michigan, and has over 20 years of experience in the water and wastewater industry. He obtained a Bachelor of Science degree in Civil Engineering from San Diego State University, and holds both an F-1 Water Treatment Plant Operator license and an S-1 Water Distribution System Operator license.

James George, Assistant Director - Financial Services. Mr. George was appointed to the position of Assistant Director – Financial Services Group in January 2011. He has 23 years of experience in the areas of budgeting, accounting, cash management, contract management, and information systems. Prior to joining the Detroit Water and Sewerage Department, Mr. George served as a Wayne County appointee, with the title of Assistant Director of Management and Budget Department's Assistant Director for five years. From 1987 to 2005, Mr. George worked for the City of Detroit in various capacities, including Assistant Director – Financial Services and Financial Manager for DWSD. He holds a master's degree in accounting.

Cheryl Dee Porter, Assistant Director - Water Supply Operations. Ms. Porter was named Assistant Director in September 2008 and has been employed by the Department since March 1996. She is a graduate of the University of Michigan (Bachelor of Science, Chemistry), the University of Detroit Mercy School of Law (Juris Doctor) and Madonna University (Masters of Business Administration, with a concentration in Human Resources Management). She began her career with the Department as a Junior Chemist and has worked her way through the ranks, sharpening her skills at each level of the organization. Ms. Porter holds her F1 license for Water Treatment with the State of Michigan. Prior to joining the Department, Ms. Porter was an Analytical Chemist for Blue Planet Technologies, and, earlier, a Research Assistant for the University of Michigan Department of Chemistry. Ms. Porter also participates in various community service activities, having served on the Board of Directors for Intense Mentoring, Inc., a local non-profit committed to attacking poverty through education, and mentoring young people throughout Southeastern Detroit.

PJ Dada, Assistant Director for Information Technology & Systems Integration & Operations. Ms. Dada was named Assistant Director in July 2007. Prior to her position, she served as General Manager of the Process Networks and SCADA Systems Division. Prior to joining the department in September 2006, Ms. Dada worked with consulting firms and the automotive industries. Ms. Dada has over 15 years experience in process controls and instrumentation. Ms. Dada holds a Bachelor of Science degree in Electrical Engineering and a minor in Computer Science. She holds a Level III ISA certification.

Rodney Johnson, Assistant Director for Commercial Operations and Public Affairs. Mr. Johnson was named Assistant Director in December 2010. Previously, he was the Meter Operations Manager, where he presided over the Detroit system's conversion to Automated Meter Reading (AMR). He currently holds an S-1 Water Distribution System Operator license with the State of Michigan. Mr. Johnson started working for the City of Detroit at the Detroit Zoo in 1977 as a Public Service Attendant. He joined the Department in 1981 as a Repair Mechanic and has advanced in position over the years. He earned a Bachelor of Science degree from Wayne State University, majoring in Management Information Systems, and a Masters of Business Administration degree from the

University of Phoenix. Mr. Johnson is a member of the Department's regional Technical Advisory Committee and the Committee's Analytical Work Group.

Most of the Department's key personnel have considerable managerial experience, either with the Department or with other municipal agencies or large utility systems. Most of the Assistant Directors have significant experience with the Department, each having advanced through the ranks of the Department to his or her present position. The experience and qualifications of the Department's executive staff are commensurate with their duties and responsibilities.

Employee Bargaining Units

The City budgeted 12,664 employees (including part-time and seasonal employees) for fiscal 2011-12. Approximately 10% of these employees are non-union, and the remaining 90% are represented by one of the City's 50 bargaining units. The largest bargaining units are: the American Federation of State, County and Municipal Employees ("AFSCME"); the Detroit Police Officers Association ("DPOA"); the Detroit Fire Fighters Association ("DFFA"); the Teamsters; and the Amalgamated Transit Union ("ATU"). There are current collective bargaining agreements in place for AFSCME and the majority of the non-uniformed bargaining units, covering approximately 93% of the City's civilian unionized employees. These agreements expire on June 30, 2012, and include employee concessions in both wages and health care.

On April 2, 2011, the City received a binding arbitration award (Michigan Public Act 312) with the Detroit Police Lieutenants and Sergeants Association (DPLSA) covering the period July 1, 2009 through June 30, 2013. The Award included a wage freeze for the duration of the agreement, health care plan concessions similar to those negotiated with non-uniformed employees, and also included pension plan changes which substantially reduce future pension accruals, and corresponding funding costs, for DPLSA employees and allied members of the Detroit Fire Fighters Association (DFFA). The award also implemented a new defined contribution retirement plan, replacing the defined benefit plan, for new hire employees. On September 22, 2011, the City received a binding arbitration award with the DPOA covering the period July 1, 2009 through June 30, 2012. The award included wage and pension plan concessions similar to those contained in the DPLSA award. Like the DPLSA award, the DPOA concessions will impact allied members of the DFFA. The City is just beginning Act 312 proceedings with the Detroit Police Command Officers Association (DPCOA), and expects a resolution of that agreement in the spring 2012, if not earlier.

Historically, the DFFA agreements provide for automatic parity of DFFA with DPOA and the DPLSA with respect to wages and benefits. Accordingly, DFFA members continue to receive the same wage, health care and pension benefits as in the DPOA and the DPLSA. The City and DFFA also have received an Act 312 mandatory binding arbitration award, dated November 9, 2011, which covers the period July 1, 2009 through June 30, 2013.

The City has no knowledge of any interruption of service from the unionized work force.

PENSION PLAN AND BENEFITS CONTRIBUTIONS

Department employees are members of Detroit's General Retirement System ("DGRS"). Payments to the pension fund are charged administratively by the City to the Water Supply System and are treated as an administrative expense of the Water Supply System. These amounts are calculated to be amounts necessary to fund financial benefits as earned (Normal costs) as well as an amount necessary to amortize unfunded accrued liabilities (UAAL). For employees budgeted strictly as Water Supply System employees, contributions are made directly to the retirement fund. For employees common to both the Water Supply and Sewage Systems, payments are generally made by the Water Supply System, which is then periodically reimbursed from Sewage System revenues. Although the actuarially computed pension contribution rates are different for the two systems, "common" employees are considered as Water Supply System employees and accordingly, the Sewage System is billed at the Water Supply System's rate.

Funding Policy and Annual Pension Cost. The DGRS funding policy provides for periodic employer contributions at actuarially determined rates that, expressed as percentages of annual covered payroll, are sufficient

to accumulate sufficient assets to pay benefits when due. The contribution requirements are established and may be amended by the GRS' board of trustees based on information provided by the GRS' consulting actuary. The City's contribution is set by the City Council in conjunction with its approval of the City's annual budget based on information provided by the GRS' consulting actuary.

The recommended contribution rate is determined by the CRS' consulting actuary using the entry age normal actuarial cost funding method. Significant actuarial assumptions used to compute contribution requirements are the same as those used to compute the actuarial accrued liability.

The actuarial required contribution rate for the Water Supply System which was based upon the 2008 actuarial valuation, was 11.32% of covered payroll for the year ended June 30, 2010. Contributions for the Water Supply System were \$6,910,469 for the year ended June 30, 2010.

The annual pension cost and the changes in net pension asset allocated to the Water Supply System for the year ended June 30, 2010 were as follows:

Annual required contributions	\$ 4,515,102
Interest on net pension asset	(6,452,740)
Adjustment to annual required contribution	<u>5,002,496</u>
Annual pension cost	3,064,858
Contributions made (employer)	<u>6,910,469</u>
Changes in net pension asset	3,845,611
Net pension asset, beginning of year	<u>81,680,247</u>
Net pension asset, end of year	<u>\$ 85,525,858</u>

The actuarial methods and significant assumptions used to determine the annual required contributions (ARCs) for the year ended June 30, 2010 were as follows:

Valuation date	June 30, 2008
Actuarial cost method	Entry age
Amortization method	Level percent
Remaining amortization period for unfunded accrued liabilities	30 years
Asset valuation method	3 year smoothed market
Actuarial assumptions:	
Investment rate of return	7.9%
Projected salary increases*	4.0% - 9%
Cost-of-living adjustments	2.25%
* Includes inflation rate of 4%.	

Three- Year Trend Information.

	Fiscal year ended	Annual pension Cost (APC)	Percentage of APC contributed	Net pension asset
General Retirement System	June 30, 2008	\$ 4,332,093	151%	\$ 77,642,310
	June 30, 2009	2,401,349	269	81,680,247
	June 30, 2010	3,064,858	225	85,525,858

Funded Status and Funding Progress. As of June 30, 2009, the most recent actuarial valuation date, the DGRS was 92% funded. The actuarial accrued liability for benefits to all City employees participating in DGRS was

\$3,689,065,726 and the actuarial value of assets was \$3,412,411,183, resulting in an UAAL of \$276,654,543. Of this amount, it was estimated that 12% is attributable to the Water Supply System. The covered payroll (annual payroll of all City employees covered by the plan) was \$357,072,833 and the ratio of the UAAL to covered payroll was 77.5%. The covered payroll for employees of the Water Supply System was \$48,265,000.

A schedule of funding progress, which presents multiyear trend information about whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial accrued liability for benefits, is included in the City's comprehensive annual financial report.

Other Postemployment Benefits (OPEB) - Plan Description. The employees of the Water Supply System participate in the Health and Life Insurance Benefit Plan (Benefit Plan), which is a single-employer defined benefit plan administered by the City and the City's Retirement Systems. The Benefit Plan provides hospitalization, dental care, vision care, and life insurance to all officers and employees of the City who were employed on the day preceding the effective date of the Benefit Plan and who continue in the employ of the City on and after the effective date of the Benefit Plan. Retirees are allowed to enroll in any of the group plans offered by the City to active employees. The City provides healthcare coverage for substantially all retirees in accordance with terms set forth in union contracts or provisions found in Section 13, Article 8 of the Code of Ordinances.

OPEB Funding Policy - Health and Life Insurance Benefit Plan. The cost of benefits for the Benefit Plan, which are financed on a pay-as-you-go basis for the year ended June 30, 2010, for the Water Supply System retiree's are as follows:

Benefits	City cost	Retiree cost	Total cost
Hospitalization	\$ 7,521,986	\$ 1,895,056	\$ 9,417,042
Dental	403,504	—	403,504
Vision	67,636	—	67,636
Life Insurance	11,551	5,221	16,772
	<u>\$ 8,004,677</u>	<u>\$ 1,900,277</u>	<u>\$ 9,904,954</u>

A retiree is generally required to pay on a monthly basis, either 10% or 20% of the health insurance premium.

OPEB - Supplemental Death Benefit Plan. The cost of benefits for the Supplemental Plan, which are a pre-funded plan and the funds are held in the City of Detroit Employee Benefit Trust, for the year ended June 30, 2010 for the Water Supply System retiree's are as follows:

Benefits	City cost	Retiree cost	Total cost
Supplemental Death Benefit Plan	\$ 11,911	\$ 1,149	\$ 13,060
Total	<u>\$ 11,911</u>	<u>\$ 1,149</u>	<u>\$ 13,060</u>

The City of Detroit Employee Benefit Trust paid death benefits in the amount of \$94,102 for Water Supply System retirees for the year ended June 30, 2010.

Annual OPEB Costs and Net OPEB Obligation. The Water Supply System's annual other postemployment benefit (OPEB) cost (expense) is calculated based on the annual required contribution (ARC), an amount actuarially determined in accordance with the parameters of GASB Statement 45. The ARC represents a level of funding that, if paid on an ongoing basis, is projected to cover normal costs each year and amortize any unfunded actuarial liabilities (or funding excess) over a period not to exceed thirty years.

The following table shows the components of the Water Supply System's annual OPEB cost for the year ended June 30, 2010, the amount actually contributed to the plans, and changes in the Water Supply System's OPEB obligation for the retirees of the Water Supply System:

	Health and Life Insurance Benefit Plan	Supplemental Death Benefit Plan	Total
Annual required contribution (ARC)	\$ 19,194,074	\$ 44,434	\$ 19,238,508
Interest on net OPEB obligation	664,465	7	664,472
Adjustment to ARC	<u>(553,721)</u>	<u>(4)</u>	<u>(553,725)</u>
Annual OPEB Cost (Expense)	19,304,818	44,437	19,349,255
Contributions Made	<u>(8,004,677)</u>	<u>(11,911)</u>	<u>(8,016,588)</u>
Changes in Net OPEB Obligation	11,300,141	32,526	11,332,667
Net OPEB Obligation, beginning of year	<u>16,611,635</u>	<u>134</u>	<u>16,611,769</u>
Net OPEB Obligation, end of year	<u>\$ 27,911,776</u>	<u>\$ 32,660</u>	<u>\$ 27,944,436</u>

The annual OPEB cost, the percentage of annual OPEB cost contributed to each plan, and the OPEB obligation for the three most recent fiscal years ended June 30 for the retirees of the Water Supply System were as follows:

	Year ended	Annual OPEB cost	Actual contributions	Percentage of annual OPEB cost contributed	Net OPEB obligation
Health and Life Insurance Benefit Plan	June 30, 2010	\$19,304,818	\$8,004,677	41.5%	\$27,911,776
	June 30, 2009	16,629,596	7,629,870	45.9	16,611,635
	June 30, 2008	15,920,197	8,308,288	52.2	7,611,909
Supplemental Death Benefit Plan	June 30, 2010	\$44,437	\$11,911	26.8%	\$32,660
	June 30, 2009	11,258	13,385	118.9	134
	June 30, 2008	14,865	12,604	84.8	2,261

Funding Status and Funding Progress - Health and Life Insurance Benefit Plan (Benefit Plan). As of June 30, 2009, the most recent actuarial valuation date for the Benefit Plan, the actuarial accrued liability for benefits related to all City employees was \$4,971,236,281, and the actuarial value of assets was zero, resulting in an unfunded actuarial accrued liability (UAAL) of \$4,971,236,281. The covered payroll (annual payroll of all active City employees covered by the plan) was \$591,242,616 and the ratio of the UAAL to the covered payroll was 841%. The funded status related to the retirees of the Water Supply System was not available.

Funding Status and Funding Progress - Supplemental Death Benefit Plan (Supplemental Plan). As of June 30, 2009, the most recent actuarial valuation date for the Supplemental Plan, the actuarial accrued liability for benefits related to all City employees was \$29,747,480 and the actuarial value of assets was \$24,184,701, resulting in an unfunded actuarial accrued liability (UAAL) of \$5,562,779. The covered payroll (annual payroll of all active City employees covered by the plan) was \$591,242,616 and the ratio of the UAAL to the covered payroll was 0.9%. The funded status related to the retirees of the Water Supply System was not available.

Actuarial valuations of the ongoing plans involve estimates of the value of reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include assumptions about future employment, mortality, and the healthcare cost trend. Amounts determined regarding the funded status of the plan and the annual required contributions of the employer are subject to continual revision as actual results are compared with past expectations and new estimates are made about the future.

As described in more detail below, the City has funded certain UAAL of the General Retirement System through the creation of the General Retirement System Service Corporation (the "Service Corporation"), which entered into a Service Contract with the City, pursuant to which the City makes Service Payments. The City's Service Payments were assigned by the Service Corporation to a funding trust, which issued Pension Obligation Certificates of Participation ("POCs") in the amount of the UAAL. The City's Service Payments are calculated to be sufficient to pay debt service on the POCs. The POCs have associated swap agreements (the "POC Swap Agreements"), payments on which are also part of the City's Service Payments to the Service Corporation. A

proportionate share of the City's Service Payments, including those related to the POC Swap Agreements, is allocated to the Water Supply System. Were a termination payment to be payable by the Service Corporation on the POC Swap Agreements, it would also be payable as part of the City's Service Payments, which could be allocated among various City funds, including the Water Supply System **The POC Swap Agreements provide that the appointment of an Emergency Manager for the City is a termination event. A termination event, if declared, could result in significant termination payments, a portion of which could be allocated to the Water Supply System. (See, "SOURCE AND PRIORITY OF PENSION PAYMENTS BY THE WATER SUPPLY SYSTEM," below for priority of payment of such termination payments.)** See Appendix H for an overview of the City's Retirement Systems.

SOURCE AND PRIORITY OF PENSION PAYMENTS BY THE WATER SUPPLY SYSTEM

As described earlier, the City annually allocates a portion of its cost of payments to the DGRS to the Water Supply System as an administrative decision and the Water Supply System pays these costs from amounts held under the Ordinance. These costs consist of the actuarially allocated portion of (i) Normal cost, (ii) amortization of UAAL, and (iii) Service Payments owing by the City to the Service Corporation.

UAAL Funding

In 2005 the City entered into a Service Contract (the 2005 Service Contract) with the Service Corporation for the purpose of funding substantially all of the UAAL of the DGRS at the time of the funding. Subsequently, in 2006 the City entered into an additional Service Contract with the Service Corporation (the 2006 Service Contract) for the purpose of refunding a significant portion of the payments that otherwise would become payable by the City under the 2005 Service Contract and new UAAL of the DGRS. New UAAL has accrued in the DGRS since the time of the City entered into the Service Contracts. The 2005 Service Contract and the 2006 Service Contract are collectively referred to as the Service Contracts.

Service Payments are the Regular Scheduled Payments, Service Charges and certain other payments payable by the City to the Service Corporation under the Service Contracts. Regular Scheduled Payments, in the aggregate, substantially correspond to the previous annual amortization cost of the UAAL funded by the Service Corporation and reflects principal and interest costs incurred by the Service Corporations. Service Charges generally reflect the financing costs incurred by the Service Corporation in funding the UAAL.

Certain other payments that may be included in Service Payments include any termination payment (a COP Hedge Termination Payable) arising by reason of the termination of the interest rate swaps (the Hedges) entered into by the Service Corporation.

Pension Cost Payment Obligation

The payment obligations to the DGRS are obligations of the City itself and are not obligations of the Water Supply System or any department, such as the Department. Furthermore, the Service Contracts are contractual obligations of the City and are not obligations of the Water Supply System or any department of the City.

Each year the City administratively allocates to the Water Supply System a portion of its cost of payments to the DGRS and under the Service Contracts and receives payment from amounts held under the Ordinance.

Payment of Pension Costs Allocated to the Water Supply System

The City has paid pension costs, including Service Payments allocated to the Water Supply System, from Revenues as part of the expenses of administration and operation of the Water Supply System. The Ordinance provides that expenses of administration and operation of the Water Supply System and current expenses of maintenance of the Water Supply System are payable from the Operation and Maintenance Fund in accordance with Act 94. Sufficient amounts are transferred from Revenues to the Operation and Maintenance Fund before Revenues are transferred to any other fund or account established by the Ordinance, such as funds and accounts providing for

the payment of debt service on Bonds. In accordance with Act 94, Revenue net of amounts required to be transferred to the Operation and Maintenance Fund (that is, Net Revenue) is pledged to the payment of Bonds.

Bond Counsel has advised the City that, although the question is not free from doubt costs (such as Normal costs and UAAL) actuarially allocated to the Water Supply System may be properly paid from the Operation and Maintenance Fund as expenses of administration and operation of the Water Supply System.

The Service Contracts. Bond Counsel considered the aspects of Service Payments made under the Service Contracts: (i) Regular Scheduled Payments representing funded UAAL and issuance costs and (ii) COP Hedge Termination Payables. Bond Counsel further advised that the portion of Regular Scheduled Payments and Service Charges corresponding to UAAL and financing costs also may be properly paid from the Operation and Maintenance Fund as expenses of administration and operation of the Water Supply System.

COP Hedge Termination Payables. A COP Hedge Termination Payable is a net payment payable by the City to a swap counterparty when and if the COP Hedge with that counterparty is terminated by reason of a termination event or an additional termination event. Bond Counsel does not believe that there is an analogy to pension payments contained in COP Hedge Termination Payable. Furthermore, the occurrence of a termination event or additional termination event necessarily is uncertain, and the amount of a COP Hedge Termination Payable cannot be accurately determined in advance. There is, then, no opportunity to budget and increase rates if necessary as there is in the case of the analogues to pension payments.

Bond Counsel accordingly advised the City that COP Hedge Termination Payables are not expenses of administration and operation of the Water Supply System and may not be paid from the Operation and Maintenance Fund. The COP Hedge Termination Payments are also not Hedge Obligations as that term is used in the Ordinance and may not be paid from amounts credited to any of the Interest and Redemption Funds established by the Ordinance.

THE WATER SUPPLY SYSTEM

The Water Supply System is one of the largest in the nation in terms of water produced and population served. The Water Supply System has been the sole provider of all water service in the City since commencement of water supply as a public service in the mid-nineteenth century. In addition, the System began providing wholesale service to surrounding municipalities in about 1900. The Water Supply System draws its fresh water from the Great Lakes System which is naturally available, with Lake Huron to the north, the Detroit River to the south and Lake St. Clair to the east.

The Department believes the System is adequate to meet the needs of its current retail and wholesale customers and to meet the current requirements of the U.S. Environmental Protection Agency under the Safe Drinking Water Act. The major components of the System include three intake facilities, five treatment plants and an extensive conveyance system consisting of over 3,400 miles of transmission and distribution mains throughout the service area (complemented by 8,982 miles of connected transmission and distribution mains owned by wholesale municipal customers), 20 booster pumping stations and 15 water storage reservoirs located throughout the Water Supply System. Water flow and pressure throughout the System are monitored and controlled by a Systems Control Center housed in the Department's Central Services Facility.

Service Area

The System is responsible for treatment and distribution of water to most of southeast Michigan. The System presently serves an area of 981 square miles in Wayne, Oakland, Macomb, Lapeer, Genesee, Washtenaw, St. Clair, and Monroe Counties. *See map, inside back cover.* The Department currently serves an estimated population of 3.8 million, with suburban wholesale customers comprising approximately 80 percent of the total. Population in the service area has declined in recent years, after remaining relatively stable in the prior 20 years. This decline is largely attributable to the recent recession, which has hit the Southeastern Michigan region particularly hard.

The Department experiences no material competition from other water supply systems in the Southeastern Michigan region. However, for the past several years Genesee County and the City of Flint (through which Genesee County currently purchases water from the System) have been evaluating the feasibility of building a new, independent water system and discontinuing the purchase of water from the System. These communities formed the Karegnondi Water Authority (the “KWA”), and other small communities in the northern area of the System’s service area have expressed various levels of interest in joining the KWA. Communication between the System and the KWA, designed to result in new negotiated service agreements with the Department, has been intermittent over the past several years, and recently have gained new momentum. The KWA communities account for approximately 6 percent of the System’s water use and revenue. While the Department believes that continuing to purchase System water is in the best interests of the KWA communities (and in the best interests of the region) it is prepared to manage the System without serving those customers.

Even if the KWA communities decided to proceed with an independent system, separation from the System would not be possible for at least 7 years. The Department intends to protect its contractual rights in this matter and to pursue renegotiation of all service agreements to ensure long-term stability to the service area.

The following table shows historical estimates of water sales in thousands of cubic feet (“Mcf”) for suburban wholesale customers, for City of Detroit (retail) customers and for the Water Supply System as a whole, together with total water production and non-revenue water. As is common for all large water systems, the System experiences a differential between the quantity of water produced and the quantity of water billed to customers, and the difference is referred to as “non-revenue water.” Non-revenue water results from a variety of factors such as the range of accuracy of production and retail meters, losses due to leaks or major breaks in the transmission and distribution systems, and the accuracy of estimates for unmetered use. The Department believes that improvements in the accuracy of the reported production figures may reduce the level of non-revenue water, since studies conducted as part of the master planning process revealed that production at two of the five water treatment plants may be over-reported by as much as 20 percent. Considering the age of the System, the Department believes the average level of non-revenue water is not uncommon.

Water Sales and Non-Revenue Water

	Water Sales			Total Water Produced (Mcf)	Non-Revenue Water	
	Suburban Wholesale (Mcf)	Detroit Retail (Mcf)	Total (Mcf)		Volume (Mcf)	As a Percentage of Production
2007	18,417,900	4,927,000	23,344,900	28,063,000	4,718,100	16.8%
2008	18,405,500	4,145,500	22,551,000	29,360,700	6,809,700	23.2%
2009	16,682,100	4,138,100	20,820,200	27,180,700	6,360,500	23.4%
2010	15,676,300	3,924,000	19,600,300	25,142,700	5,542,400	22.0%
2011	16,094,683	4,176,600	20,271,300	26,513,000	6,241,700	23.5%

Source: The Department

Master Plan and Master Plan Update

In 2004, the Department completed a master planning study that evaluated the physical System needs over the next 50 years. That study included participation from community leaders and other representatives of all customer communities served by the System, in order to determine potential demands that would be placed on the System. The master plan concluded that the demand for water within the region will most likely grow significantly over the next 50 years, but that this demand could generally be met from the existing treatment facilities (with upgrades) and that no new water treatment plants would be necessary. The master plan primarily focused on investments in transmission and distribution facilities that will be necessary to ensure reliability of service to all customers.

As noted above Southeastern Michigan has experienced an economic downturn in recent years, contributing to declining population and water demands. Recent water use patterns have not met the demands anticipated by the 2004 Master Plan and the Department is in the early stages of initiating a new project to update the Master Plan effort to guide capital investments in the short-term and long-term future. The first step in that process involved a preliminary assessment of the then existing CIP (published in July 2010), which was largely driven by findings from the 2004 Master Plan and included significant investments to rehabilitate some of the older water treatment plants. The Department believes that it may be feasible to take one or more of the five water treatment plants out of service and still meet the demands of the service area, thereby eliminating hundreds of millions of dollars of needed investment identified in the July 2010 CIP.

The Master Plan Update is being structured to formally assess the feasibility of “down sizing” System’s existing water treatment and production capacity and to identify improvements in the water transmission and distribution system that would be necessary to pursue that solution. As a first step in assessing the overall feasibility of this concept the Department commissioned a study to review recent demand levels and System capacity capabilities, evaluate the potential of pursuing the “right sizing” strategy, and identify next steps to further explore the concept. The study was conducted by CH2MHill and published in June 2011, and is included as Appendix A-1 to the Feasibility Report. The study concludes that it is indeed feasible to pursue this strategy, promotes additional study, and identifies several improvements in the July 2010 CIP that it suggests be deferred or eliminated pending the results of additional study.

The Department relied heavily on the CH2MHill report in developing the new CIP, which was approved by the Board and published in July 2011. One of the key projects in the July 2011 CIP is the Master Plan Update. The Department anticipates that the water demands identified in the Master Plan Update will not be projected to grow significantly in the short term, and that longer-term growth will be much less significant than those from the prior study. In addition to evaluating the appropriate System water treatment and production capacities, the Master Plan Update will also re-evaluate the transmission and distribution improvements to be included necessary to provide service under the selected production scenario. The Department anticipates that the Master Plan Update will be completed in time to impact the July 2013 CIP. See “THE CAPITAL IMPROVEMENT PROGRAM,” below.

Wholesale Municipal Service

The Water Supply System has provided wholesale service to an increasing number of surrounding municipalities since the 1940s. The growth period for wholesale municipal customers began in 1957 with the construction of a major transmission main to serve the area north of the City, and increased beginning in 1975 with the construction of a major transmission main to serve the area west of the City. In all cases, the municipalities being served are responsible for the construction and maintenance of distribution and lateral water mains within their respective geographical boundaries to connect the customers of such municipalities to the transmission mains of the Water Supply System. In some cases, the municipal entities being served also own and maintain their own transmission mains.

The System serves 124 municipalities through 84 contracts with municipal and other public entity customers. Each water service agreement generally provides for (i) delivery of water by the Department to the best of its ability to the municipality or other public entity at designated metered points at rates of flow and pressure adequate to meet the reasonable requirements of the customers of the municipality or other public entity and (ii) payment by the municipal or other public entity for all water supplied at reasonable rates established by the Department, subject to review by and concurrence of the City Council, including an annual minimum charge. The municipal entity is solely responsible for distributing water from the points of delivery to its customers. The agreements are typically for periods of at least 35 years and, unless renewed, are continued on a year to year basis. Most agreements also include other provisions required for orderly operation of an integrated water supply and distribution system such as the following: (i) restrictions on redistribution outside the limits of the particular municipality or other public entity without consent of the Department; (ii) measurement of water furnished by meters; (iii) the metered flow of water furnished is the basis for billing; (iv) method of computing the annual minimum charge, generally based on applying the prevailing rate to a contractually specified minimum level of consumption (based on population estimates at the time the contract was signed); (v) municipal acceptance of the Department’s standards for construction of distribution mains and Department approval of construction plans therefor to ensure a uniform standard throughout the area; and (vi) prohibition against combining of System supplied

water with water from any other source without prior written approval of the Department to ensure a uniform quality of water throughout the area.

The Department is paid monthly by each municipality and other public entity, and payment is not contractually dependent upon collections by the municipality or other public entity from its respective retail consumers. The Department assesses a 5% late payment charge on bills not paid when due. While the Department has the legal right to discontinue water service to wholesale users if not paid within 60 days, such a measure would not be practical, and wholesale collection problems have been resolved through negotiation or litigation. See “FINANCIAL PROCEDURES -Collections and Delinquencies.”

The following table provides information about the contracts of the ten largest wholesale water supply customers. For fiscal year ended June 30, 2011, these customers provided approximately 28% of the gross operating revenues of the Water Supply System, and accounted for 38% of billed revenue to wholesale water supply customers.

Summary of Wholesale Water Supply Contracts

	Total Billed Volume FY 2011 (Mcf)	Total Billed Revenue FY 2011 (\$)	Contract Origination Date
Flint	1,310,873	17,103,752	1967
Southeast Oakland County Water Authority	1,177,239	10,293,814	2009
Rochester Hills	387,655	9,047,860	2009
Shelby Township	432,413	8,175,322	2010
Sterling Heights	683,223	8,113,053	2008
Livonia	570,035	7,804,684	2009
Farmington Hills	406,750	7,775,635	2009
Warren	829,583	7,532,208	2010
Troy	484,895	7,295,491	2008
Novi	289,650	7,063,698	2009

Although some wholesale customers have studied the option of establishing their own water systems, no municipality or other public entity having once contracted for water service with the Water Supply System has thereafter terminated its contract with the System. In general, because (i) the geology of the area surrounding the City does not support a substantial water supply by subsurface wells, (ii) there is a natural supply of raw water coupled with the capital facilities of the Water Supply System in place, and (iii) there are longstanding municipal relationships extending contractually in most cases for many years, the Board believes that the wholesale customers will continue to be an integral part of the System.

Over the past several years various legislative bills and resolutions have been introduced in the State legislature from time to time that have provided for, or suggested studying, changes in the composition of the Board, or have attempted to legislate changes in the management and control of the System. Among these have been proposals to create a regional water and sewerage authority and transfer to this authority the ownership of the City’s Water Supply and Sewerage Disposal Systems, excluding certain retail facilities. HB 4112, introduced on January 20, 2011, is the latest bill that would give control of the System to a regional authority controlled by the wholesale customers. The Department believes that recent cooperative developments in the region will successfully deter the effort to transfer control of the City’s Water Supply and Sewage Disposal Systems. The City intends to continue oppose any efforts that may arise in the future. Those efforts will include opposition in the legislature, and litigation, as the City is of the opinion that some provisions 125 violate the Michigan Constitution.

Customer Outreach

The Department continues its significant outreach efforts with representatives of its suburban customer communities. The participants have created a Technical Advisory Committee (“TAC”), which has established a framework for discussion of major issues between the City and all of its suburban wholesale customers. The TAC has established multi faceted teams to explore several issues on a variety of topics, including emergency preparedness, service contracts, water rates, and communication strategies.

The most significant accomplishment of the TAC is the development of a new model contract with standardized contract language. This document was designed to ensure that all wholesale customers are treated equitably and similarly. It also provides the Department with the same rights and controls across all agreements. Standardized model contract language was developed to address items such as contract term lengths, contract renewal, flow limitations, flow enforcement provisions, flow measurement, regulatory compliance, connection points, and contract enforcement. To date, contracts for 71 communities have been negotiated, approved, and are in effect. Negotiations with a few additional communities are ongoing. The TAC has made significant progress in creating greater understanding of the Department’s water rate methodology and of issues impacting rates and rate levels. It has proved to be an excellent forum for communicating rate methodologies, exploring alternative approaches to allocating costs to customers, and building consensus regarding the development of water rates. The TAC is currently developing potential modifications to the water rate model that would be designed to utilize the best available technical information to improve the understanding of water rates, and the perceived equitability.

Representatives of customer communities have expressed appreciation of the Department’s willingness to sponsor these partnering programs and the opportunity to be involved in the process. The partnering groups have authored letters to Department management requesting that the partnering effort continue in its current form.

Retail Service

The Water Supply System is the sole provider of all water service in the City. The System also provides retail services on a very limited basis to certain customers outside the City. The Water Supply System in the City includes lateral mains, meters and reading devices directly connecting customers to the System. The Department has full responsibility for retail service, rate setting, billing and collection of charges from customers in the City, subject to review and concurrence by the City Council.

Pursuant to the Act, the charges for water and sewerage service furnished to a premise become a lien on such premises when the service is provided. If an account becomes delinquent the lien may be enforced in the same manner as the collection and enforcement of a lien for property taxes (assuming proper statutory notice to the party responsible for the payment of the charges). The Board may also enforce the payment of charges by discontinuing water service to the premises. Historically, the Department has not pursued enforcement of liens, believing discontinuance of service to be the most timely method of collection. However, the Department has a policy of transmitting delinquent accounts to the City Assessor for placement on the property tax roll. Other active measures adopted by the Department with respect to enforcement of delinquent bills include a bad debt write-off policy and common protocols for pursuit of delinquent customers. In addition, in 2006, the Department converted all retail customer accounts to a monthly billing cycle. Residential accounts had previously been billed quarterly. This conversion was intended to produce a beneficial impact to both the Department and its customers. Customers now receive more regular bills, which are lower than prior quarterly bills. The Department receives a more uniform revenue stream and is able to monitor and react to anomalies in bills to individual customers. In recent years, the aggregate balance of delinquent accounts has increased somewhat, reflecting recent rate increases and a moderate decline in collection rates. See “FINANCIAL PROCEDURES - Collections and Delinquencies.”

Physical Facilities

Intake Facilities. The Water Supply System’s three intake facilities are listed below and, in the opinion of the Department, are generally in adequate to good working order and repair.

- The Lake Huron intake, located in Lake Huron, approximately 5 miles north of Port Huron and 5 miles into the lake, was placed in operation in 1974. This intake supplies raw water through a tunnel to the Lake Huron water treatment plant.
- The Belle Isle intake, located at the eastern end of Belle Isle where Lake St. Clair flows into the Detroit River, was placed in operation in 1931. This intake supplies raw water to the Water Works Park, Springwells and Northeast water treatment plants.
- The Fighting Island intake and tunnel, located under the Detroit River on the Canadian side just west of the northern end of Fighting Island, was placed in operation in 1964. This intake supplies raw water to the Southwest water treatment plant.

Water Treatment Plants. Raw water from the intake facilities is treated at the System's water treatment plants, which includes screening, filtering, bacteria control, and taste and odor control. Each of the five water treatment plants in the Water Supply System was constructed with the capability to treat the water in accordance with federal requirements under the Safe Drinking Water Act. In the opinion of the Department, based upon physical evaluations conducted by its consultants, no significant improvements to the treatment plants are presently required to meet such requirements. See "Environmental Matters" below. In addition, each treatment plant is equipped with its own laboratory facilities for the examination of drinking water which are recertified periodically (every three years) by the Michigan Department of Public Health. The treatment plants are more particularly described in the following table. For capital improvements planned for each plant, see "THE CAPITAL IMPROVEMENT PROGRAM."

Plant	Water Treatment Plants	
	Placed in Operation	Rated Capacity (Mgd)
Lake Huron	1974	400
Southwest	1964	240
Northeast	1956	360
Springwells ¹	1931/1959	540
Water Works Park	2003	240

¹ A major addition was completed in 1959, doubling the capacity of such water treatment plant by adding a new reservoir, sedimentation basin and filtration facility.

SOURCE: The Department

The Water System is physically inspected approximately every 18 to 24 months (in conjunction with issuance of new money revenue bonds) for purposes of assessing its condition and the appropriateness of the capital improvement programs. The most recent evaluation was completed in May 2011. The results of that evaluation are summarized in the Feasibility Report, which concludes that overall the treatment facilities are in adequate to good operating condition and, as are the transmission and distribution facilities. The water plants that are in less than good condition are those whose future viability are being reviewed as part of the Master Plan Update. (See "Appendix A – Feasibility Report; Service Area: Master Plan and Master Plan Update"). The Department is unaware of any materially adverse changes to the general physical condition of the facilities of the Water System Plant and the Collection System since the date of that inspection. Some repairs, replacements and major improvements are necessary to improve operations and ensure continued compliance with environmental standards. These repairs, replacements and improvements are part of the CIP.

Transmission and Distribution System. The Department owns and maintains all distribution mains (less than 24 inches in diameter) and transmission mains (24 inches to 120 inches in diameter) within the City limits and certain transmission mains throughout the wholesale service area. See the map, inside back cover, for the siting of such transmission mains. The Water Supply System connects throughout the wholesale service area with the transmission and distribution mains owned and operated by the wholesale municipal customers.

The transmission system is laid out in an organized grid pattern to provide adequate pressures that are reinforced by use of booster stations and reservoirs as necessary. The transmission system is interconnected and flow of water can be controlled, particularly in emergency conditions, to flow in either direction by opening or closing valves. Water pressures can be boosted to overcome any losses due to an emergency situation.

There is an ongoing program of replacement of distribution mains in the City, especially with respect to certain mains installed during the period 1923 to 1929. Because of certain pipe design and manufacturing deficiencies, these mains are coming to the end of their useful lives. This program of renovation and replacement was started in 1972 and is an ongoing, annual improvement program. In certain other areas within the City, distribution mains are being replaced with larger mains. With respect to the transmission system that serves the wholesale customers, the Capital Improvement Program includes a number of projects designed to improve service and reliability in areas outside the City.

Monitoring Facilities. The Water Supply System Control Center located in the Department's Central Services Facility controls and monitors the transmission and distribution of water throughout the System. Operators in the Control Center can remotely control the pump stations at the treatment plants and the 20 booster stations to adjust flow and pressure requirements to meet the changing demands of customers. Recent improvements to the Control Center have been undertaken by the Department as part of a Department-wide instrumentation and computerization project included in the Capital Improvement Program.

Environmental Matters

The Water Supply System is subject to rules, regulations and standards established and enforced by federal and State agencies. In the opinion of the Department, based on the continual monitoring of the treatment, supply and distribution facilities by the Department's Water Supply Operations Group, the System is currently operating well within all applicable water quality standards. Further rules or regulations which may be promulgated pursuant to the 1986 and 1996 amendments to the Safe Drinking Water Act could require the Department to modify operations and/or construct facilities beyond those currently contemplated by the Capital Improvement Program.

Security Improvements

On March 17, 2003 the Department completed its vulnerability assessment ("VA"). The risk assessment methodology used by the Department is a performance-based methodology developed by Sandia National Laboratories in conjunction with the American Water Works Association and the U.S. Environmental Protection Agency. The improvements identified by that assessment were successfully implemented and the Department continues to evaluate opportunities to improve security of all of the System facilities. The CIP contains projects to further implement these improvements.

FEASIBILITY CONSULTANT'S REPORT

The Department has engaged The Foster Group, LLC (the "Feasibility Consultant") to prepare a Financial Feasibility Report. A copy of the report summarizing the findings of the Foster Group LLC's evaluation is included as Appendix A.

THE CAPITAL IMPROVEMENT PROGRAM

The Department has financed its ongoing Capital Improvement Program (the "CIP") for the System from the issuance of Water Supply System Bonds and from revenues of the System. From 1990 through 2011, approximately \$2.2 billion has been spent for capital improvements to the System. The Department's Capital Management Group coordinates all capital planning activities and is responsible for evaluating capital needs and developing programs to meet those needs. This committee formally reviews the Capital Improvement Program and incorporates revisions on an annual basis. The current CIP for the five fiscal years ending June 30, 2016 is estimated to cost approximately \$556,017,000 and is based on estimates of future capital costs as of June 30, 2011. The Capital Improvement Program is a dynamic one, and requires continual review and modification as conditions

warrant. The Bylaws of the Board were recently amended to require a majority vote of five commissioners to approve the CIP. See “LITIGATION.”

In fiscal year 2006, the Department began to finance some of the capital improvements to the System with loans by the Michigan Municipal Bond Authority (now the Michigan Finance Authority) from the Drinking Water Revolving Fund. The City’s obligation to repay such loans is evidenced by SRF Water System Bonds issued as Junior Lien Bonds on a subordinated basis to any Second Lien Bonds.

The following tables detail Capital Improvement Program expenditures for 2012 and the planned Capital Improvement Program expenditures for the four Fiscal Years ending June 30, 2016, and the projected funding sources for the Capital Improvement Program. As noted above, the five year program is estimated to cost \$556,017,000. Of this amount, it is anticipated that \$342 million (approximate net amount) will be raised through the issuance of bonds during and after fiscal year 2012 with the balance of the System’s share to be generated out of System revenues, additional SRF Loans and funds currently available. The summary of the projected capital improvements in the table reflects some significant adjustments from the CIP that was published in July 2008. That document reflected an extremely aggressive construction schedule for a series of transmission mains to “loop” northern portion of the service area in Oakland County and provide a second source of water to Flint and Genesee Counties. In addition, prior CIPs contained significant expenditures to rehabilitate the Northeast and Southwest Water Treatment Plants. Reduced water demands in recent years have caused the Department to reevaluate the capacity and delivery strategies of those projects, and they have been removed from the most recent CIP. The cornerstone project of the current CIP is an update to the Master Plan, which will be designed to determine the future utilization of the Northeast and Southwest Water Plants, and the best manner for delivering water to the region. (See “Appendix A – Feasibility Report; Service Area: Master Plan and Master Plan Update”).

Water Supply System Capital Improvement Program Projected Expenditure Schedule – Fiscal Years 2012 through 2016

Category	<i>Fiscal Year Ending June 30,</i>					Total
	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	
Plant Replacement and Renovation						
General Plant	\$10,320,000	\$11,836,000	\$9,146,000	\$2,625,000	\$785,000	\$34,712,000
Water Works Park	0	0	0	0	0	0
Springwells	4,024,000	38,150,000	67,945,000	58,885,000	60,841,000	229,845,000
Northeast	12,001,000	10,000,000	0	0	0	22,001,000
Southwest	26,824,000	21,305,000	279,000	0	0	48,408,000
Lake Huron	150,000	2,000,000	3,000,000	900,000	0	6,050,000
Pumping Stations & Reservoirs	<u>5,523,000</u>	<u>3,300,000</u>	<u>2,950,000</u>	<u>3,300,000</u>	<u>3,300,000</u>	<u>18,373,000</u>
Subtotal – Plant	\$58,842,000	\$86,591,000	\$83,320,000	\$65,710,000	\$64,926,000	\$359,389,000
Metro Area Construction	\$17,040,000	\$46,000,000	\$41,000,000	\$21,100,000	\$10,000,000	\$135,140,000
Urban System Improvements	13,251,000	8,800,000	11,000,000	10,800,000	10,000,000	53,851,000
Mechanical Maintenance	5,000	0	0	0	0	5,000
Computer Systems	<u>1,832,000</u>	<u>1,400,000</u>	<u>2,400,000</u>	<u>1,000,000</u>	<u>1,000,000</u>	<u>7,632,000</u>
Subtotal	<u>32,128,000</u>	<u>56,200,000</u>	<u>54,400,000</u>	<u>32,900,000</u>	<u>21,000,000</u>	<u>196,628,000</u>
Total System	\$90,970,000	\$142,791,000	\$137,720,000	\$98,610,000	\$85,926,000	\$556,017,000

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Water Supply System Capital Improvement Program Projected Funding Sources

	Fiscal Year Ending June 30,					
	2012	2013	2014	2015	2016	Total
Existing Improvement and Extension Funds ¹	\$8,893,100	\$0	\$0	\$0	\$0	\$8,893,100
Existing Construction Funds ¹	59,800,000	0	0	0	0	59,800,000
Current Revenues	23,711,900	31,497,500	50,252,700	64,288,300	90,014,400	259,764,800
Bond Proceeds	500,675,000	0	200,000,000	0	0	700,675,000
Less: Defeasance Requirements for Refunded Bonds	(103,059,100)	0	0	0	0	(103,059,100)
Swap Termination Payment	(221,921,400)	0	0	0	0	(221,921,400)
Capitalized interest	0	0	(10,000,000)	0	0	(10,000,000)
Issuance expenses ²	(12,606,300)	0	(19,210,000)	0	0	(23,962,900)
Net Bond Proceeds Available	<u>163,088,200</u>	<u>0</u>	<u>170,789,700</u>	<u>0</u>	<u>0</u>	<u>341,731,600</u>
Total Funding Sources ³	\$255,493,200	\$31,497,500	\$221,042,400	\$64,288,300	\$90,014,400	\$670,189,500

¹ Balance available June 30, 2011. (Applies only to Fiscal Year 2012).

² Reflects underwriters' discount, net original issue premium and issuance expenses for the 2011 Bonds and, in subsequent years, assumes issuance expenses totaling 3 percent of the bond issue amount plus \$200,000. Also includes bond reserve account deposit.

³ The difference between the total amount available to finance the capital program and the cost of the program represents funds available to finance the capital program after 2016.

Source: The Foster Group, LLC

FINANCIAL PROCEDURES

Budget and Accounting Matters

Effective with the 2013 budget, the Department's budget will no longer be prepared in conformity with the City's requirements and procedures. Under provisions of the Court's November 4 Order, the Department will have its own divisions of purchasing, human resources, law and finance, in place of the City's departments. The 2013 budget is being developed in a manner that will reflect the new structure. This process is quite similar to the prior approach, but will not require the same level of review and approval by the City Council as most expenditures will only require Board approval. The specifics of the new process are under development during this transitional period. . "See LITIGATION – Detroit Water and Sewerage Department Litigation."

Certain differences should be noted between budget presentation and the financial statements for a given period. The annual budget represents amounts which might be spent in the fiscal year and it records equipment and other long-term purchases against the current period. The financial statements include accrual of expenditures and revenues and depreciation of plant and equipment over the useful life of such capital items.

Generally, the Department pays for various employees, supplies and equipment that are shared between the Water Supply and Sewage Systems from water operations. The Sewage System is then billed periodically (currently monthly) based on actual operations and an estimate of certain personnel and equipment usage.

Because the System is generally self-insured, the Department includes in its annual budget amounts estimated to be sufficient to pay various liability and workers' compensation claims. The financial statements record the expense for such claims in the period when the occurrence of the liability is probable and the amount can be

reasonably estimated. In addition, the budget includes amounts necessary to establish and maintain an account designated the “Extraordinary Repair and Replacement Reserve Fund,” which has been created for the purpose of providing funds for paying the costs of major unanticipated repairs and replacements to the System. See “SECURITY AND SOURCES OF PAYMENT FOR THE 2011 BONDS – Bond Ordinance Flow of Funds.”

The Department uses an Oracle financial management system that includes general ledger, purchasing, accounts payable, accounts receivables, project accounting and fixed asset applications. These Oracle core financial applications are integrated with third party Oracle-approved software providers for budget preparation, work order and inventory applications to provide a nearly complete financial reporting system.

The Department uses a Legacy human resources/payroll application for employee compensation. Since 2010, the Department uses a web based time and attendance management system for calculating payroll. Replacing the legacy payroll system with an Oracle module is in process.

The City of Detroit’s audited financial statements for the fiscal year ended June 30, 2010, available on the City’s website, at <http://www.detroitmi.gov/Departments/Finance/tabid/86/Default.aspx>, include an unqualified independent auditors’ report with exception to a reference to a scope limitation regarding the valuation of pension investments. The auditors provided the City with a second document, which highlights certain internal control material weaknesses and related recommended improvements to the City’s internal control environment. The City takes such recommendations seriously. Accordingly, the City has developed plans and has begun executing such planned action steps to address each concern identified by the auditors. If the City is unable to improve its financial and management controls, in a timely and effective manner, its ability to comply with the financial and reporting requirements and other rules that apply to it would be impaired. The audited financial statements of the Water Supply System for the fiscal year ended June 30, 2010, which are included as Appendix B, also includes the unqualified opinion of the City’s auditors.

Management Initiatives

The Department recently developed a new strategic plan that contains the following nine key initiatives, all of which are designed to enhance and ensure sustainable service levels:

1. Achieve substantial compliance (wastewater specific);
2. Improve customer service/communication;
3. Operate efficiently and improve performance;
4. Make procurement more transparent and efficient;
5. Create a financial plan;
6. Create a capital plan;
7. Simplify rates;
8. Management team holds each other accountable; and
9. Set up new governance structure

The Department has also initiated an energy management plan for water and sewer system operations. Finally, the Department has launched a program to replace all retail billing meters in the System and install automatic meter reading devices. This program is designed to provide more accurate, timely water use information in an efficient manner. To date the program has converted nearly all of the large, commercial and industrial accounts and approximately 75 percent of the residential accounts.

Collections and Delinquencies

The Department operates a computerized billing system for its approximately 240,000 retail customers. All retail customers are billed monthly. All retail customers are allowed 20 days to pay, after which a one-time 5% late payment charge is applied. Wholesale municipal customers maintain their own retail billing systems and also pay

the Department monthly in accordance with contractual agreements. The charge for late payment of wholesale customers' bills varies by individual contract, but generally is also 5%.

Retail water and sewer charges constitute a lien on the premises served, enforceable upon entry on the tax roll as described herein, unless notice is given that a tenant is responsible for such charges. In 2007 the Department implemented a program of enforcing these liens and began transmitting accounts to the City's Law Department for processing in this manner. During fiscal year 2010 the City's Treasurer's Office collected over \$9.6 million on the Department's behalf. An additional amount of approximately \$17 million has been referred for fiscal year 2010 and is in the process of being collected. However, the Department continues to believe that discontinuance of service is the most timely method of collection. If water or sewer charges are delinquent, the City official in charge of the collection of such charges may certify to the tax assessing officer of the City the fact of such delinquency, whereupon such charge will be entered upon the next tax roll as a charge (lien) against the premises and the lien will be enforced in the same manner as general taxes of the City are collected; provided, that where notice is given that a tenant is responsible for such charges and service, no further service shall be rendered to such premise until a cash deposit equal to the estimated amount of the next ensuing bill is made. In addition to other remedies provided, the City has a right to shut off and discontinue the supply of water to any premises for the non-payment of bills for water or sewer when due. The termination of any services by the City to any residents may be subject to constitutional safeguards regarding due process, including notice and hearing requirements.

In order to enforce payment of retail billings, the Department pursues an aggressive collection program. Retail customers may have service shut off for non-payment after 6 months in arrears. Since May 2007 through October 2011, shutoffs have totaled approximately 54,545 of which 24,294 are still in shutoff status. Historically, the number of shutoffs decline from November through March due to weather conditions making shutoffs difficult.

The Board of Commissioners currently practices a "Bad Debt" write off policy common in many other large utilities, whereby establishing common protocol in aid determination of financial feasibility with regard to the pursuit of delinquent customers.

The Department's computerized billing system produces data on aged accounts receivable and breaks delinquencies into several aged categories. The June 2011 report indicated total retail Water System delinquencies (in excess of 6 months) of approximately \$23.4 million, which is lower than amounts reported in prior years, primarily due to the success of the tax lien program. The amount of delinquencies has not caused cash flow problems, as sufficient operating capital has been available to the System. The System has not experienced significant problems relating to wholesale municipal delinquencies. Normally, wholesale delinquencies have arisen from disputed billings which can often be resolved through negotiation. As of June 30, 2011 no wholesale municipal customer carried a delinquent balance. The allowance for doubtful accounts reflected in the financial statements represents the Department's estimate of the amount of potential uncollectible accounts receivable. Increases in the reserve are netted against revenues reported on the financial statements. The amount reserved is determined based on a formula that takes into account the total amount of accounts receivable as well as specific items within the category, including reserves for disputed billings. Approximately \$26.3 million was reserved as an allowance for doubtful accounts at June 30, 2011. To the extent that the Department includes a projected increase in the allowance for doubtful accounts in developing prospective water rates, this revenue requirement is allocated to retail customers only.

Cash Management

In accordance with the City Charter, all funds and accounts of the System are separate and distinct from all other City funds. Except as described below, no System monies are commingled with general fund or other monies of the City.

All revenues of the System are deposited to the Water Receiving Fund. Because one payment is received from retail customers billed on a combined basis for water and sewerage service, the full amount of payment is initially deposited in the Water Receiving Fund. Periodic (generally bi-weekly) transfers are made from the Water Receiving Fund to the Sewage Receiving Fund, based on the proper allocation between funds. Next, transfers are made from the Water Receiving Fund to the Operation and Maintenance Fund, Senior Lien Bond Interest and Redemption Fund, Junior Lien Bond Interest and Redemption Fund and other System funds and, until needed,

balances are invested in accordance with the provisions of the Bond Ordinance. See “SECURITY AND SOURCES OF PAYMENT FOR THE 2011 BONDS – Bond Ordinance Flow of Funds.”

With the exception of direct payments made for debt service and special “manual” payments, expenditures are made through the City’s Central Clearing Account. The City maintains a central account which disburses all vendor payments. Once an invoice has been processed for payment, a wire transfer from the appropriate fund of the City is made to the Central Clearing Account. Monies from the particular fund must be received before a check is released. Accordingly, no System monies may be used to “cover” payments to be made from any other fund of the City. While all City payroll checks are drawn upon a special payroll account, funds are cleared through the Central Clearing Account in the same manner as vendor payments.

Debt service payments for Water Supply System Bonds (as well as other City debt obligations) are not cleared through the Central Clearing Account. Such payments are made directly from the appropriate debt service account to the paying agent for the particular debt obligation.

The Department maintains a budget system that monitors and controls funding in accordance with actual funds available. While the budget includes appropriations for specific projects to be funded out of the Improvement and Extension Fund at the beginning of each fiscal year, the Department re-authorizes such appropriations and approves the award of a contract for specific projects only when cash is on hand in such fund, which is then fully encumbered in an amount equal to the amount of the award.

Investment Policy

Funds in excess of current System requirements are invested by the City for the Department in accordance with State law. The City may invest in direct obligations of the United States, obligations of an agency or instrumentality of the United States, repurchase agreements, mutual funds that invest solely in such government obligations and repurchase agreements, certain grades of commercial paper, bankers acceptances of United States banks, and certificates of deposit, savings accounts or depository receipts of savings and loan associations or member banks of the Federal Deposit Insurance Corporation.

The City’s investment policy is to provide for effective cash management. The City’s investment policy attempts to maintain and protect investment principal while striving to maximize total return on the portfolio consistent with risk limitations, pursuant to guidelines set forth in Act 20, Public Acts of Michigan, 1943, as amended. The City has not experienced material investment-related losses in any City managed funds. As of September 30, 2011, the Water Fund held investments with a total market value of approximately \$178,586,437, the longest investment had a maturity date of December 28, 2016.

Rates

Under the City Charter, the Board has the authority to establish rates for water service. As a result of the resolution of certain issues in litigation, the Bylaws of the Board of Water Commissioners were recently amended to require a majority of five votes to approve rates. The City Council will vote on rates charged to customers in Detroit, but will not have the power to vote on rates charged to suburban customers. See “LITIGATION.” Certain of the wholesale contracts require certain notice requirements relating to rate changes, generally 90 or 120 days. Public hearings are required by statute under the Michigan Home Rule City Act to be held prior to action on rate changes. No other statutory procedures are required as a condition precedent to a change in rates. Rates, once established, become effective the following July 1.

Under the Bond Ordinance, the City covenants that, with respect to each Fiscal Year, the rates shall be fixed and revised from time to time as may be necessary to produce the greater of: (1) the sum of (a) administrative and operating expenses of the System, (b) debt service on Senior Lien Bonds, (c) creation and maintenance of a debt service reserve for Senior Lien Bonds, (d) debt service on Junior Lien Bonds, if any, including maintenance of a reserve therefor to the extent required by the Bond Ordinance, (e) creation and maintenance of an extraordinary repair and replacement reserve fund, and (f) to provide for such other expenditures and funds for the System as the Bond Ordinance and the Act require; and (2) an amount equal to the Required Combined Coverage where the

numerator is the Net Revenues projected for the Fiscal Year of calculation, and the denominator is the Indebtedness coming for such Fiscal Year. See “SECURITY AND SOURCES FOR PAYMENT OF THE 2011 BONDS – Operating and Rate Covenants.” The City has covenanted at all times to fix and maintain such rates for services furnished by the System as shall be sufficient to provide for the foregoing. As a matter of operating policy, the Department has established a goal of fixing rates so that net revenues exceed the debt service coverage requirements of the Bond Ordinance. This policy may be changed from time to time by the Board without approval by Bondowners or any other party.

Under the Act, rates must be fixed and revised as necessary to comply with the Bond Ordinance. The contracts with wholesale municipal customers typically provide that rates be reasonable in relation to the costs incurred for the supply of water. The Department maintains a small staff to review and make recommendations on rates for water and sewer service. The Department has routinely retained outside consultants to supplement the efforts of its staff. The current water rate schedule became effective July 1, 2011. The Act provides that the rates charged by the System should not be subject to supervision or regulation by any State bureau, board, commission, or like agency or instrumentality of the State.

Currently, rates are adjusted annually and are determined by the “utility basis” method, which is recommended by the American Water Works Association for municipally-owned utilities providing services to metropolitan areas and which the System is required to use by Michigan law. Under this method, the revenue requirement is comprised of three elements of cost: operation and maintenance expenses, depreciation expense and a return on the rate base. The rate base reflects the value of property on which the Department is entitled to earn a return. In formulating rates, the Department recognizes the distinctions between retail customers and the various wholesale municipal customers based on the differences in the cost of serving each class of customer. The “utility basis” method has been upheld in litigation involving the Department’s water rates.

The following table indicates a summary of retail and wholesale water rates in effect over the past ten years. The fiscal year 2012 rates for wholesale customers reflect a fixed monthly charge and a commodity charge per Mcf, each of which are unique for each customer community. The current rates went into effect on July 1, 2011, and represent an overall revenue increase of approximately 9 percent over the prior rates.

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Historic Water Rates – in \$ per Mcf				
<u>Rates</u>		<u>Annual %</u>	<u>Average</u>	<u>Annual %</u>
<u>Effective July 1</u>	<u>Retail Detroit¹</u>	<u>Change</u>	<u>Wholesale</u>	<u>Change</u>
2002	10.69	13.0%	8.48	14.9%
2003	11.65	9.0%	9.25	9.1%
2004	12.58	8.0%	10.20	10.3%
2005	12.63	0.4%	10.61	4.0%
2006	12.69	0.5%	11.24	5.9%
2007	13.56	6.9%	11.81	5.1%
2008	14.42	6.3%	12.86	8.9%
2009	15.17	5.2%	13.68	6.4%
2010	16.59	9.4%	14.43	5.5%
2011	18.09	9.0%	15.72	8.9%

¹ Reflects rate charged to first 3,000 cubic feet per month.

Water Rate Comparison

As shown in the following table, current charges for consumption of a like amount of water are generally less in Detroit than in most other major cities. It should be noted, however, that such comparisons can be misleading as the elements included in charges for water supply services are often inconsistent amongst communities. For instance, several of these communities listed below may recover costs associated with certain environmental program through water rates that are funded through other means in most cities. In addition, several of these communities may recover costs associated with water infrastructure through property taxes rather than water rates. Readers are encouraged to review these survey reports in their entirety to fully understand the context of the comparisons. The average increase in charges for these communities since 2005 has been almost six percent annually (or more than twice the rate of inflation) illustrating the trend in the industry necessary to address increased environmental and infrastructure challenges.

The Department anticipates increasing rates as is necessary to continue the funding of the Capital Improvement Program that such increases are not anticipated to differ significantly from what will be experienced in other areas of the country having water systems of comparable age and facing infrastructure challenges similar to the System, and that the price and availability of water in the area should continue to be a positive factor in the attraction of industry to the area.

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Small ¹			Medium ²		Large ³	
City	Amount	Rank	Amount	Rank	Amount	Rank
	\$		\$		\$	
Memphis	13.10	1	186.22	3	9,578	1
Chicago	13.16	2	176.34	1	17,634	7
Jacksonville	17.05	3	180.57	2	10,504	2
Milwaukee	18.13	4	210.41	5	10,757	3
Detroit	18.29	5	202.19	4	16,111	6
Dallas	19.70	6	254.13	6	24,052	9
Austin	22.46	7	448.90	18	40,320	18
New York	23.10	8	309.54	11	30,954	14
Baltimore	24.69	9	290.43	8	14,261	5
Houston	24.83	10	310.47	12	29,319	13
San Antonio	25.96	12	328.26	15	27,893	12
Indianapolis	26.41	13	265.73	7	12,970	4
Columbus	26.48	14	297.85	10	19,866	8
San Jose	26.66	15	319.23	13	27,767	11
Philadelphia	29.64	16	291.93	9	24,568	10
Phoenix	29.94	17	348.02	16	33,946	15
San Francisco	31.77	18	409.28	17	39,226	16
Los Angeles	34.22	19	323.07	14	47,195	19
Boston	38.44	20	581.02	20	63,521	20
San Diego	45.18	21	453.39	19	39,338	17
Average ⁴	25.84		314.99		27,562	1

¹ Based on water use of 7,500 gallons per month and 5/8" meter.

² Based on water use of 100,000 gallons per month and 2" meter.

³ Based on water use of 10,000,000 gallons per month and 2" meter.

⁴ Excluding Detroit.

SOURCE: Black & Veatch Corporation 2009/2010 Survey.

FINANCIAL OPERATIONS

Summary of Historical Revenues and Expenses

The table below shows historical revenues and expenses of the Water Supply System for each of the past five fiscal years ended June 30, 2011. The Net Revenues information is derived from the audited financial statements of the Water Fund for fiscal years ended June 30, 2007 through and including the fiscal year ended June 30, 2010, and the unaudited statements for the fiscal year ended June 30, 2011. Financial statements and notes thereto as of and for the fiscal year ended June 30, 2010 are included in Appendix B – “Audited Financial Statements of the Water Fund of the City of Detroit, Michigan.”

Summary of Historical Revenues and Expenses

	Fiscal Year Ending June 30,				
	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>
Operating Revenues:					<i>unaudited</i>
Water Sales - Detroit	\$ 57,934,749	\$ 74,442,186	\$ 65,360,449	\$ 69,991,078	\$ 74,810,368
Water Sales - Suburban	208,028,964	216,867,005	206,282,285	210,662,057	237,099,865
Other	<u>2,322,380</u>	<u>1,674,029</u>	<u>2,452,729</u>	<u>4,817,288</u>	<u>4,091,977</u>
Total Operating Revenues	268,286,093	292,983,220	274,095,463	285,470,423	316,002,211
Operation and Maintenance Expenses ¹	<u>146,327,332</u>	<u>141,352,198</u>	<u>149,858,871</u>	<u>146,600,298</u>	<u>146,880,417</u>
Net Operating Revenues	121,958,761	151,631,022	124,236,592	138,870,125	169,121,793
Non-Operating Income	<u>34,065,168</u>	<u>29,312,849</u>	<u>13,749,381</u>	<u>7,104,274</u>	<u>4,275,518</u>
Net Revenues	156,023,929	180,943,871	137,985,973	145,974,399	173,397,311
Debt Service Requirements					
Senior Lien Bonds	82,262,200	97,531,500	110,137,200	109,843,700	116,175,200
Senior Lien and Second Lien Bonds	115,174,700	133,616,200	155,033,200	155,729,800	162,292,600
All Bonds including SRF Junior Lien Bonds	\$115,449,700	\$135,156,500	\$156,775,100	\$157,590,500	\$164,435,900
Debt Service Coverage					
Senior Lien Bonds	1.90	1.86	1.25	1.33	1.49
Senior Lien and Second Lien Bonds	1.35	1.35	0.89	0.94	1.07
All Bonds including SRF Junior Lien Bonds	1.35	1.34	0.88	0.93	1.05

¹ Excludes OPEB and other "non-cash" items that do not impact net revenues for debt service

Source: The Department

Analysis of Recent Operations

The following information summarizes the financial operations of the System for the last five fiscal years. The table above is structured to summarize calculations of historical debt service coverage ratios, and computes net revenues in a manner consistent with the definitions in the Ordinances. As such, the operating expenses reflected in the table exclude amounts associated with expenditures that did not occur during the year for which they appeared on the accrual basis financial statements,

Operating Revenues. As indicated in the above table, System operating revenues (primarily generated from water sales) have increased approximately \$47 million, or 18%, since fiscal 2007. This increase is primarily attributable to water rate increases during that period, as System-wide water sales have experienced a decline of approximately 13 percent during that time. However, the variance from year to year is also partially attributable to varying levels of bad debt expense throughout the period. Bad debt expense is recognized on the Department's financial statements based on an analysis of the size and age of accounts receivable and the expected ability to collect those receivables. Because of variances in these receivable balances (in part attributable to the fact that the Department began turning aged receivables over to Wayne County to collect via liens on property taxes) the System recorded a bad debt credit (which increased revenue) of \$5.7 million during 2008, after recording a bad debt debit (which decreased revenue) of \$14.7 million during 2007. The corresponding bad debt expense figures for 2009, 2010 and 2011 were approximately \$8.3 million, \$3.8 million and \$8.8 million, respectively. Miscellaneous operating revenue, which refers to other operating revenue not directly generated from the sale of water, remained fairly consistent over the past two years.

Operating Expenses. Total operating expenses in the table do not include expenses associated with accruing liabilities for Other Post-Employment Benefits (“OPEB”), which reflect future cash outlays, nor write-offs of amounts that were originally capitalized in prior years (prior cash outlays). Rather these figures are intended to represent actual annual transfers to the Operation and Maintenance Fund to fund the costs of operating the System. These expenses have been remarkably stable over the past five years. The 2011 expenses are approximately \$500,000 (less than one half of one percent) higher than those experienced in 2007.

The relatively stable cost levels are primarily attributable to the cost efficiency and accountability measures implemented by Department management several years ago, which continue to be implemented. Additional efficiency measures are being sought and identified through the “operate efficiently and improve performance” initiative of the strategic plan. See “FINANCIAL PROCEDURES – Management Initiatives.” A portion of the annual variation in operating expenses is associated with the allocation of costs for functions that provide service to both the water and sewer systems. These costs are assigned to the two utilities based on detailed labor distribution systems and overall management policy, and will naturally fluctuate, based on where maintenance and related activities are focused. The Department has made and continues to make significant efforts to ensure that financial plans accurately accommodate this issue and that its financial accounting systems accurately report activity for this matter.

Nonoperating Income. The category “Miscellaneous Nonoperating Income (Expense)” reflected in the financial statements is a “net” amount and has historically represented relatively small amounts of nonoperating income or certain non-cash write offs. Recently this category also includes “contributions” of assets and other non-monetary amounts. These amounts are not included in the analysis of current revenues and expenses (particularly for purposes of calculating coverage levels) as they generally do not have an effect on the amount of cash available for System operations or debt service. The presentation in the preceding table does not reflect any elements of Miscellaneous Nonoperating Income (Expense).

The indicated debt service coverage levels for all liens of debt were lower than planned for both 2009 and 2010. These results are attributable to higher than anticipated interest payments and lower than anticipated revenues from water sales. The higher debt service requirements stemmed from the credit market crisis of 2008. Water rates for 2009 and 2010 were established prior the events that led to bond insurer downgrades and the accompanying higher interest costs on variable rate debt. The Department subsequently remarketed the affected bonds, and such unanticipated interest costs should not recur. Similarly, water rates for 2008 and 2009 were designed without full understanding of the extent to which the region would be impacted by the economic downturn. Subsequent water rates have been based on far more conservative sales projections, and have included a much larger recovery of revenues through fixed charges, as opposed to commodity charges. These structural changes should produce much more stable revenues (and resulting debt service coverage levels) in the future.

The beginning of this stability is evident by the improved debt service coverage reported for 2011. The Department continues to take steps to ensure improved fiscal performance.

The Department has made and continues to make significant efforts to ensure that financial plans accurately accommodate each of these issues and that its financial accounting systems accurately report activity for each of these matters.

Projected Operations for Fiscal Years 2012 to 2016

The projected financial operations of the Water System shown in the following table include assumptions relating to inflation and to costs associated with the continuing CIP, including implementation of new operating initiatives, debt service on additional Water System Bonds and additional needs for power and chemical purchases, all assuming that federal standards and regulations not yet developed pursuant to the 1996 amendments to the Safe Drinking Water Act will not significantly affect the System.

The projected revenues for fiscal years 2012 through 2016 anticipate normal weather conditions and are based on an analysis of recent historical trends, which indicate a leveling off of recent declines in water sales. The projected additional revenue required reflects the additional amounts that will be required to meet the requirements of the Bond Ordinance and the policies established by the Board, given the various assumptions. The operation and

maintenance expense projection for fiscal year 2012 is based on review of the 2012 budget and actual expenses for the first 3 months of the fiscal year. The 2013 estimate is based on this information and preliminary work on the Department's 2013 budget request and serves as a base for the remaining years. Total debt service includes the amount due on all Water Supply System Bonds (including estimated amounts for the 2011 Bonds) and all projected additional Water Supply System Bonds required to fund the Capital Improvement Program. The projected Net Revenues are divided by the total debt service to show estimated coverage. The balance available is applied to payments of the Water Supply System's share of the pension obligation certificate requirements, renewals and replacements, the Extraordinary Repair and Replacement Reserve Fund, the share of the CIP funded with revenue financed capital, and maintenance of the Operating Reserve.

The projections set forth below are intended as "forward-looking statements." The City cautions that these projections may and often do differ materially from actual results. Some of the factors that could cause actual results to differ materially from those projected are the Department's ability to execute the CIP as scheduled and within budget, regional climate and weather conditions affecting the demand for water, and adverse legislative, regulatory or legal decisions (including environmental laws and regulations) affecting the Department's ability to manage the System and maintain water quality.

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**Summary of Projected Revenues and Additional Revenue Requirements
For Fiscal Years 2012-2016**

	Fiscal Year Ending June 30,				
	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
	<i>Estimated</i>				
Operating Revenue Under Existing Rates ¹	\$343,490,000	\$344,959,700	\$344,959,700	\$344,959,700	\$344,959,700
<u>Projected Revenue from Rate Increases²</u>					
FY 2013: 8.6%		29,828,900	29,828,900	29,828,900	29,828,900
FY 2014: 8.5%			31,821,000	31,821,000	31,821,000
FY 2015: 7.6%				30,715,300	30,715,300
FY 2016: 7.5%					32,595,000
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Total Projected Revenue from Water Rates	343,490,000	374,788,600	406,609,600	437,324,900	469,919,900
Miscellaneous Operating Revenue	4,750,000	4,750,000	4,750,000	4,750,000	4,750,000
Projected Non-Operating Revenue	<u>3,914,200</u>	<u>3,827,800</u>	<u>4,613,800</u>	<u>4,163,900</u>	<u>3,993,200</u>
Total Projected Operating Revenue	\$352,154,200	\$383,366,400	\$415,973,400	\$446,238,800	\$478,663,100
Operation and Maintenance Expense ³	<u>159,661,400</u>	<u>162,925,000</u>	<u>166,183,500</u>	<u>169,507,200</u>	<u>172,897,300</u>
Projected Net Operating Revenues	\$192,492,800	\$20,441,400	\$249,789,900	\$276,731,600	\$305,765,800
Senior Lien Debt Service	114,986,700	130,225,500	140,248,600	150,159,700	153,259,200
Junior Lien Debt Service	36,411,500	40,435,100	40,450,000	43,031,700	42,911,000
DWRF Junior Lien Debt Service	<u>2,165,500</u>	<u>2,234,600</u>	<u>2,297,700</u>	<u>2,378,600</u>	<u>2,379,000</u>
Total Debt Service ^{4, 5}	\$153,563,700	\$172,895,200	\$182,996,300	\$195,570,000	\$198,549,200
Projected Senior Lien Debt Service Coverage	167%	169%	178%	184%	200%
Projected Second Lien Debt Service Coverage	127%	129%	138%	143%	156%
Projected Total Debt Service Coverage	125%	128%	136%	142%	154%
Balance for CIP and Other Purposes	\$38,929,100	\$47,546,200	\$66,793,600	\$81,161,600	\$107,216,600

¹Revenues for 2012 - 2016 reflect rates currently in effect.

²Projected additional revenue is developed based upon both projected increases in operation and maintenance expense and debt service coverage and certain other requirements which must be met in order to issue bonds to finance the CIP.

³Assumes general inflation rate of 2.0% annually after Fiscal Year 2013.

⁴Reflects debt service (principal and interest) on all existing indebtedness, the 2011 Bonds, and future bonds. Excludes swap interest and debt service on Refunded Bonds.

⁵Assumes bond sales in subsequent years at an annual interest rate of 5.0%. Although the Department may issue Additional Water System Bonds as Second Lien or Senior Lien Bonds, for purposes of this table future debt is assumed to be issued as Senior Lien Bonds.

SOURCE: The Foster Group, LLC.

LITIGATION

Detroit Water and Sewerage Department Litigation

In 1977, the United States Environmental Protection Agency filed suit against the City in the U.S. District Court (the “Court”) to compel the Department to comply with the requirements of the Clean Water Act. Although that lawsuit focused on the sewage system, certain recent developments in that case have resulted in significant changes in the management, structure and operations of the Department that will impact the water system.

The City, the State and the EPA entered into a Consent Judgment in September 1977, which contained specific effluent requirements and specific dates to bring the City into compliance. In 1977, the Court entered an order adding all communities receiving sewage service from the Department as parties. Since that order, all litigation regarding sewage rates and the operations of the sewage system have been heard in the Court. The Amended Consent Judgment was entered by the Court in April 1980. The Court retained jurisdiction under the Amended Consent Judgment in order to ensure the City’s continued compliance. The Second Amended Consent Judgment was entered by the Court on August 3, 2000. The Court retained jurisdiction under the Second Amended Consent Judgment in order to ensure the City’s continued compliance.

On January 26, 2011, Oakland County filed Motion For Appointment of Interim Regional Management Committee. The motion alleged that the Department was unable to maintain compliance with the Clean Water Act and its National Pollution Discharge Elimination System (NPDES) Permit due to mismanagement in the Department. The motion asked the Court to appoint a new management committee comprised of Detroit’s mayor, the drain commissioners of Oakland, Wayne and Macomb Counties and one person selected by the Court to oversee the Department. The City opposed the motion.

On February 11, 2011, the City of Detroit, Oakland County, Wayne County and Macomb County entered into a Stipulated Order, which was entered by the Court. The Stipulated Order provided that the three members of the Board of Water Commissioners that represent the three counties would be selected by the three counties and appointed by the Mayor of Detroit, that approval of rates would require a vote of five commissioners, not a simple majority, and that approval of the Capital Improvement Program (CIP) would require a vote of five commissioners, not a simple majority. The Stipulated Order also provided that six months after its effective date, the City of Detroit could file a motion to dismiss the case, provided it was in substantial compliance with the NPDES Permit and the Consent Judgments.

On July 8, 2011 the City of Detroit and the Michigan Department of Environmental Quality (MDEQ) entered into an Administrative Consent Order (ACO) to resolve notices of violation issued to the Department concerning operations at the Wastewater Treatment Plant.

On July 25, 2011 the City of Detroit filed a motion to dismiss the case. Macomb County and Oakland County filed their responses to the motion to dismiss on August 8, 2011. Both counties objected to the motion to dismiss, arguing that there were institutional barriers and problems within both the City of Detroit and the Department that made sustained compliance problematic. Both counties asked the Court to enter an order addressing those issues, enjoining certain practices and policies within the City of Detroit and the Department, as a way of ensuring sustained compliance. The counties asserted that problems in the City’s purchasing, human resources and finance systems made it difficult for the Department to maintain compliance. Both counties made proposals for restructuring the Department and requested that the Court order their proposed changes as part of an order of dismissal.

On September 9, 2011 the Court entered an Opinion and Order Denying Without Prejudice the City of Detroit’s Motion to Dismiss. The Court found that the Department had violated the terms of its NPDES Permit after it signed the ACO. The Court appointed a committee to examine the root causes of DWSD’s noncompliance and make a report to the Court. The committee consisted of the City’s Chief Operating Officer, two members of the City Council and one member of the Board of Water Commissioners. The committee had several meetings and filed a report with the Court.

On November 4, 2011 the Court entered an order addressing the problems identified by the committee. The Court adopted the committee's plan and ordered its implementation. The terms of the order include:

- The Department shall develop an employee training program.
- Furlough days and the corresponding pay cut shall not apply to the Department's employees.
- The Department shall no longer be a party to City-wide collective bargaining agreements. The Department shall have its own collective bargaining agreements with the unions. The Board of Water Commissioners, not the City Council shall have the authority to approve the Department's collective bargaining agreements.
- Any terms in existing collective bargaining agreements that prevent the Department from contracting for services by contractors are enjoined.
- The Department shall reduce the number of job classifications to increase workforce flexibility.
- The committee shall continue to meet to consider whether the Department should make a payment in lieu of taxes to the City's general fund.
- The committee shall continue to meet at least monthly.
- The Department shall have its own divisions of purchasing, human resources, law and finance, in place of the City's departments.
- The City Council's authority over the Department's rates shall be limited to approving rates for Detroit customers. The City Council shall have no authority over suburban rates.
- Notwithstanding anything in the City Charter or state law, the Board of Water Commissioners shall have authority to approve legal settlements, claims, collective bargaining agreements, budgets and contracts.
- The Court ordered that the Department follow the procurement policy developed by the committee. The City Council's approval authority over the Department's contracts is limited to: personal services contracts over \$150,000, goods or commodities contracts over \$2,000,000, professional services contracts over \$2,000,000, construction contracts over \$5,000,000, and sale of land or equipment over \$2,500,000

On November 14, 2011, Council 25 of AFSCME filed a motion to intervene in the case so it could challenge the Order of November 4, 2011. On November 18, 2011, Judge Cox issued an opinion and order denying the motion. On November 28, 2011, Local 207 of AFSCME and the Senior Accountants, Analysts and Appraisers Association filed a motion to intervene, a motion to dissolve or stay the Order of November 4, 2011, and a motion to disqualify Judge Cox. On November 29, 2011, Council 25 filed a notice of appeal with the Sixth Circuit Court of Appeals. On December 13, 2011, Judge Cox issued an opinion and order denying the motion to intervene filed by AFSCME Local 207 and the Senior Accountants, Analysts and Appraisers Association. Those unions have filed a Claim of Appeal with the Sixth Circuit Court of Appeals.

Other Litigation

The Department is involved in numerous other lawsuits related to the System. These lawsuits arise primarily out of personal injuries or property damage, or assert breach of contract claims on construction projects for the System. The Department and its legal counsel have determined an estimated contingent reserve against the potential outcome of such claims or the amount of potential damages.

Federal Indictments

On December 15, 2010, Detroit's former Mayor, the former Director of the Department, the president of a construction company that has had contracts and subcontracts on Department projects, the City's former Chief Administrative Officer and the former Mayor's father, were indicted by a federal grand jury (Case No. CR-10-20403-NGE, Eastern District of Michigan). On November 16, 2011, a third superseding indictment was issued under such case. The charges include racketeering conspiracy, bid rigging, extortion, bribery, and obstruction of justice. Some of the charges in the indictment relate to some of the Department's contracts and some of the charges in the indictment are related to other matters that do not involve the Department. Detroit's present Mayor has directed the City's attorneys to investigate the persons, contracts and contractors named in the indictment and to determine whether the City has the right to pursue civil litigation against them to recover any money they wrongfully obtained. At this time the Department does not believe that the events described in the indictment will have an adverse effect on the security for the 2011 Bonds.

CONTINUING DISCLOSURE UNDERTAKING

The Continuing Disclosure Undertaking

The City, a Material Obligated Person (as such term is defined in the Continuing Disclosure Undertaking that the City will execute on or before the date of delivery of the 2011 Bonds, the form of which is set forth in Appendix F, hereto (the "Continuing Disclosure Undertaking")) will covenant for the benefit of the Holders and the Beneficial Owners of the 2011 Bonds (as such terms are defined in the Continuing Disclosure Undertaking) to disclose certain financial information and operating data relating to the City, by not later than 365 days following the end of the applicable fiscal year, commencing with the report for fiscal years ending on or after June 30, 2011 (the "Annual Financial Information") and to provide notices of the occurrence of certain enumerated events. The Continuing Disclosure Undertaking requires that the Annual Financial Information be filed with the Municipal Securities Rulemaking Board ("MSRB") by electronic transmission through the Electronic Municipal Market Access ("EMMA") Dataport of the MSRB. The Continuing Disclosure Undertaking also requires that required notices of events be filed by the City with the MSRB by electronic transmission through the EMMA Dataport. The specific nature of the information to be contained in the Annual Financial Information or the notices of material events is set forth in "Appendix F — Form of Continuing Disclosure Undertaking." These covenants have been made in order to assist the Underwriters named on the cover page of this Official Statement to comply with paragraph (b)(5) of Rule 15c2-12 (the "Rule 15c2-12") promulgated by the Securities and Exchange Commission.

Except as described in the Continuing Disclosure Undertaking the provisions of the Continuing Disclosure Undertaking will create no rights in any other person or entity. The obligation of the City to comply with the provisions of the Continuing Disclosure Undertaking is enforceable by any Beneficial Owner of outstanding bonds issued under the Resolution (all as defined in the Continuing Disclosure Undertaking). The right to enforce the provisions of the Continuing Disclosure Undertaking is limited to a right, by action in mandamus or for specific performance, to compel performance of the City's obligations under the Continuing Disclosure Undertaking. Any failure by the City to perform in accordance with the Continuing Disclosure Undertaking will not constitute a default or an Event of Default under the Resolution, and the rights and remedies provided by the Resolution upon the occurrence of a default or an Event of Default will not apply to any such failure.

During the five years preceding FY 2010, the City has been unable to meet its obligation under the continuing disclosure agreements related to prior bond issues to provide annual financial information within the periods specified in the applicable agreements. The continuing disclosure agreements entered into by the City in connection with its prior bond issuances required filing of annual financial information within a specified time period ranging from 180 to 270 days of the City's Fiscal Year end. Annual financial information for water supply system bonds and sewage disposal system bonds for Fiscal Year 2004 was filed on February 15, 2005. Annual financial information for bonds other than water supply system bonds and sewage disposal system bonds for Fiscal Year 2004 was filed on May 5, 2005. Annual financial information for Fiscal Years 2005 through 2009 was filed on June 1, 2006, February 29, 2008, February 26, 2009, November 20, 2009, and May 28, 2010, respectively. In an effort to prevent future filing delays, in the fall of 2008 the City engaged the services of an outside accounting firm to assist the City in the preparation of its financial statements for auditing. Since the time this outside accounting firm has been onsite and assisting the City in the day-to-day preparation of its financial statements for auditing, the

City has filed audited financial statements for FY 2008 and FY 2009 in the span of nine months. The City expects that the actions it has taken to enhance its financial reporting process will continue to reduce the production time of its audits such that it will be able to produce audited financials on a timely basis going forward. The City has timely filed its financial statements for FY 2010 and expects to timely file its financial statements for FY 2011.

A failure by the City to comply with the undertaking must be reported by the City, in accordance with the Rule and must be considered by any broker, dealer or municipal securities dealer before recommending the purchase or sale of the 2011 Bonds in the secondary market. Consequently, such failure may adversely affect the marketability and liquidity of the 2011 Bonds and the market price thereof.

The Disclosure Dissemination Agent – DAC

In order to provide continuing disclosure with respect to the 2011 Bonds in accordance with Rule 15c2-12 in connection with the issuance of the 2011 Bonds, the City will enter into a Disclosure Dissemination Agent Agreement (“Disclosure Dissemination Agreement”) for the benefit of the Beneficial Owners with Digital Assurance Certification, L.L.C. (“DAC”), under which the City has designated DAC as Disclosure Dissemination Agent.

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

TAX MATTERS

2011-A Bonds and 2011-C Bonds Federal Tax Matters

In the opinion of Lewis & Munday, A Professional Corporation, Bond Counsel, based on their examination of the documents described in their opinion, under existing law, as presently interpreted, the interest on the 2011-A Bonds and 2011-C Bonds (a) is excluded from gross income for federal income tax purposes and (b) is not an item of tax preference for purposes of the federal alternative minimum tax imposed on individuals and corporations. It should be noted, however, that with respect to corporations (as defined for federal income tax purposes) such interest is taken into account in determining adjusted current earnings for the purpose of computing the alternative minimum tax imposed on such corporations. The opinion is subject to the condition that the City comply with all requirements of the Internal Revenue Code of 1986, as amended, and all rules and regulations promulgated thereunder (the “Code”), that must be satisfied subsequent to the issuance of the 2011-A Bonds and 2011-C Bonds in order that interest thereon be (or continue to be) excluded from gross income for federal income tax purposes. These requirements may include rebating certain earnings to the United States. Failure to comply with any of such requirements could cause the interest on the 2011-A Bonds and 2011-C Bonds to be so included in gross income retroactive to the applicable date of issuance of the 2011-A Bonds and 2011-C Bonds. The City has covenanted to comply with all such requirements. The Bond Counsel will express no opinion regarding other federal tax consequences arising with respect to the 2011-A Bonds and 2011-C Bonds and the interest thereon.

Additional federal tax consequences relative to the 2011-A Bonds and 2011-C Bonds and interest thereon include the following matters. The following is a general description of some of these consequences, but is not intended to be complete or exhaustive, and investors should consult their tax advisors with respect to these matters.

For federal income tax purposes: (a) tax-exempt interest, including interest on the 2011-A Bonds and 2011-C Bonds, is included in the calculation of modified adjusted gross income required to determine the taxability of social security or railroad retirement benefits; (b) the receipt of tax-exempt interest, including interest on the 2011-A Bonds and 2011-C Bonds, by life insurance companies may affect the federal income tax liabilities of such companies; (c) the amount of certain loss deductions otherwise allowable to property and casualty insurance companies will be reduced (in certain instances below zero) by 15% of, among other things, tax-exempt interest, including interest on the 2011-A Bonds and 2011-C Bonds; (d) interest incurred or continued to purchase or carry the 2011-A Bonds and 2011-C Bonds may not be deducted in determining federal income tax; (e) commercial banks, thrift institutions and other financial institutions may not deduct their costs of carrying certain obligations such as the 2011-A Bonds and 2011-C Bonds; (f) interest on tax-exempt bonds, such as the 2011-A Bonds and 2011-C Bonds, will be included in effectively connected earnings and profits for purposes of computing the branch profits tax on certain foreign corporations doing business in the United States; and (g) passive investment income, including interest on tax-exempt bonds such as the 2011-A Bonds and 2011-C Bonds, may be subject to federal income taxation for Subchapter S Corporations that have Subchapter C earnings and profits at the close of the taxable year if greater than 25% of the gross receipts of such Subchapter S Corporation is passive investment income.

Original Issue Discount. For federal income tax purposes, if the initial public offering price of a 2011-A Bond and a 2011-C Bond as shown on the inside cover of this Official Statement is less than the stated redemption price at maturity, then such 2011-A Bond and 2011-C Bond is considered to have an “original issue discount” equal to the difference between such initial offering price and the amount payable at maturity (such 2011-A Bonds and 2011-C Bonds are referred to as “Original Issue Discount Bonds”). The original issue price of each Original Issue Discount Bond will be the initial offering price to the public at which a substantial amount of Original Issue Discount Bonds are sold, and the issue date will be the date on which an Original Issue Discount Bond is first issued to the public.

In the opinion of Bond Counsel, under existing law as presently interpreted, the original issue discount on an Original Issue Discount Bond accrued in the hands of a registered owner is treated for federal income tax purposes as tax exempt interest as described below. The registered owner’s basis for determining gain or loss on a sale, maturity or other disposition of an Original Issue Discount Bond generally will equal the registered owner’s cost, increased by any original issue discount that accrued while the registered owner held the Original Issue Discount Bond as described below. Generally, any gain or loss incurred by a U.S. registered owner on the sale, exchange or payment at maturity of an Original Issue Discount Bond (based on the registered owner’s basis) would be taxable as capital gain or loss (assuming the Original Issue Discount Bond is held as a capital asset), which would be long-term or short-term depending on whether the Original Issue Discount Bond was held for more than the applicable period for treatment of long-term capital gain.

Subject to the modification described in the next paragraph for certain subsequent registered owners, the original issue discount accrued in each “accrual period” will equal the original issue price of the Original Issue Discount Bond (increased by the amount of the original issue discount accrued in all prior accrual periods without regard to the modifications discussed in the next paragraph) multiplied by the yield to the maturity of the Original Issue Discount Bond (determined on the basis of compounding at the close of each accrual period and properly adjusted for the length of the accrual period) less the interest payable on such Original Issue Discount Bond during such accrual period. For purposes of this paragraph, “accrual period” means a six month period (or shorter period from the date of original issue of the Original Issue Discount Bond) which ends on a day in the calendar year corresponding to the maturity date of the Original Issue Discount Bond or the date six months before such maturity date. The original issue discount so accrued in a particular accrual period will then be considered to accrue ratably on each day of the accrual period.

A modification of the foregoing rules will generally apply to a registered owner who acquired an Original Issue Discount Bond by “purchase” if the cost of the Original Issue Discount Bond to that purchaser exceeds the sum of (a) the original issue price of the Original Issue Discount Bond and (b) the total original issue discount accrued under the rules of the preceding paragraph during the entire period prior to the registered owner’s purchase of the Original Issue Discount Bond. In that case, the amount of the original issue discount considered to accrue in an accrual period will equal (i) the amount determined under the rules of the preceding paragraph reduced by (ii) the portion of such excess purchase price allocable to the days beginning on the date of such purchase and ending on the

stated maturity date of the Original Issue Discount Bond. Such excess would be allocated so as to equal a constant percentage of the original issue discount accrued on each such day in the remaining period to maturity as described above. For this purpose, a “purchase” is any acquisition of an Original Issue Discount Bond other than one in which the registered owner’s basis in such Original Issue Discount Bond is determined by reference to the basis of the Original Issue Discount Bond in the hands of the person from whom acquired (such as a gift).

Amortizable Bond Premium. For federal income tax purposes, under existing law, as presently interpreted, if the initial offering price of a 2011-A Bond or 2011-C Bond is greater than the stated redemption price at maturity (such bonds are hereafter referred to as “Premium Bonds”), then the difference between a purchaser’s cost basis of the Premium Bonds and the amounts payable on the Premium Bonds (other than the payment of the stated interest thereon) constitutes an amortizable bond premium. Such amortizable bond premium is not deductible from gross income, but is treated for federal income tax purposes as an offset to the amount of stated tax-exempt interest paid on the Premium Bonds and is taken into account by certain corporations in determining adjusted current earnings for the purpose of computing the alternative minimum tax, which may also affect liability for the branch profits tax imposed by Section 884 of the Code.

In general, the amount of amortizable bond premium allocated to each “accrual period” is the excess of the stated interest on a Premium Bond allocable to such accrual period over the product of the bond purchaser’s adjusted acquisition price at the beginning of the accrual period multiplied by the discount rate that, when used in computing the present value of all remaining payments to be made on such Premium Bond (including stated interest) produces an amount equal to the holder’s basis in the Premium Bonds. For purposes of this calculation, the adjusted acquisition price at the beginning of any accrual period is equal to the purchaser’s original basis in the Premium Bond decreased by (i) the amount of bond premium amortized in prior accrual periods and (ii) the amount of any payments previously made on the Premium Bond other than payments of stated interest on such Premium Bond.

The amount of amortizable bond premium allocable to each taxable year is deducted from the bond purchaser’s adjusted basis on such Premium Bonds to determine taxable gain upon disposition (including sale, redemption or payment at maturity) of such bonds.

Market Discount. Pursuant to amendments made to the Code by the Omnibus Budget Reconciliation Act of 1993, the “market discount rules” of the Code apply to the 2011-A Bonds and 2011-C Bonds. Accordingly, holders acquiring their 2011-A Bonds and 2011-C Bonds subsequent to the initial issuance of the 2011-A Bonds and 2011-C Bonds will generally be required to treat market discount recognized under the provisions of the Code as ordinary taxable income (as opposed to capital gain income). Holders should consult their own tax advisors regarding the application of the market discount provisions of the Code and the advisability of making any of the elections relating to market discount allowed by the Code.

2011-B Bonds Federal Tax Matters

In the opinion of Bond Counsel, interest on the 2011-B Bonds is not excludable from gross income for federal income tax purposes under Section 103 of the Code. Bond Counsel will express no opinion regarding any other federal tax consequences relating to the ownership or disposition of, or the accrual or receipt of interest on, the 2011-B Bonds.

The following discussion generally describes certain aspects of the principal U.S. federal tax treatment of U.S. persons that are beneficial owners (“Owners”) of the 2011-B Bonds who hold the 2011-B Bonds as capital assets within the meaning of Section 1221 of the Code. For purposes of this discussion, a “U.S. person” means an individual who, for U.S. federal income tax purposes, is (i) a citizen or resident of the United States, (ii) a corporation, partnership or other entity created or organized in or under the laws of the United States or any political subdivision thereof, (iii) an estate, the income of which is subject to U.S. federal income taxation regardless of its source of income, or (iv) a trust, if either: (A) a United States court is able to exercise primary supervision over the administration of the trust, and one or more United States persons have the authority to control all substantial decisions of the trust or (B) a trust has a valid election in effect to be treated as a United States person under the applicable treasury regulations.

This summary is based on the Code, published revenue rulings, administrative and judicial decisions, and existing and proposed Treasury regulations (all as of the date hereof and all of which are subject to change, possibly with retroactive effect). This summary does not discuss all of the tax consequences that may be relevant to an Owner in light of its particular circumstances, such as Owners subject to special rules, such as certain financial institutions, insurance companies, tax-exempt organizations, non-U.S. persons, taxpayers who may be subject to the alternative minimum tax or personal holding company provisions of the Code, or dealers in securities. Accordingly, before deciding whether to purchase any of the 2011-B Bonds, prospective purchasers should consult their own tax advisors regarding the United States federal income tax consequences, as well as tax consequences under the laws of any state, local or foreign taxing jurisdiction or under any applicable tax treaty, of purchasing, holding, owning and disposing of the 2011-B Bonds.

Payments of Interest. Interest paid on the 2011-B Bonds will generally be taxable to Owners as ordinary interest income at the time it accrues or is received, in accordance with the Owner's method of accounting for U.S. federal income tax purposes. Owners who are cash-method taxpayers will be required to include interest in income upon receipt of such interest payment; Owners who are accrual-method taxpayers will be required to include interest as it accrues, without regard to when interest payments are actually received.

Market Discount. Owners who purchase 2011-B Bonds in the initial public offering but at a price different from the issue price, or purchase 2011-B Bonds subsequent to the initial public offering should consult their own tax advisors as to the consequences of any such transaction.

If a 2011-B Bond is purchased at any time for a price that is less than the 2011-B Bonds stated redemption price at maturity, the purchaser will be treated as having purchased a 2011-B Bond with market discount subject to the market discount rules of the Code (unless a statutory de minimis rule applies). Accrued market discount is treated as taxable ordinary income and is recognized when a 2011-B Bond is disposed of (to the extent such accrued discount does not exceed gain realized) or, at the purchaser's election, as it accrues. The applicability of the market discount rules may adversely affect the liquidity or secondary market price of such 2011-B Bond. Owners should consult their own tax advisors regarding the potential implications of market discount with respect to the 2011-B Bonds.

Bond Premium. If an Owner purchases a 2011-B Bond at a cost greater than its then principal amount, generally the excess is amortizable bond premium. The tax accounting treatment of bond premium is complex. Such Owners should consult their own tax advisors with respect to whether or not they should elect to amortize such premium under Section 171 of the Code and the determination and treatment of such premium for federal income tax purposes.

Disposition or Retirement of the 2011-B Bonds. Upon the sale, exchange or other disposition of a 2011-B Bond, or upon the retirement of a 2011-B Bond (including by redemption), an Owner will recognize capital gain or loss equal to the difference, if any, between the amount realized upon the disposition or retirement (excluding any amounts attributable to accrued but unpaid interest, which will be taxable as such) and the Owner's adjusted tax basis in the 2011-B Bond. Any such gain or loss will be United States source gain or loss for foreign tax credit purposes.

Defeasance of the 2011-B Bonds. If the City defeases any of the 2011-B Bonds, such 2011-B Bonds may be deemed to be retired and "reissued" for federal income tax purposes as a result of the defeasance. In such event, the Owner of a 2011-B Bond would recognize a gain or loss on the 2011-B Bond at the time of defeasance.

Backup Withholding. An Owner may, under certain circumstances, be subject to "backup withholding" (currently the rate of this withholding tax is 28%, but may change in the future) with respect to interest on the 2011-B Bonds. This withholding generally applies if the owner of a 2011-B Bond (a) fails to furnish the Transfer Agent or other payor with its taxpayer identification number; (b) furnishes the Transfer Agent or other payor an incorrect taxpayer identification number; (c) fails to report properly interest, dividends or other "reportable payments" as defined in the Code; or (d) under certain circumstances, fails to provide the Transfer Agent or other payor with a certified statement, signed under penalty of perjury, that the taxpayer identification number provided is its correct number and that the Owner is not subject to backup withholding. Any amount withheld may be creditable against

the Owner's U.S. federal income tax liability and be refundable to the extent it exceeds the Owner's U.S. federal income tax liability.

The amount of "reportable payments" for each calendar year and the amount of tax withheld, if any, with respect to payments on the 2011-B Bonds will be reported to the Owners and to the Internal Revenue Service.

Reporting of Interest Payments. Subject to certain exceptions, interest payments made to beneficial owners with respect to the 2011-B Bonds will be reported to the IRS. Such information will be filed each year with the IRS on Form 1099, which will reflect the name, address and Taxpayer Identification Number of the beneficial owner. A copy of Form 1099 is required to be sent to each beneficial owner of a 2011-B Bond.

Circular 230. This advice was written to support the promotion or marketing of the 2011-B Bonds. This advice is not intended or written to be used, and may not be used, by any person or entity for the purpose of avoiding any penalties that may be imposed on any person or entity under the Code. Prospective purchasers of the 2011-B Bonds should seek advice based on their particular circumstances from an independent tax advisor.

2011 Bonds State Tax Matters

Bond Counsel is further of the opinion that, under existing law, as presently interpreted, the 2011 Bonds and the interest thereon are exempt from all taxation provided by the laws of the State of Michigan, except inheritance and estates taxes, and taxes on gains realized from the sale, payment or other disposition of the 2011 Bonds.

INVESTORS SHOULD CONSULT WITH THEIR TAX ADVISORS AS TO THE TAX CONSEQUENCES OF THEIR ACQUISITION, HOLDING OR DISPOSITION OF THE 2011 BONDS.

Future Developments

No assurance can be given that any future legislation or clarifications or amendments to the Code, if enacted into law, will not contain proposals which could cause the interest on the 2011-A Bonds and the 2011-C Bonds to be subject directly or indirectly to federal income taxation, or which could cause the interest on the 2011-A Bonds, the 2011-B Bonds or the 2011-C Bonds to be subject directly or indirectly to State of Michigan income taxation, adversely affect the market price or marketability of the 2011-A Bonds, the 2011-B Bonds, and the 2011-C Bonds, or otherwise prevent the holders from realizing the full current benefit of the status of the interest thereon. Further, no assurance can be given that any such future legislation, or any actions of the Internal Revenue Service, including, but not limited to, selection of the 2011-A Bonds and the 2011-C Bonds for audit examination, or the course or result of any examination of the 2011-A Bonds and the 2011-C Bonds, or other bonds which present similar tax issues, will not affect the market price of the 2011-A Bonds and the 2011-C Bonds.

FEASIBILITY CONSULTANT

The Department retains The Foster Group, LLC as a Feasibility Consultant to develop reports and studies relating to the Water Supply System and certain financial matters. The Financial Feasibility Report prepared in connection with the issuance of the 2011 Bonds is set forth in Appendix A.

VERIFICATION OF MATHEMATICAL COMPUTATIONS

The accuracy of the arithmetical and mathematical computations (a) of the adequacy of the maturing principal amounts of the escrowed securities, together with the interest income thereon, and uninvested cash, if any, to pay when due the principal of, redemption premium and interest on the Refunded Bonds, and (b) relating to the determination of compliance with the regulations and rulings promulgated under Section 148 of the Code, will be verified by Grant Thornton, Minneapolis, Minnesota, as a condition of delivery of the 2011-C Bonds. Such verification of arithmetical accuracy and mathematical computations shall be based upon information and assumptions supplied by the city and on interpretations of Section 148 of the Code provided by Bond Counsel.

INDEPENDENT AUDITORS

The financial statements of the Water Fund of the City of Detroit, Michigan, as of and for the year ended June 30, 2010, included in Appendix B - "Audited Financial Statements of the Water Fund" have been audited by KPMG LLP, independent auditors, as indicated in their report with respect thereto, which report also appears in Appendix B.

CERTAIN LEGAL MATTERS

Legal matters incident to the authorization, issuance and sale of the 2011 Bonds will be subject to the approving opinion of Lewis & Munday, A Professional Corporation, Detroit, Michigan ("Bond Counsel"). Such opinion in substantially the form annexed hereto as Appendix E - "Form of Approving Opinions of Bond Counsel" will be furnished at the time of delivery of the 2011 Bonds. Certain legal matters will be passed upon for the City by Miller, Canfield, Paddock and Stone, P.L.C. and for the Underwriters by their counsel, Bodman PLC, Detroit, Michigan.

UNDERWRITING

The Underwriters have agreed, subject to certain conditions, to purchase the 2011 Bonds from the City at an aggregate purchase price of \$502,402,985.16 (which purchase price includes the aggregated par amount of the 2011 Bonds, plus the net reoffering premium of \$4,574,262.25, and less Underwriters' discount of \$2,846,277.09.). The Underwriters will be obligated to purchase all the 2011 Bonds if any are purchased. The 2011 Bonds may be offered and sold by the Underwriters to certain dealers at prices lower than the initial public offering prices for the 2011 Bonds, and the public offering prices may be changed from time to time. In connection with this offering, the Underwriters may over allot or effect transactions which stabilize or maintain the market price of the 2011 Bonds at a level above that which might otherwise prevail in the open market. Such stabilizing, if commenced, may be discontinued at any time.

J.P. Morgan Securities LLC ("JPMS"), one of the Underwriters of the 2011 Bonds, has entered into negotiated dealer agreements (each, a "Dealer Agreement") with each of UBS Financial Services Inc. ("UBSFS") and Charles Schwab & Co., Inc. ("CS&Co.") for the retail distribution of certain securities offerings, including the 2011 Bonds, at the original issue prices. Pursuant to each Dealer Agreement, each of UBSFS and CS&Co. will purchase 2011 Bonds from JPMS at the original issue price less a negotiated portion of the selling concession applicable to any Bonds that such firm sells.

Morgan Stanley, parent company of Morgan Stanley & Co. LLC, an Underwriter of the 2011 Bonds, has entered into a retail brokerage joint venture with Citigroup Inc. As part of the joint venture, Morgan Stanley & Co. LLC will distribute municipal securities to retail investors through the financial advisor network of a new broker-dealer, Morgan Stanley Smith Barney LLC. This distribution arrangement became effective on June 1, 2009. As part of this arrangement, Morgan Stanley & Co. LLC will compensate Morgan Stanley Smith Barney LLC for its selling efforts with respect to the 2011 Bonds.

BMO Capital Markets is the trade name for certain capital markets and investment banking services of Bank of Montreal and its subsidiaries, including BMO Capital Markets GKST Inc. which is a direct, wholly-owned subsidiary of BMO Financial Corp. which is itself a wholly-owned subsidiary of Bank of Montreal.

RATINGS

Moody's Investors Service ("Moody's") and Standard & Poor's, a division of The McGraw-Hill Companies ("S&P"), have assigned their long-term municipal bond ratings of "A1" and "A+," respectively, to the 2011 Bonds. An explanation of the significance of such ratings may only be obtained from Moody's and S&P. There is no assurance that such ratings will continue for any given period of time or that they will not be revised or withdrawn entirely, if in the sole judgment of Moody's or S&P, circumstances so warrant. Any such downward revision or withdrawal of a rating may have an adverse effect on the trading value and the market price of the 2011 Bonds. The City makes no representations as to the appropriateness of the ratings.

MISCELLANEOUS

This Official Statement is not to be construed as a contract or agreement between the City and the purchasers or holders of any of the 2011 Bonds. Any statements made in this Official Statement involving matters of opinion, whether or not expressly so stated, are intended merely as an opinion and not as a representation of fact.

The information, estimates and expressions of opinion herein are subject to change without notice and neither the delivery of this Official Statement nor any sale made hereunder shall under any circumstances create any implication or permit any inference that there has been no change in the affairs of the City or the System since the date hereof. Certain projections contained herein are based upon assumptions as to future events and facts, including projections as to future water supply needs, and such projections may not be realized. While assumptions of facts appeared reasonable when made, no warranty is expressed or implied that they will be realized in fact. The information set forth herein has been obtained from the City and other sources believed to be reliable but the accuracy or completeness is not guaranteed by, and should not be construed as a representation by the Underwriters. Estimates and opinions are included and should not be interpreted as statements of fact. Summaries of documents do not purport to be complete statements of their provisions and such summaries are qualified by references to the entire texts of the documents. Under no circumstances shall this Official Statement constitute an offer to sell or the solicitation of an offer to buy, nor shall there be any sale of the 2011 Bonds, in any jurisdiction in which such offer, solicitation or sale would be unlawful prior to registration or qualification under the securities laws of any such jurisdiction.

Additional information may be obtained upon request from the Office of Debt Management, Attention: Donita Crumpler, Assistant Debt Manager, whose address is 1200 Coleman A. Young Municipal Center, Detroit, Michigan 48226 (telephone: 313-224-7244) or from the Deputy Director of the Department, Darryl Latimer, whose address is Water Board Building, 735 Randolph, Detroit, Michigan 48226 (telephone: 313-224-4784).

The Finance Director has approved this Official Statement pursuant to authority granted in the Authorizing Documents.

CITY OF DETROIT, MICHIGAN

By: /s/ Cheryl R. Johnson
Finance Director

APPENDIX A

Feasibility Report

TFG

THE FOSTER GROUP

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BART FOSTER, PRESIDENT
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BFOSTER@FOSTERGROUPLLC.COM

December 20, 2011

Mr. Darryl Latimer, Deputy Director
Detroit Water and Sewerage Department
Water Board Building
735 Randolph Street
Detroit, Michigan 48226

Dear Mr. Latimer:

In accordance with our agreement with the City of Detroit (the "City"), we submit herewith our Feasibility Report to be included as an appendix to the official statement ("Official Statement") prepared by the City in connection with its issuance of \$500,675,000 Water Supply System Revenue and Revenue Refunding Bonds, Series 2011 (the "2011 Bonds"). The purpose of this report is to present the findings of our evaluation of the water treatment and distribution system (the "System") owned by the City and operated by the Detroit Water and Sewerage Department (the "Department") and to set forth information concerning financial factors relating to the 2011 Bonds.

The report is separated into two major sections. The first section presents an evaluation of the System, which includes a discussion of the System service area; organization and management issues; an assessment of the water treatment and transmission and distribution systems; regulatory requirements; and the Capital Improvement Program (the "CIP") for fiscal years 2012 through 2016. The second section of the report contains the financial feasibility information including analyses of water rates and rate methodology, projections of revenues under existing rates, projection of future operation and maintenance expenses, CIP financing, the impact of projected revenue requirements on future revenues and water rates, and the ability of the Department to meet the "Additional Securities Test" as defined in the City ordinance authorizing the issuance of the 2011 Bonds and other bonds of the System (the "Bond Ordinance.") A listing of our major opinions developed as a result of our studies is presented at the end of the report. Reports summarizing detailed assessments of the physical facilities and regulatory requirements are included as appendices to the report.

THE FOSTER GROUP offers financial and engineering management consulting services to a broad customer base, specializing in services for municipal utility clients in the United States. Our principal experience includes: managing financial planning, cost of service, and rate design studies for water and wastewater utilities; preparation of Feasibility Reports in conjunction with issuance of municipal water and sewer revenue bonds; development of other feasibility reports; design of financial management information systems; consulting assistance regarding contractual and other relationships amongst municipalities, and expert witness services in utility litigation matters.

THE FOSTER GROUP maintains cooperative arrangements with several other professional service firms, large and small, to facilitate effective delivery of a wide variety of specialized consultative services. In preparing this report, we have been assisted by Metco Services, Inc., CH2MHill, and Hinshon Environmental Consulting. Metco Services, Inc. was responsible for the physical evaluation of the water treatment and distribution system and a review of the July 2010 CIP. CH2MHill provided assessment of July 2010 CIP and insight on development of the July 2011 CIP. Hinshon Environmental Consulting was responsible for the assessment of regulatory requirements.

Metco Services, Inc. (METCO) provides Consulting, Engineering, Architectural and Surveying services to various public and private institutions with primary focus on water and wastewater system improvement projects. METCO's primary experience is in Southeastern Michigan and METCO has provided extensive services to the Department.

CH2MHill is a global leader in full-service engineering, construction, and operations. CH2MHill also has extensive experience providing services to the Department, and was the principal author of the 2004 Master Plan for the System.

Hinshon Environmental Consulting has been providing assistance to Michigan municipalities on environmental regulations and requirements since the company was formed in 1991. The firm's focus is on water pollution control facilities and public water supplies that are regulated pursuant to the requirements of the Federal Clean Water Act, the Federal Safe Drinking Water Act and the Michigan Natural Resources and Environmental Protection Act. The firm's expertise includes assistance on acquiring NPDES discharge permits, the establishment of effluent limits, sampling and monitoring requirements, the development of compliance schedules for capital improvements, watershed management efforts and source water protection measures. HEC has represented numerous clients on issues relating to current and emerging regulatory requirements, and participates on several advisory committees to provide input to U.S. EPA and the Michigan Department of Environmental Quality (MDEQ) on environmental protection policies and programs.

Various reports have been issued in connection with the collective work for the Department conducted by THE FOSTER GROUP, Metco Services, Inc., CH2MHill, and Hinshon Environmental Consulting are available for public inspection at the offices of the Department.

It has been a pleasure to be of service to the Department on this matter.

Very truly yours,

THE FOSTER GROUP

A handwritten signature in black ink, appearing to read 'Bart Foster', written in a cursive style.

Bart Foster
President

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Introduction

This report is based on our analysis of the records and capital improvement programs of the Department, physical inspection of certain above ground facilities, discussions with key Department personnel, and such other investigations as we have found necessary.

In this report, where standards or requirements are indicated as being applicable, being fulfilled, or to be attained, such standards or requirements are those promulgated by the United States Environmental Protection Agency (the "EPA") and the Michigan Department of Environmental Quality (the "MDEQ") in accordance with the provisions of Federal laws and the laws of the State of Michigan governing the supply of drinking water. Capitalized terms not otherwise defined herein shall have the same meaning as ascribed to them in the Official Statement. References made herein to specific years are for the fiscal years ending June 30, unless otherwise noted.

The proceeds from the 2011 Bonds, along with available fund balances, loans from the Michigan State Drinking Water Revolving Fund ("DWRF"), and internally generated funds will be utilized to finance capital improvement expenditures scheduled in the CIP for 2012, 2013, and a portion of 2014 (the "Project"). The remaining capital improvement expenditures scheduled for 2014 and beyond are expected to be financed, in part, with future bond issues. A portion of the proceeds from the 2011 Bonds will also be used to pay swap termination fees with respect to certain swap contracts associated with Water Supply System Bonds, and to refund certain outstanding Bonds. *See "Capital Improvement Program Financing."*

In conducting our studies and formulating our projections and opinions contained herein, we reviewed the books, records, agreements, capital improvement programs and other information produced by the Department as we deemed necessary. While we consider such books, records, and other documents to be reliable, we have not verified the accuracy of these documents.

The projections set forth in this report below are intended as "forward-looking statements". In formulating these projections, we have made certain assumptions with respect to conditions, events, and circumstances that may occur in the future. The methodology we utilized in performing these analyses follows generally accepted practices for such projections. Such assumptions and methodologies are summarized in this report and are reasonable and appropriate for the purpose for which they are used. While we believe the assumptions are reasonable and the projection methodology valid, actual results may differ materially from those projected, as influenced by conditions, events, and circumstances that may actually occur. Such factors may include the Department's ability to execute the CIP as scheduled and within budget, regional climate and weather conditions affecting the demand for water, and adverse legislative, regulatory or legal decisions (including environmental laws and regulations) affecting the Department's ability to manage the System and maintain water quality.

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Water Supply System Evaluation

Introduction

The water treatment and distribution system (the “System”) consists of three major intake facilities, five water treatment plants, a conveyance system that consists of over 3,400 miles of transmission and distribution mains throughout the system, 20 booster pumping stations, and 15 water storage reservoirs. The Systems Control Center located in the Water Board Building monitors and controls the water flow and pressure throughout the system.

Service Area

The System is one of the largest in the nation in terms of water produced and population served, as the Department is responsible for treatment and distribution of water to most of southeast Michigan. The System presently serves an area of 981 square miles in Wayne, Oakland, Macomb, Lapeer, Genesee, Washtenaw, St. Clair, and Monroe Counties. *See map, inside back cover.* The Department currently serves an estimated population of 3.8 million, with suburban wholesale customers comprising approximately 80 percent of the total. The System is the sole provider of all water service in the City on a retail basis.

Population in the service area has declined in recent years, after remaining relatively stable in the prior 20 years. This decline is largely attributable to the recent recession, which has hit the Southeastern Michigan region particularly hard.

The Department experiences no material competition from other water supply systems in the Southeastern Michigan region. However, for the past several years Genesee County and the City of Flint (through which Genesee County currently purchases water from the System) have been evaluating the feasibility of building a new, independent water system and discontinuing the purchase of water from the System. These communities formed the Karegnondi Water Authority (the “KWA”), and other small communities in the northern area of the System’s service area have expressed various levels of interest in joining the KWA. Communication between the System and the KWA, designed to result in new negotiated service agreements with the Department, has been intermittent over the past several years, and recently have gained new momentum. The KWA communities account for approximately 6 percent of the System’s water use and revenue. While the Department believes that continuing to purchase System water is in the best interests of the KWA communities (and in the best interests of the region) it is prepared to manage the System without serving those customers.

Even if the KWA communities decided to proceed with an independent system, separation from the System would not be possible for at least 7 years. The Department intends to protect its contractual rights in this matter and to pursue renegotiation of all service agreements to ensure long-term stability to the service area.

Master Plan & Master Plan Update

In 2004 the Department completed a master planning study that evaluated the physical System needs over the next 50 years. That study included participation from community leaders and other representatives of all customer communities served by the System, in order to determine potential demands that would be placed on the System. The master plan concluded that the demand for water within the region will most likely grow significantly over the next 50 years, but that this demand could generally be met from the existing treatment facilities (with upgrades) and that no new water treatment

plants would be necessary. The master plan primarily focused on investments in transmission and distribution facilities that will be necessary to ensure reliability of service to all customers.

As noted above Southeastern Michigan has experienced an economic downturn in recent years, contributing to declining population and water demands. Recent water use patterns have not met the demands anticipated by the 2004 Master Plan and the Department is in the early stages of initiating a new project to update the Master Plan effort to guide capital investments in the short-term and long-term future. The first step in that process involved a preliminary assessment of the then existing CIP (published in July 2010), which was largely driven by findings from the 2004 Master Plan and included significant investments to rehabilitate some of the older water treatment plants. The Department believes that it may be feasible to take one or more of the five water treatment plants out of service and still meet the demands of the service area, thereby eliminating hundreds of millions of dollars of needed investment identified in the July 2010 CIP.

The Master Plan Update is being structured to formally assess the feasibility of “down sizing” System’s existing water treatment and production capacity and to identify improvements in the water transmission and distribution system that would be necessary to pursue that that solution. As a first step in assessing the overall feasibility of this concept the Department commissioned a study to review recent demand levels and System capacity capabilities, evaluate the potential of pursuing the “right sizing” strategy, and identify next steps to further explore the concept. The study was conducted by CH2MHill and published in June 2011, and is included as Appendix B-1 to this report. The study concluded that it is indeed feasible to pursue this strategy, promoted additional study, and identified several improvements in the July 2010 CIP that it suggested be deferred or eliminated pending the results of additional study.

The Department relied heavily on the CH2MHill report in developing the new CIP, which was approved by the Board and published in July 2011. One of the key projects in the July 2011 CIP is the Master Plan Update. The Department anticipates that the water demands identified in the Master Plan Update will not be projected to grow significantly in the short term, and that longer-term growth will be much less significant than those from the prior study. In addition to evaluating the appropriate System water treatment and production capacities, the Master Plan Update will also re-evaluate the transmission and distribution improvements to be included necessary to provide service under the selected production scenario. The Department anticipates that the Master Plan Update will be completed in time to impact the July 2013 CIP. *See "Capital Improvement Program."*

Note – the CH2MHill evaluation included as Appendix B-1 is intended to augment the evaluation of the physical facilities performed by Metco Services, which is included as Appendix B-2 to this report. Metco’s evaluation largely focused on the improvements identified in the July 2010 CIP.

Customer Education and Involvement

The Department continues to execute its extensive customer education and involvement program with its retail customers and its wholesale customer communities. This program is designed to provide information on many topics. The initial education program seeks to furnish data regarding water rates. The Department conducts frequent meetings with its suburban wholesale contract customers and with representatives of all suburban communities, including those “second tier” communities that receive service from districts that contract directly with the Department. A major goal of this program is to solicit input regarding financing options and cost allocation approaches. The most significant accomplishment of this program is the creation of new, standardized model service agreement, as discussed below.

Service to Customer Communities

Service is provided on a retail basis within the City to an area of approximately 138 square miles and on a wholesale basis to 124 surrounding communities and the governmental entities through contracts with 84 customers. As a matter of policy, the City does not generally contract with individual or corporate consumers outside the City, but only with the public entities including cities, villages, townships, and public water and utility authorities.

Customer Outreach

The Department continues its significant outreach efforts with representatives of its suburban customer communities. The participants have created a Technical Advisory Committee (“TAC”), which has established a framework for discussion of major issues between Detroit and all of its suburban wholesale customers. The TAC has established multi faceted teams to explore several issues on a variety of topics, including emergency preparedness, service contracts, water rates, and communication strategies.

The most significant accomplishment of the TAC is the development of a new model contract with standardized contract language. This document was designed to ensure that all wholesale customers are treated equitably and similarly. It also provides the Department with the same rights and controls across all agreements. Standardized model contract language was developed to address items such as contract term lengths, contract renewal, flow limitations, flow enforcement provisions, flow measurement, regulatory compliance, connection points, and contract enforcement. To date, contracts for 71 wholesale customers have been negotiated, approved, and are in effect. Negotiations with a few additional communities are ongoing.

The TAC Water Rates Work Group has made great progress in creating greater understanding of the Department’s water rate methodology and of issues impacting rates and rate levels. It has proved to be an excellent forum for communicating rate methodologies, exploring alternative approaches to allocating costs to customers, and building consensus regarding the development of water rates. This Work Group is currently developing potential modifications to the water rate model that would be designed to utilize the best available technical information to improve the understanding of water rates, and the perceived equitability.

Representatives of customer communities have expressed appreciation of the Department’s willingness to sponsor these partnering programs and the opportunity to be involved in the process. The partnering groups have authored letters to Department management requesting that the partnering effort continue in its current form.

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Organization and Management

System Governance

The Department, pursuant to the City Charter, is empowered through its Board of Water Commissioners (the "Board") to provide water and wastewater service within and outside the City. The seven member Board is appointed by the Mayor and has the authority to execute contracts, set policy for the Department, and to establish rates for water and wastewater service.

A series of recent developments under the auspices of the United States District Court (the "Court") have redefined the Board structure and its responsibilities. While these developments were primarily designed to ensure long-term compliance with environmental regulations for the Department's wastewater operations, both utilities share common management structures and administrative functions and the provisions set forth via Court order are applicable to both systems.

In February 2011 the Court issued a "Stipulated Order" that redefined certain of the Board's responsibilities and reconstituted the manner in which the Board would be appointed. Among the provisions of that order:

- The Board would continue to comprise of seven members, four from Detroit and one each from Wayne, Oakland, and Macomb Counties;
- The suburban representatives would be nominated by key executives of each of the three counties and subsequently appointed by the Mayor;
- Only two of the then existing Board members would be retained, all others must be newly appointed;
- Board members must meet certain qualifications regarding professional experience;
- Board members will now be (moderately) compensated;
- The Board may engage a staff of three, designated to be in the fields of Law, Finance, and Engineering or Operations;
- Board by-laws must be re-written to require a "super majority" of five votes to pass proposed rates and capital improvement programs.

The February order further stated that the Court's intent (within a review period of six months) was for the parties to file a motion for dismissal of the underlying case by demonstrating that the Department's wastewater operations were in substantial compliance with environmental regulations. The Court signaled that if satisfactory compliance had been achieved it would dismiss the case.

In July 2011 the City filed a motion to dismiss the case, and replace the Court's "Amended Consent Judgment" with an "Administrative Consent Order" that the City had entered into with the DEQ. Representatives of suburban customers issued a brief in opposition, or at least to compel extraordinary modifications to the Department's governance and operating structures prior to dismissal of the case. The Court subsequently (in September 2011) denied the City's motion to dismiss, and ordered the establishment of a committee of four to meet, confer, and within 60 days issue a recommended action plan to ensure sustainable compliance. The Court advised the committee to not be constrained by City of Detroit Charter provisions, or by provisions of union or other contracts, and signaled that if the committee's recommendations did not adequately constitute a workable solution, the Court would "directly order a more intrusive remedy." This committee, which was made up of a designee of the Mayor, the President and President Pro Tem of the Detroit City Council, and a representative of the Board, became known as the "Root Cause Committee".

The Root Cause Committee filed a report with the Court on November 2, 2011, which was largely incorporated into an order filed by the Court on November 4, 2011. The principal recommendations of

the Root Cause Committee report, and the provisions of the November 4 Order are designed to produce more autonomous Department operations and include:

- The Department will continue to remain an enterprise fund of the City of Detroit, and all assets of the water and wastewater systems will remain property of the City of Detroit;
- The Department's labor relations will no longer be governed by the Collective Bargaining Agreements (CBA) that are applicable to all other City of Detroit departments. It is envisioned that separate agreements and provisions will be established that are specific to Department needs. The order strikes and enjoins all other provisions that are deemed to threaten compliance;
- The Department will be exempted from the City of Detroit's procurement ordinance and will establish procurement policies that will facilitate efficiency and long-term compliance;
- The Department will establish and distinct (from the City of Detroit) resources for provision of the finance, procurement, law, human resource, and information technology services that are currently being provided by the City of Detroit;
- Rates for suburban customers will no longer be subject to approval by the Detroit City Council;
- Future Directors will continue to be appointed by the Mayor, but will be engaged with advice from a search committee that includes representation from a suburban Board member and the Detroit City Council. Removal of future Directors will require a super majority of either the Board or the City Council.

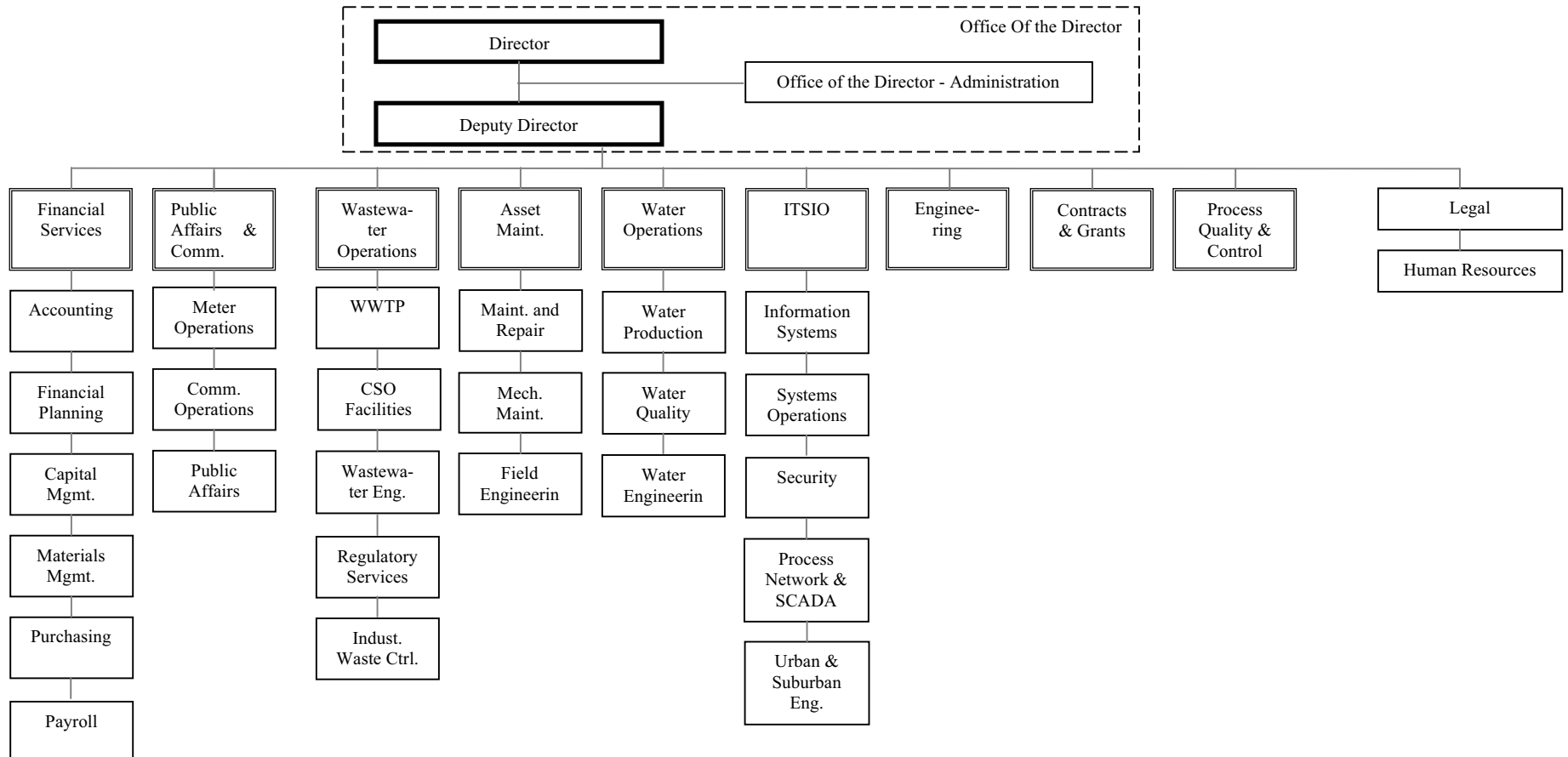
The Root Cause Committee also identified potential additional considerations to recommend, including an "Efficient Compliance Payment" concept that would promote further efficiency improvements within the Department, and an opportunity to share the benefits of such improvements with the Department, the City, and Department staff and customers. However, the committee could not achieve a consensus recommendation regarding the specifics of this complex topic. The Order directs the Root Cause Committee to continue deliberations on this topic and to report back within 60 days. The Court also directed other implementation steps, and set forth a revised time frame upon which the Department may file a motion seeking to dismiss the case.

The stated intent of the Order(s) and the Plan of Action was to institute policies and procedures that provide Department management with more nimble and flexible tools with which to meet its environmental obligations. While the Department has successfully utilized existing policies to meet its obligations for the System, the Root Cause Committee concluded that these policies were not well designed for the unique challenges of managing a large, regional municipal utility serving a significant population outside its jurisdictional limits. The new human resources and procurement policies resulting from the Order should enhance the implement the Department's ability to implement its strategic planning initiatives.

Department Management

The Department's current management structure is illustrated in Figure 1. A Director and Deputy Director provide executive leadership for the Department. The position of Director is currently vacant, but a new Director has been hired and will assume leadership of the Department on January 2, 2012. Additionally, the City's Chief Operating Officer, who was appointed to that position in January 2011, has effectively been serving as acting Director of the Department, and has been actively involved as the City's primary representative in the Court's deliberative process discussed above. The Deputy Director has over 25 years of Service with City of Detroit, and over 21 years with Department, and previously served as the manager of the Department's Contracts and Grants Division. He was appointed Deputy Director in February 2010.

Figure 1
Detroit Water and Sewerage Department Organization



A nine member Executive Management Team (EMT), each of whom serves as an Assistant Director or a Division Manager and is responsible for specific functions, supports the Director's office. The vast majority of the EMT has considerable managerial experience either with the Department or with other municipal agencies. The Assistant Directors have significant experience with the Department and other utilities. All Executive Management Team positions are permanently filled, and most of the Assistant Directors have advanced through the ranks of the Department to his/her present position. Overall, the experience and qualifications of the Department's executive staff are commensurate with their duties and responsibilities.

NOTE – several alternative operating structures have been explored as part of the strategic planning initiatives, and it is possible that the current structure will be modified once the new Director is in place.

Staffing and Labor Relations

The Department's 2012 Budget provides funding for 2,767 positions, of which 951 positions are classified as strictly Sewerage System and 206 positions are classified as strictly Water System. The remaining 1,606 positions are budgeted in groups that provide service to both the Sewerage and Water Systems. The Department allocates the costs associated with these positions to the two Systems either on the basis of actual time charged or on estimates developed. The Department estimates that approximately 50 to 60 percent of the work force in these areas work on the Water System.

As noted above the manner in which the City's collective bargaining agreements impact Department operations is under review. While the City's existing contracts are scheduled to expire June 30, 2012, the Order provides the Department with substantial flexibility in managing its human resources and the Department does not believe that any interruption of service from the unionized work force will occur.

The projections of operating expense in this report include annual increases of two percent for labor costs beginning in 2013. See *"Operation and Maintenance Expense Projections."*

Management Initiatives

The Department recently developed a new strategic plan that contains nine key initiatives, all of which are designed to enhance and ensure sustainable service levels.

1. Achieve substantial compliance (*wastewater specific*);
2. Improve customer service/communication;
3. Operate efficiently and improve performance;
4. Make procurement more transparent and efficient;
5. Create a financial plan;
6. Create a capital plan;
7. Simplify rates;
8. Management team holds each other accountable;
9. Set up new governance structure

These individual initiatives each contain short-term, mid-term, and long-term action plans, which have been launched and achieved to varying degrees. The CIP and financial forecasts presented herein are part of the individual initiatives and key components to the overall strategic plan. All of the initiatives are being consolidated into the modified operating scenario being explored by the Root Cause Committee,

and are subject to further modifications pending the results of that group's deliberations and recommendations.

Regulatory Requirements

There are numerous federal and state regulatory requirements that directly or indirectly impact the System. These include the Federal Safe Drinking Water Act, the Clean Water Act, and the Michigan Natural Resources and Protection Act (the "Michigan Environmental Code"), and the administrative rules and regulations that have promulgated pursuant to these statutes. These programs affect many facets of the System, including design, construction and operation of water intakes, water treatment plants, storage facilities and the water distribution system, the quality of finished water distributed to retail and wholesale customers, management and disposal of filter backwash water, and the handling, storage and management of hazardous materials.

The Federal Safe Drinking Water Act establishes Maximum Contaminant Levels (MCL's) for many parameters to protect the public health of consumers. MCL's have been adopted for microorganisms, disinfectants, disinfection byproducts, inorganic chemicals, organic chemicals, and radionuclides. The Safe Drinking Water Act also establishes monitoring requirements for community water supplies, and requires that specific treatment techniques such as filtration be used to remove contaminants to specified levels. In addition, U.S. EPA has adopted National Secondary Drinking Water Regulations, which are non-enforceable guidelines for contaminants that contribute to cosmetic effects such as skin or tooth discoloration, or aesthetic concerns such as taste, odor and color in drinking water. The Safe Drinking Water Act also includes requirements relating to the preparation and distribution of consumer confidence reports, and source water assessment studies to ensure that raw water intakes are adequately protected.

The System's water treatment facilities are in compliance with all current federal and state drinking water regulations. The System has demonstrated the ability to produce finished water of exceptional quality as evidenced by low turbidity levels, and the absence of any water quality violations. The Department is implementing corrosion control activities through the application of phosphoric acid at its five water filtration plants. Filter backwash water is disposed of in accordance with requirements set forth by the MDEQ.

Additional details on these regulatory requirements and the current status of the System is included in Appendix B-3, which further summarizes the regulatory requirement evaluation performed by Hinshon Environmental Consulting.

Water Treatment and Distribution Facilities

Metco Services, Inc (METCO) conducted an evaluation of the water treatment and distribution facilities in April 2011. The evaluation included an assessment of each of the System's various components, including a physical inspection of all above ground treatment, distribution and storage facilities and a review of reports and studies conducted by others.

METCO's evaluation assessed the general physical condition of the System's facilities, and the appropriateness of the existing CIP to provide for needed improvements. At the time of the METCO evaluation, the CIP projects were those included in the July 2010 CIP. The METCO evaluation report is included as Appendix B-2 to this report.

METCO used three rating categories (good, adequate, and poor as described below) to characterize the general physical condition of the System's facilities.

- *Good:* The facility is in condition to provide reliable operation in accordance with design parameters and requires only routine maintenance.
- *Adequate:* The facility is operating at or near design levels; however, non-routine renovation, upgrading, and repairs are needed to ensure continued reliable operation. Significant expenditures for these improvements may be required.
- *Poor:* The facility is not being operated within design parameters. Major renovations are required to restore the facility and assure reliable operation. Major expenditures for these improvements may be required.

In general, METCO is of the opinion that the treatment facilities are in adequate to good operating condition. The new Water Works Park plant was recently placed into service and is in good condition. Certain elements of two water treatment plants (Northeast and Southwest) are in poor condition and require scheduled improvements to continue to adequately operate at design levels. **These two plants are the two that will be further evaluated as part of the Master Plan Update to determine their future operating scenarios.** See *"Service Area: Master Plan and Master Plan Update."*

The transmission and distribution system is generally in adequate to good condition – although certain reservoirs are in poor condition. The CIP contains the necessary improvements to address the condition of these facilities.

Additional details regarding each of the major System facilities, including functional operating highlights and evaluation opinions, are included in Appendix B-2.

Historical Water Sales and Non-Revenue Water

A summary of historical water sales, water production, and “non-revenue” water (reported in thousands of cubic feet – “Mcf”) is presented in Table 1. Water sales of the System have declined significantly in the past decade, driven in part by the effects of the recent economic downturn. Additional variances over this period can be attributed to the impact of weather patterns on water demands.

Table 1
Water Supply System Water Sales and Non-Revenue Water

	Fiscal Year Ending June 30,				
	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>	<u>2011</u>
Water Sales Volumes - Mcf					
Suburban Wholesale	18,417,900	18,405,500	16,682,100	15,676,300	16,094,700
Detroit Retail	4,927,000	4,145,500	4,138,100	3,924,000	4,176,600
	-----	-----	-----	-----	-----
Total	23,344,900	22,551,000	20,820,200	19,600,300	20,271,300
Total Water Production - Mcf	28,063,000	29,360,700	27,180,700	25,142,700	26,513,000
Non-Revenue Water - Mcf	4,718,100	6,809,700	6,360,500	5,542,400	6,241,700
Non-Revenue % of Production	16.8%	23.2%	23.4%	22.0%	23.5%

The System, as is common with all water systems, experiences a differential between the quantity of water produced by the treatment plants during the fiscal year and the quantity of water billed during

that same period of time. The differential is referred to as "non-revenue water" and is the result of factors such as range of accuracy of production and retail meters, losses due to leaks or major breaks in the transmission and distribution system, unmetered water that is used for fire protection, and accuracy of estimates for unmetered water use.

The last column of Table 1 shows the non-revenue water as a percentage of total system production for the last five years. The Department believes that the increase in the reported non-revenue water percentage starting in 2008 is partially attributable to a change in the manner by which production at the water plants is reported. This production is not metered, but is rather estimated based on pump curves, which were adjusted during 2008. This data continues to be reviewed, and efforts to refine production figures are under investigation. Considering the age and size of the System, an average level of non-revenue water of 20 percent is not uncommon. Having said that, mitigating this reported level is (and should be) a goal of the Department.

Total elimination of non-revenue water is not achievable. Realistically, only a moderate improvement should be expected. The most efficient water facilities (mostly in regions where raw water sources are scarce) still experience non-revenue water levels between 4 and 8 percent.

The only cost savings that can be achieved through reducing the level of non-revenue water are those associated with fixing leaks in the system. These cost savings would be further limited to only the variable costs of producing water, such as pumping and chemicals, which are generally less than 15 percent of the total cost structure of the water utility. If the Department were to reduce the level of non-revenue water by 50 percent, the true annual savings would be approximately \$4 million. Accomplishing this task would likely require a significant investment.

The Department continues its efforts to address the aging infrastructure serving its customers. As leaks are identified, repairs are scheduled and completed. The annual allotment of funding for replacement of distribution mains in the City of Detroit is approximately \$20 million.

In general, water meters tend to run "slow" as they age. In other words, they record less flow than is actually passing through the connection to the customer. This "meter slippage" is often a major contributor to unaccounted for water totals. The Department has rehabilitated 286 water meter pits, installing master water meters, and replacing master meter vaults. The new system utilizes digital automatic meter reading (AMR) equipment and radio based SCADA equipment. This allows real time water usage data to be gathered electronically, reduce the overall number of field visits, provide rapid notification of meter flow measuring problems to minimize estimated billings, and enables the Department to verify adequate flow and pressure readings by each customer on a continuous basis. It also allows the Department to remotely monitor peak flows in the system and manage the flow limitations in the new service agreements.

The Department is nearing completion of a program to replace all retail billing meters in the System and install automatic meter reading devices. This program is designed to provide more accurate, timely water use information in an efficient manner. In addition, the new metering equipment will better detect water losses, produce flow projections used in developing annual water rates, and help provide necessary data to assess future water demand. The meter replacement and distribution main replacement programs included in the Project and later in the CIP should help control or reduce the amount of non-revenue water in the future. To date the program has converted nearly all of the large, commercial and industrial accounts and approximately 75 percent of the residential accounts.

Capital Improvement Program

The Department's Capital Management Group is responsible for coordinating the evaluation of capital needs and developing programs to meet those needs. This capital planning committee formally reviews the Capital Improvement Program and incorporates revisions into the five-year capital agenda on an annual basis. The CIP is dynamic and requires continual review and modification during the course of each year. The current CIP is based on estimates of future capital costs as of June 30, 2011. The estimates for the 2012 ongoing projects are based on remaining costs as of June 30, 2011. As additional cost information is developed from design work being performed on the various projects, cost estimates are adjusted accordingly.

A summary of the CIP for 2012 through 2016 is presented in Table 2. For each year, the CIP is divided into the major categories of Plant Replacement and Renovation, Metro Area Construction, Urban System Improvements, Maintenance and Repair, Mechanical Maintenance, and Computer Systems. In addition, the Plant Replacement and Renovation category is further identified by specific plant and by pumping stations and reservoirs.

Table 2
Water Supply System Capital Improvement Program
Projected Expenditure Schedule - Fiscal Years 2011 through 2015

<u>Category</u>	<u>Fiscal Year Ending June 30,</u>					<u>Total</u>
	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>	
	\$	\$	\$	\$	\$	\$
Plant Replacement and Renovation						
General Plant	10,320,000	11,836,000	9,146,000	2,625,000	785,000	34,712,000
Water Works Park	0	0	0	0	0	0
Springwells	4,024,000	38,150,000	67,945,000	58,885,000	60,841,000	229,845,000
Northeast	12,001,000	10,000,000	0	0	0	22,001,000
Southwest	26,824,000	21,305,000	279,000	0	0	48,408,000
Lake Huron	150,000	2,000,000	3,000,000	900,000	0	6,050,000
Pumping Stations & Reservoirs	<u>5,523,000</u>	<u>3,300,000</u>	<u>2,950,000</u>	<u>3,300,000</u>	<u>3,300,000</u>	<u>18,373,000</u>
Subtotal - Plant	58,842,000	86,591,000	83,320,000	65,710,000	64,926,000	359,389,000
Metro Area Construction	17,040,000	46,000,000	41,000,000	21,100,000	10,000,000	135,140,000
Urban System Improvements	13,251,000	8,800,000	11,000,000	10,800,000	10,000,000	53,851,000
Mechanical Maintenance	5,000	0	0	0	0	5,000
Computer Systems	<u>1,832,000</u>	<u>1,400,000</u>	<u>2,400,000</u>	<u>1,000,000</u>	<u>1,000,000</u>	<u>7,632,000</u>
Subtotal	32,128,000	56,200,000	54,400,000	32,900,000	21,000,000	196,628,000
Total System	90,970,000	142,791,000	137,720,000	98,610,000	85,926,000	556,017,000

The Project includes expenditures scheduled for 2012, 2013, and a portion of 2014. The CIP (and the Project) is primarily focused on rehabilitating the Springwells Water Treatment Plant, which currently produces the most water of any of the five plants, and on construction of new transmission mains (in the Metro Area Construction section) to ensure reliable delivery of water in certain segments of the System.

As noted above, the July 2011 CIP is largely driven based on the results of the preliminary assessment of the feasibility of removing one or more of the five-water treatment plants out of service. See "Service Area: Master Plan and Master Plan Update." As such, it reflects reduced levels of investment than those identified in prior CIPs while DWSD strategically "right sizes" capacity and service levels. The CIP contains investment allowances for short-term improvements at the Northeast and Southwest plants in order to allow them to provide reliable service while their ultimate operating scenario is determined through the Master Plan Update. Identification of the most appropriate capacity levels for

each of the five water treatment plants is the principal goal of that study. The Department believes that the Master Plan Update will be completed within two years, and will results a July 2013 CIP that begins to implement the updated Master Plan. Interested parties should not expect the July 2012 CIP to reflect major changes from the July 2011 CIP.

As discussed above, the System's CIP has undergone significant restructuring in recent years as a result of Department management's reaction to the dynamic changes in water demands. Additional changes should be expected as the Department identifies the most appropriate strategic plan for capital investment to meet the demands of the region. The Master Plan Update is designed to serve as a key tool in development of that strategy and identification of future capital projects and programs.

Financial Feasibility for the 2011 Bonds

The financial data used in the analyses presented herein was obtained from the financial records of the Department. The Department's financial records are audited annually and maintained in conformity with generally accepted accounting principles for water and wastewater utilities.

The projections set forth herein are intended as "forward-looking statements". In formulating these projections, The Foster Group has made certain assumptions with respect to conditions, events, and circumstances that may occur in the future. The methodology utilized by The Foster Group in performing these analyses follows generally accepted practices for such projections. Such assumptions and methodologies are summarized in this report and are reasonable and appropriate for the purpose for which they are used. While The Foster Group believes the assumptions are reasonable and the projection methodology valid, actual results may differ materially from those projected, as influenced by conditions, events, and circumstances that may actually occur. Such factors may include the Department's ability to execute the CIP as scheduled and within budget, regional climate and weather conditions affecting the demand for water, and adverse legislative, regulatory or legal decisions (including environmental laws and regulations) affecting the Department's ability to manage the System and maintain water quality.

Rate Methodology and Existing Rates

The Department's water rates are developed to provide sufficient levels of revenue to meet all operation and maintenance expenses of the System, debt service requirements on obligations issued for the System, capital improvement expenditures to be funded from current revenues, and other specific bond ordinance and revenue requirements. Water rates are developed for retail and wholesale customers by determining the total costs of service and individual customer water service requirements. Water rates for wholesale customers are developed on the "utility" basis, in conformance with State of Michigan statutes. Under the "utility" basis, wholesale customers are charged rates developed to recover cost of service as represented by operation and maintenance expense, depreciation expense, and a return on the investment the City has made in wholesale service facilities. The rate of return charged to wholesale customers has averaged between six and seven percent in recent years. Water rates for retail customers within the City of Detroit are determined in the same manner, except that the rate of return is calculated to meet the System's cash requirements. The rate of return charged to City of Detroit customers is generally lower than that charged to wholesale customers, reflecting the City's ownership of the System and the associated risks, rights, and responsibilities of investing in water service facilities. The rates charged to retail customers also include costs associated with the distribution system within the City of Detroit and bad debt expense for all customers of the System.

The current water rates for retail customers within the City, which became effective July 1, 2011, include three block rates ranging from \$18.09 per thousand cubic feet for the first block to \$14.85 per thousand cubic feet for the last block and a fixed service charge which varies by the size of the customer's water meter. The average unit cost of the rate structure charged to wholesale customers is \$16.14 per thousand cubic feet. These rates represent an overall increase of approximately 9.1 percent over the previous year's rates.

Service to customers outside the City is on a wholesale basis through contracts with various municipalities and governmental entities. Separate rates are developed for each wholesale customer recognizing the total revenue requirement of the System, and each customer's water usage, demands on the System, and the distance and elevation relative to the water treatment plants. In recent years the structure of the wholesale rates has been modified to recover more costs through a fixed component of the rate structure, and less through a commodity charge. This initiative is designed to more closely align the manner in which costs of service are allocated to customers and the manner in which such costs are recovered from customers, thereby further enhancing the equitability of water rates. In 2010 rates were designed to recover the entire wholesale revenue requirement through commodity charges. The 2011 rates reflected the first step in a phased approach and recovered approximately 10 percent of the revenue requirement through fixed charges. This portion was increased to approximately 27 percent in 2011 and plans for 2013 are to design rates that recover approximately 40 percent of the revenue requirement through the fixed monthly charge component. In addition to enhanced cost allocation and cost recovery alignment, this initiative also dampens seasonal and annual fluctuations in System revenues.

The Department's water rate methodology is sound and strives to utilize the best available, verifiable information to allocate costs to individual customer communities in the most equitable fashion possible. Few challenges to the Department's water rates have been filed over the years, and the Department has prevailed in every instance. Because of the many variables used in the Department's water rate model to define use of the System by each customer community, it is quite complex. That complexity has occasionally contributed to perceptions of inequity among certain customer community representatives. In order to address these perceptions and achieve a greater understanding of the water rate development process, the Department has taken a number of steps to improve communication with the wholesale customers including the scheduling of individual meetings with the wholesale customers to discuss the basis for proposed rate adjustments. These efforts are embodied in the Department's partnering agreements with representatives of the customer communities. The TAC Water Rates Work Group has met on a regular basis over the past year to explore issues impacting overall rate levels, cost allocation techniques, how information regarding use of the System should impact cost responsibility amongst customers, and (recently) how best to implement the strategic initiative of simplifying rates.

The customer outreach effort continues to implement the "rollout" process for disseminating information regarding the development of proposed water rates. This initiative accelerates the availability of information used in rate development, allowing for a greater understanding and review opportunity for the Department and customers alike. This schedule includes a series of customer meetings where information regarding water rates is formally distributed. Efforts such as these are creating a greater understanding of the water rate development process and have developing regional consensus on water rate issues. *See "Service Area."*

Projection of Revenues

Table 3 presents the estimated operating revenues for 2012 and projected operating revenues for 2013 through 2016. The Department's financial records account for revenue based on all volume billed at the appropriate fiscal year rate and as such approximately reflect treated water pumped during the fiscal year. The projections shown in Table 4 are developed on the same basis. The total operating revenues of the System consist of several components that are individually derived from various elements of the rate structure. For instance, volume charge revenue refers to water sales revenue from individual customers. Meter charge revenue refers to "readiness to serve" charges to individual customers that are not a product of the amount of water consumed.

Table 3
Projected Water System Sales and Revenues Under Existing Rates

	Fiscal Year Ending June 30,				
	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
	\$	\$	\$	\$	\$
Operating Revenue (a)					
Wholesale Customers	253,462,600	254,932,300	254,932,300	254,932,300	254,932,300
Retail Customers					
Volume Charge Revenue	66,324,500	66,324,500	66,324,500	66,324,500	66,324,500
Meter Charge Revenue	<u>23,702,900</u>	<u>23,702,900</u>	<u>23,702,900</u>	<u>23,702,900</u>	<u>23,702,900</u>
Total Retail Customers	90,027,400	90,027,400	90,027,400	90,027,400	90,027,400
Miscellaneous Revenue	<u>4,750,000</u>	<u>4,750,000</u>	<u>4,750,000</u>	<u>4,750,000</u>	<u>4,750,000</u>
Total Operating Revenue	348,240,000	349,709,700	349,709,700	349,709,700	349,709,700
Revenues are based on projected water sales of:					
Wholesale (Mcf)	15,853,400	15,975,000	15,975,000	15,975,000	15,975,000
Retail (Mcf)	<u>4,100,000</u>	<u>4,100,000</u>	<u>4,100,000</u>	<u>4,100,000</u>	<u>4,100,000</u>
Total Sales (Mcf)	19,953,400	20,075,000	20,075,000	20,075,000	20,075,000

(a) Based on application of FY 2012 rates for all years.

The projected water sales to wholesale customers were based on analyses of historical trends, discussion with the Department personnel, and analyses of specific information relating to individual customers. Water volume projections for 2012 through 2016 anticipate normal weather conditions and are based on an analysis of historical trends of ten years of actual data. Water sales for both wholesale and retail customers stabilized in the latter half of 2010 and in 2011, and this stabilization is anticipated to continue over the five-year period. The projected operating revenues are determined by applying the appropriate rates to the projected water sales for each wholesale customer and the City of Detroit retail customers, and reflect the water rate schedule currently in effect.

Miscellaneous Operating Revenue includes revenues generated through the sale of equipment, penalty charges, turn-on and shut-off fees, fire hydrant maintenance, and other operations.

Operation and Maintenance Expense Projections

Table 4 presents the estimated operation and maintenance expense for 2012 and projected operation and maintenance expense for 2013 through 2016. These projections have been developed based on a detailed review of actual expenses for 2010 and 2011 as well as budgeted and year-to-date actual expenses for 2012, and initial budget requests for 2013.

The Department has been remarkably successful at holding Department-wide operating expenses at current levels over the past ten years. We are confident that the Department's recent efforts to control costs will continue to yield positive results, as should implementation the provisions of the Court's Order. The cost-conscious environment established by management continues to be successful and performance could continue to improve as these programs are further implemented. However, new programs and the impacts of inflation will most likely not allow for the recent "no increases" in operating expense to continue. The short-term, transitional aspects of the Court's Order may contribute to initial increases in costs, as well.

The projections shown in Table 4 include recognition of the potential impact of anticipated escalation of costs due to inflation during the five-year planning period. The 2012 operating expense level is assumed to be equivalent to the 2012 budget. Actual operating expenses have not exceeded budget levels in recent years. The Department's budget initiative for 2013 targets a budget level that contains a very moderate increase from the existing budget, and the projections in Table 4 assume that this initiative will be achieved. While a detailed analysis of variable inflationary rates was conducted, in the final analysis all costs have been increased two percent annually, starting in 2014.

Table 4
Projected Operation and Maintenance Expenses

	Fiscal Year Ending June 30,				
	<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
	\$	\$	\$	\$	\$
Plant Expenses					
Personnel Costs	16,711,000	17,052,600	17,393,700	17,741,500	18,096,400
Contractual Services	2,448,500	2,498,500	2,548,500	2,599,400	2,651,400
Utilities					
Electricity	21,280,200	21,715,200	22,149,500	22,592,500	23,044,300
Other	4,760,000	4,857,300	4,954,400	5,053,500	5,154,600
Chemicals	11,689,900	11,928,900	12,167,500	12,410,800	12,659,000
Other	<u>2,710,100</u>	<u>2,765,500</u>	<u>2,820,800</u>	<u>2,877,200</u>	<u>2,934,800</u>
Total Plant	59,599,700	60,818,000	62,034,400	63,274,900	64,540,500
Non-Plant Expenses					
Water Distribution	16,962,900	17,309,600	17,655,800	18,008,900	18,369,100
Maintenance	31,833,100	32,483,800	33,133,500	33,796,200	34,472,100
Commercial & Meter Operations	11,256,500	11,486,600	11,716,300	11,950,700	12,189,700
Engineering	3,663,100	3,738,000	3,812,800	3,889,000	3,966,800
Administrative & General	<u>36,346,100</u>	<u>37,089,000</u>	<u>37,830,700</u>	<u>38,587,500</u>	<u>39,359,100</u>
Total Non-Plant	100,061,700	102,107,000	104,149,100	106,232,300	108,356,800
Total Operation and Maintenance	159,661,400	162,925,000	166,183,500	169,507,200	172,897,300

Capital Improvement Program Financing

Table 5 presents a plan for financing the System share of the CIP (Line 1) for the five-year period ending June 30, 2016. Within the constraints of the additional securities test and the Department's debt service coverage policies, the amount of bonds to be issued is designed to maximize the capital requirements financed with bond proceeds. Lines 2 through 14 outline the sources available to meet the CIP financing requirements. Line 2 shows the net balance in the Improvement and Extension ("I&E") Fund as of June 30, 2011, available to fund the CIP. Line 3 shows the amount projected to be transferred to the I&E Fund each year from current operating revenues. Total funds available from the I&E Fund are indicated on Line 4.

The capital financing available from the Construction Fund is indicated on Lines 5 through 13. Line 5 shows the net balance in the Construction Fund as of June 30, 2011, which is also available to fund the CIP. The total amount of the 2011 Bonds is approximately \$501 million and is shown on Line 6 under the column 2012. The net proceeds from the 2011 Bonds are shown on Line 11 and are approximately \$163 million, recognizing defeasance requirements for the Refunded Bonds totaling approximately \$103 million; swap termination payments of approximately \$222 million; and issuance expenses, (including a net premium and a deposit to finance Debt Service Reserve requirements) totaling approximately \$13 million.

The anticipated sizes of future bond issues are also shown on Line 6. It is assumed that all future bond issues will be sold at the mid-point of the fiscal year and will include capitalized interest for a period of one year. Issuance expenses are estimated at three percent of the issue size plus \$200,000 per issue for future issues and are shown on Line 10. The figures on this line include an amount equal to the estimated maximum future principal and interest payment to fund by Debt Service Reserve requirements. As noted earlier, the Master Plan Update is designed to identify appropriate strategic capital investments to best serve the region. When this project is complete, it is likely that the overall CIP will be modified and that a different level of future bond issues will be required.

Line 12 presents the proceeds from State Drinking Water Revolving Fund Loans. As the Department incurs expenditures for DWRF funded projects, the invoices are transmitted to the state administrators of the DWRF for remittance. As such, the amounts shown on Line 12 reflect the projected expenditure schedule of DWRF funded projects.

Lines 15 through 17 illustrate the projected application of financing sources to meet the CIP financing requirements stated on Line 1. The balance of funds available for subsequent years is shown on Lines 18 through 20 and is carried forward to Lines 2 and 5 in the next year.

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Table 5
Capital Improvement Program Financing

Line No.	Item	Fiscal Year Ending June 30,					Total
		2012	2013	2014	2015	2016	
		\$	\$	\$	\$	\$	\$
Financing Requirements							
1	Capital Improvement Program (a)	90,970,000	142,791,000	137,720,000	98,610,000	85,926,000	556,017,000
Financing Sources							
<u>Improvement and Extension Fund</u>							
2	Beginning Balance (b)	8,893,100	23,711,900	31,497,500	50,252,700	64,288,300	8,893,100
3	Revenue Financed Capital	<u>23,711,900</u>	<u>31,497,500</u>	<u>50,252,700</u>	<u>64,288,300</u>	<u>90,014,400</u>	<u>259,764,800</u>
4	Subtotal - Improvement & Extension Fund	32,605,000	55,209,400	81,750,200	114,541,000	154,302,700	268,657,900
<u>Construction Bond Funds</u>							
5	Beginning Balance (b)	59,800,000	140,811,300	21,732,200	86,299,400	37,942,100	59,800,000
Bond Proceeds							
6	Water System Revenue Bonds (c)	500,675,000	0	200,000,000	0	0	700,675,000
7	Less: Defeasance and Remarketing Req'ts	(103,059,100)	0	0	0	0	(103,059,100)
8	Less: Swap Termination Payment	(221,921,400)	0	0	0	0	(221,921,400)
9	Less: Capitalized Interest	0	0	(10,000,000)	0	0	(10,000,000)
10	Less: Issuance Expenses (d)	<u>(12,606,300)</u>	<u>0</u>	<u>(19,210,300)</u>	<u>0</u>	<u>0</u>	<u>(23,962,900)</u>
11	Net Bond Proceeds Available	163,088,200	0	170,789,700	0	0	341,731,600
12	State Drinking Water Revolving Fund Loans	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>	<u>0</u>
13	Subtotal - Construction Bond Funds	<u>222,888,200</u>	<u>140,811,300</u>	<u>192,521,900</u>	<u>86,299,400</u>	<u>37,942,100</u>	<u>401,531,600</u>
14	Total Financing Sources Available	255,493,200	196,020,700	274,272,100	200,840,400	192,244,800	670,189,500
Application of Financing Sources							
15	Projects Funded with Improvement and Extension Funds	8,893,100	23,711,900	31,497,500	50,252,700	64,288,300	178,643,500
16	Projects Funded with Construction Bond Funds	<u>82,076,900</u>	<u>119,079,100</u>	<u>106,222,500</u>	<u>48,357,300</u>	<u>21,637,700</u>	<u>377,373,500</u>
17	Total Financing Sources Applied	90,970,000	142,791,000	137,720,000	98,610,000	85,926,000	556,017,000
Financing Sources Available for Future Requirements							
18	Improvement & Extension Fund (e)	23,711,900	31,497,500	50,252,700	64,288,300	90,014,400	90,014,400
19	Construction Bond Funds (f)	<u>140,811,300</u>	<u>21,732,200</u>	<u>86,299,400</u>	<u>37,942,100</u>	<u>16,304,400</u>	<u>16,304,400</u>
20	Total Financing Sources Available for Future Requirements	164,523,200	53,229,700	136,552,100	102,230,400	106,318,800	106,318,800

(a) From Table 2.

(b) Balance available June 30, 2011 (applies only to fiscal year 2012).

(c) The 2011 Bonds (applies only to fiscal year 2012).

(d) Actual expenses for 2011 Bonds; Includes 3 percent of bond size and \$200,000 for future issues. Also includes amount required from bond proceeds to fund bond reserve equal to maximum annual future debt service.

(e) Line 4 minus Line 15.

(f) Line 13 minus Line 16.

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Impact of Projected Revenue Requirements on Water Service Rates

Table 6 presents a pro forma statement developed from revenue and expense projections for 2012 through 2016. The table provides an indication of the adequacy of the Department's revenues and the feasibility of the currently proposed and future anticipated revenue bond sales. The approximate magnitude of annual operating revenues shown in the table is projected to be needed to finance the remaining years of the current CIP.

Operating revenue projections, presented earlier in Table 3, are based on the Department's current water rate schedule. Lines 2 through 5 indicate additional increases in water rates that are projected to be required to meet projected total revenue requirements in fiscal years 2013 through 2016. The approximate annual percentage increases are 8.6 percent in 2013, 8.5 percent in 2014, 7.6 percent in 2015, and 7.5 percent in 2016, and are considered to be reasonable given recent history, the declined level of water demand, and the goal of improving recent debt service coverage levels. These projected increases are believed to be comparable with those that should be experienced in other areas of the country having water systems of comparable age, and facing similar infrastructure challenges, to the System.

Projected non-operating revenues of the System include investment earnings from all System funds and have been projected based on an analysis of funds on hand, construction schedules, and average fund balances. An annual interest rate of 1.0 percent has been assumed in projecting interest income for all funds.

The projected operation and maintenance expenses shown on Line 11 reflect the impact of the anticipated escalation of costs and changes in operation as presented earlier in Table 4. The Department's debt service is depicted on Lines 12 through 20, separated by priorities of lien. Debt service on existing bonds excludes swap interest, as the 2011 bonds will terminate all existing swaps, and also excludes principal and interest requirements on the Refunded Bonds. Debt service on senior lien bonds is summarized on Lines 12 through 15. The 2011 Bonds are being issued as senior lien bonds, and debt service on these bonds is shown on Line 13. The annual principal and interest due on future bond issues anticipated to finance the remaining total cost of the CIP is shown on Line 14. For purposes of these projections, it is assumed that future bonds will be senior lien bonds. A scale that produces an interest cost of approximately 5.0 percent and a 30-year term has been used to calculate debt service on future bond issues. A similar presentation of debt service on second lien bonds is presented on Lines 16 through 17. Projected repayments of DWRP Loans are stated on Line 19. These figures only reflect existing loans as no new loans are anticipated for purposes of these projections.

Non-operating expenses reflecting the System's share of payments related to the City's Pension Obligation Certificates ("POC"s) are shown on Line 21. Renewals and Replacements shown on Line 22 represent capitalized expenditures budgeted by the Department, which are not included in the CIP. Line 23 presents the projected level of revenue financed major capital improvements presented earlier in Line 3 of Table 5. These amounts are targeted to finance short lived assets in concert with the Department's capitalization and debt service coverage policies.

In accordance with the requirements of the Bond Ordinance, an annual deposit (Line 24) is made to the Extraordinary Repair and Replacement ("ER&R") Fund in an amount equal to the lesser of three percent of that year's budgeted operation and maintenance expense or that which is necessary to enable the aggregate value of the fund to equal 15 percent of that year's budgeted operation and maintenance expense. Annual deposits shown for 2013 through 2016 will be required to establish and maintain the required level due to increased expenses.

Table 6
Revenue Requirements Projections

Line No.	Item	Fiscal Year Ending June 30,				
		<u>2012</u>	<u>2013</u>	<u>2014</u>	<u>2015</u>	<u>2016</u>
		\$	\$	\$	\$	\$
Revenue (a)						
1	Operating Revenue Under Existing Rates	343,490,000	344,959,700	344,959,700	344,959,700	344,959,700
	<u>Projected Revenue from Rate Increases</u>					
2	FY 2013: 8.6%		29,828,900	29,828,900	29,828,900	29,828,900
3	FY 2014: 8.5%			31,821,000	31,821,000	31,821,000
4	FY 2015: 7.6%				30,715,300	30,715,300
5	FY 2016: 7.5%					32,595,000
6	Total Projected Revenue from Water Rates	343,490,000	374,788,600	406,609,600	437,324,900	469,919,900
7	Miscellaneous Operating Revenue	<u>4,750,000</u>	<u>4,750,000</u>	<u>4,750,000</u>	<u>4,750,000</u>	<u>4,750,000</u>
8	Total Operating Revenue	348,240,000	379,538,600	411,359,600	442,074,900	474,669,900
9	Non-Operating Revenue	<u>3,914,200</u>	<u>3,827,800</u>	<u>4,613,800</u>	<u>4,163,900</u>	<u>3,993,200</u>
10	Total Revenue Available	352,154,200	383,366,400	415,973,400	446,238,800	478,663,100
Revenue Requirements						
11	Operation and Maintenance Expense (b)	159,661,400	162,925,000	166,183,500	169,507,200	172,897,300
	<u>Debt Service</u>					
	Senior Lien Bonds					
12	Outstanding Bonds	93,545,600	100,511,700	110,560,300	110,581,600	110,701,000
13	The 2011 Bonds	21,441,100	29,713,800	29,688,300	29,578,100	29,547,900
14	Future Bonds (lien unspecified)	<u>0</u>	<u>0</u>	<u>0</u>	<u>10,000,000</u>	<u>13,010,300</u>
15	Total Senior Debt Service	114,986,700	130,225,500	140,248,600	150,159,700	153,259,200
	Second Lien Bonds					
16	Outstanding Bonds	36,411,500	40,435,100	40,450,000	43,031,700	42,911,000
17	Total Second Lien Bonds	<u>36,411,500</u>	<u>40,435,100</u>	<u>40,450,000</u>	<u>43,031,700</u>	<u>42,911,000</u>
18	Subtotal Debt Service	151,398,200	170,660,600	180,698,600	193,191,400	196,170,200
19	SRF Junior Lien Bonds	<u>2,165,500</u>	<u>2,234,600</u>	<u>2,297,700</u>	<u>2,378,600</u>	<u>2,379,000</u>
20	Total Debt Service	153,563,700	172,895,200	182,996,300	195,570,000	198,549,200
21	POC Payments	5,499,700	5,796,300	6,094,100	6,217,400	6,333,200
22	Renewals and Replacements	7,500,000	7,500,000	7,650,000	7,803,000	7,959,100
23	Revenue Financed Major Capital Improvements	23,711,900	31,497,500	50,252,700	64,288,300	90,014,400
24	Extraordinary Repair and Replacement Fund	0	489,600	488,700	498,600	508,500
25	Operating Reserve Requirement	<u>2,217,500</u>	<u>2,262,800</u>	<u>2,308,100</u>	<u>2,354,300</u>	<u>2,401,400</u>
26	Total Revenue Requirements	352,154,200	383,366,400	415,973,400	446,238,800	478,663,100
27	Indicated Balance (Deficiency)	0	0	0	0	0
Debt Service Coverages Under Required Rates						
28	Senior Lien for Rate Covenant Purposes	167%	169%	178%	184%	200%
29	Second Lien for Rate Covenant Purposes	127%	129%	138%	143%	156%
30	SRF Junior Lien for Rate Covenant Purposes	125%	128%	136%	142%	154%

(a) From Table 3. Based on application of FY 2012 rates for 2012 through 2016.

(b) From Table 4.

(c) Balance available June 30, 2011 (applies only to fiscal year 2012).

Line 25 of Table 6 presents a revenue requirement established to ensure adequate balances of operating reserves, or working capital. This reserve is established in a similar manner to the Extraordinary Repair and Replacement Reserve Fund and is summarized in Table 6. Annual deposits are targeted to achieve a desired balance expressed in terms of a set amount of days of annual operation and maintenance expense. The June 30, 2011 balance of this reserve has been established at the current targeted level of 45 days of annual operation and maintenance expense, and this financial plan is designed to gradually increase the balance in this reserve by approximately 5 additional days each year – targeting a balance of over 60 days of annual operation and maintenance expense by the end of the planning period.

The indicated annual balance or deficiency under existing rates, Line 27 of Table 6, is calculated by subtracting total revenue requirement from the total revenue available. As indicated in the table, the projected rate increases on Lines 2 through 5 are projected to be sufficient to meet projected revenue requirements throughout the study period.

The preceding projections of rate increases are intended to produce annual debt service coverage figures in accordance with the Board of Water Commissioners' policy on debt service coverage, which establishes a target range for debt service coverage for each lien of debt. It requires that sewage rates be set to generate projected debt service coverage ratios that are at least 15 percentage points higher than the rate covenant figures. Under the current Bond Ordinance, the minimum Board policy coverage targets are 135 percent for Senior Lien debt, 125 percent for Second Lien debt, and 115 percent for SRF Junior Lien debt. The policy also requires that rates be set so that projected debt service coverage on the lowest lien of debt will not exceed 150 percent.

Projections of annual debt service coverage levels are summarized on Lines 28 through 30. These coverage levels are calculated on the same basis as required by the rate covenant. As indicated, annual coverage levels, assuming the revenue increases shown, are projected to be in excess of the amounts required by the Bond Ordinance and within the debt service coverage target range established by the Board of Water Commissioners.

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Projected Revenue Generated Fund Balances

Table 7 presents a summary of the projected balances in the System's Operating, ER&R, and Improvement and Extension ("I&E") Funds. The figures in this table represent those funds that are entirely generated by revenues, and exclude any amounts funded by bond proceeds. The mechanics of the Operating Fund and the ER&R Fund have already been discussed.

For planning purposes, operating revenues generated to finance capital improvements are transferred to the I&E Fund and entirely spent in the following year. These funds are technically available to be transferred to a Surplus Fund and to other System funds for any System use.

Table 7
Projected Revenue Generated Fund Balances

Line No.	Item	Fiscal Year Ending June 30,				
		2012	2013	2014	2015	2016
		\$	\$	\$	\$	\$
	<u>Operating Fund</u>					
1	Beginning Balance	19,957,700	22,175,200	24,438,000	26,746,100	29,100,400
2	Deposit from Operations	2,217,500	2,262,800	2,308,100	2,354,300	2,401,400
3	Ending Balance	22,175,200	24,438,000	26,746,100	29,100,400	31,501,800
	<u>ER&R Fund</u>					
4	Beginning Balance	23,949,200	23,949,200	24,438,800	24,927,500	25,426,100
5	Transfers In	0	489,600	488,700	498,600	508,500
6	Ending Balance	23,949,200	24,438,800	24,927,500	25,426,100	25,934,600
	<u>I&E Fund</u>					
7	Beginning Balance	8,893,100	23,711,900	31,497,500	50,252,700	64,288,300
8	Revenue Financed Capital	23,711,900	31,497,500	50,252,700	64,288,300	90,014,400
9	Capital Expenditures	(8,893,100)	(23,711,900)	(31,497,500)	(50,252,700)	(64,288,300)
10	Ending Balance	23,711,900	31,497,500	50,252,700	64,288,300	90,014,400
	<u>Total Revenue Generated Funds</u>					
11	Beginning Balance	52,800,000	69,836,300	80,374,300	101,926,300	118,814,800
12	Net Transfers	17,036,300	10,538,000	21,552,000	16,888,500	28,636,000
13	Ending Balance	69,836,300	80,374,300	101,926,300	118,814,800	147,450,800

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Projected Statement of Changes in Net Assets

Table 8 presents a summary of the projected changes in net assets, or a proforma of what the System's "income statement" is anticipated to look like given the projections in this report.

The financial plan presented herein is designed to enhance the System's balance sheet, and reverse the erosion in net assets that has occurred in recent years. As earlier indicated in Table 6, enhanced debt service coverage ratios are also a by-product of this strategic plan.

Table 8
Projected Proforma Statement of Changes in Net Assets

Line No.	Item	Fiscal Year Ending June 30,				
		2012	2013	2014	2015	2016
		\$	\$	\$	\$	\$
1	Net Revenues (a)	192,492,800	220,441,400	249,789,900	276,731,600	305,765,800
2	plus Contributions	100,000	100,000	100,000	100,000	100,000
3	less: OPEB & Other (b)	(12,000,000)	(12,240,000)	(12,485,000)	(12,735,000)	(12,990,000)
4	less: Depreciation Expense	(84,100,000)	(86,600,000)	(90,600,000)	(94,500,000)	(97,300,000)
5	less: Interest Expense (c)	(108,238,200)	(117,633,800)	(116,018,700)	(122,145,200)	(122,010,300)
6	Proxy for Change in Net Assets	(11,745,400)	4,067,600	30,786,200	47,451,400	73,565,500
7	Fund Net Assets - beginning	123,478,000	111,732,600	115,800,200	146,586,400	194,037,800
8	Fund Net Assets - ending	111,732,600	115,800,200	146,586,400	194,037,800	267,603,300

(a) From Table 6, Line (1) - Line (11)

(b) These "non-cash" items are excluded from coverage calculations and revenue requirements for rates

(c) Assumes 15% of interest expense will be capitalized; includes POC interest payments

Compliance with Additional Securities Test

The "Additional Securities Test" of the Bond Ordinance governing the 2011 Bonds states that the Department may not issue additional securities to finance system improvements unless the projected net revenues of the System for the current or next succeeding fiscal year are projected to generate sufficient coverage of the maximum future annual principal and interest requirements on the outstanding bonds and on the additional bonds issued. The coverage requirement for each lien of priority includes debt service for the lien in question, plus debt service on all bonds (if any) of all higher lien priorities. Sufficient coverage is defined as being equal to or greater than 120 percent for Senior Lien Bonds, 110 percent for Second Lien Bonds, and 100 percent for DWRP Junior Lien Bonds.

Table 9 presents the level of Additional Securities Test coverage provided for the 2011 Bonds. For purposes of the Additional Securities Test projections of Net Revenues for 2012, the next succeeding fiscal year, have been utilized. Projected operating revenues have been computed by applying projected 2013 rates for water supply service to the projected billable water sales and related units for 2013. See "Table 6 - Revenue Requirements Projections." Non-Operating Income is the projected investment earnings on all funds for 2013. Projected net revenue is determined by subtracting the projected 2012 operation and maintenance expense from the projected revenues. The Additional Securities Test coverage

ratios are calculated by dividing the projected Net Revenues by the appropriate maximum future annual principal and interest payment for outstanding bonds and the applicable 2011 Bonds, based on estimates provided by the underwriters. As indicated in the table, the Additional Securities Test coverage levels are 147% for Senior Lien Bonds, 120% for Second Lien Bonds, and 119% for All Bonds, including SRF Junior Lien Bonds. All coverage levels satisfy the requirements of the Additional Securities Test.

Table 9
Ability of the System to Meet the Additional Securities Test
for Issuance of the Bonds

Line No.		Fiscal Year Ended <u>June 30, 2013</u> \$
1	Projected Operating Revenues	374,788,600
2	Miscellaneous Operating Revenue	<u>4,750,000</u>
3	Total Projected Operating Revenue	379,538,600
4	Non-Operating Income	<u>3,827,800</u>
5	Total Projected Eligible Gross Revenue	383,366,400
6	Operation and Maintenance Expense	162,925,000
7	Projected Net Revenue	220,441,400
	<u>Maximum Future Debt Service</u>	
8	Senior Lien Bonds	149,947,500
9	Second Lien Bonds	183,191,400
10	SRF Junior Lien Bonds	185,570,000
	<u>Coverage Ratio</u>	
11	Senior Lien Bonds	147%
12	Second Lien Bonds	120%
13	SRF Junior Lien Bonds	119%
	<u>Maximum Supportable Future Debt Service</u>	
14	Senior Lien Bonds	183,701,200
15	Second Lien Bonds	200,401,300
16	SRF Junior Lien Bonds	220,441,400

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Opinions

As a result of our investigations and analyses of the System facilities and financial records, we have formulated the following opinions:

Service Area

1. The population in the area served by the Department has experienced a decline in recent years, and has contributed to a decline in water sales and demands. The water sales figures have stabilized in the past two years and this stability is expected to continue.
2. The System has an excellent and abundant supply of raw water from the Great Lakes System that is naturally available. The recently completed master plan indicates that the current System treatment facilities have adequate capacity to meet current and projected customer demands. Future long-term investments are focused on efficient water delivery strategies and maintaining the reliability of service to customer communities.
3. There are virtually no competing water systems in the Southeast Michigan area currently in existence. However, several of the System's customer communities have recently explored the potential of developing new water systems and leaving the System. Initial findings of this exploration have indicated that the System remains the most economical provider in the area. We are confident that the Department will responsibly address its contractual rights and responsibilities in this area.
4. Most communities in the current and potential service area that are not served by the System operate their own small water systems, most of which draw their supply from wells. Due to the potential for deterioration of the quality of groundwater and the more stringent regulations associated with the Safe Drinking Water Act, it is not expected that these systems will be able to expand without significant additional investment. In addition, as other small municipal water plants continue to reach the end of their useful lives and as small communities on the outskirts of the service area continue to grow, more requests for water service from the Department might be expected.
5. The Department's ongoing, extensive customer outreach program with suburban wholesale customers has been extremely successful in achieving a cohesive working relationship upon which to discuss regional water supply issues.

Organization/Management

6. The recent reconfiguration of the Board and the governance structure of the Department should provide enhanced flexibility with which to implement the Department's strategic planning initiatives. While the provisions of the recent Court Orders present implementation challenges, we believe that successful implementation of these provisions will result in more efficient Department operations.
7. The addition of a permanent Director in January 2012 should provide needed strategic direction and enhance daily operations.

Regulatory Requirements

8. The Department is in compliance with all current federal and state drinking water regulations. It is possible, however, that future regulations may be established which will require modification to System operations and/or additional capital improvements beyond those contemplated in the Capital Improvement Program
9. The System has demonstrated the ability to produce finished water of exceptional quality as of evidenced by low turbidity levels, and the absence of any water quality violations.

Treatment Facilities

10. Overall the physical facilities are in adequate to good operating condition. Major repairs, replacements, and improvements, particularly at the Northeast and Southwest water plants, would be necessary to enhance these facilities and allow them to operate them in their original design conditions. The Department's decision to re-evaluate the long-term viability of these two plants as part of its Master Plan Update is prudent.
11. The needs of the other plants are being addressed through its five-year Capital Improvement Program, which presently covers the period ending June 30, 2016. Additional major improvements beyond the five-year Capital Improvement Program will be necessary to maintain the reliable operation of the System.

Transmission and Distribution System

12. While the condition of the transmission and distribution varies, the facilities generally are in adequate to good condition. As described in this report, some repairs, replacements and major improvements are necessary to improve operations and ensure continued reliable service. The majority of these improvements, some of which are ongoing, are a part of the Project and the CIP.

Capital Improvement Program

13. The revised manner by which the Department produced the July 2011 CIP reflects a prudent approach to strategically "right size" the capacity of the System.
14. The scheduled completion of the CIP for 2012 through 2016 should enable the Department to reliably meet service levels and maintain compliance with existing safe drinking water regulations. However, more stringent future regulations may require additional substantial capital expenditures beyond that presently contemplated in the CIP.
15. The Master Plan Update should provide a more realistic blueprint for future capital investment required to ensure reliable service to customers in the future.

Financial Feasibility for the 2011 Bonds

16. The current water rates are well below the average of those in effect in comparably sized cities. While faced with additional capital expenditures to ensure reliability of service, the projected

increases in the Department's water rates through 2016 are expected to be comparable to what will be experienced in other large metropolitan areas.

17. In addition to the relatively low water rates, the Department's current wastewater rates are competitive with those in effect in comparably sized cities. The availability and price of wastewater treatment coupled with the supply and price of water should continue to be a positive factor in attracting and maintaining industry to the System's service area.
18. The Department's financial plan is sound, supported by gradual rate increases, and is expected to be sufficient to adequately fund the CIP and other programs necessary to meet System obligations
19. The Department's current fiscal policies and plans are designed to result in continued improvements in the current financial position of the System, including reported debt service coverage and changes in net assets. The provisions of the Court's Order should further enhance these policies.
20. The revenues pledged as security to the 2011 Bonds are projected to be sufficient to comply with rate covenants required by the Bond Ordinance and the targets established by Board policy.
21. Based on the financial projections of this report, the coverage requirements contained in the Ordinance authorizing the issuance of the 2011 Bonds have been met.

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APPENDIX A-1

CIP Review and Evaluation

Detroit Water and Sewerage Department

CIP Review



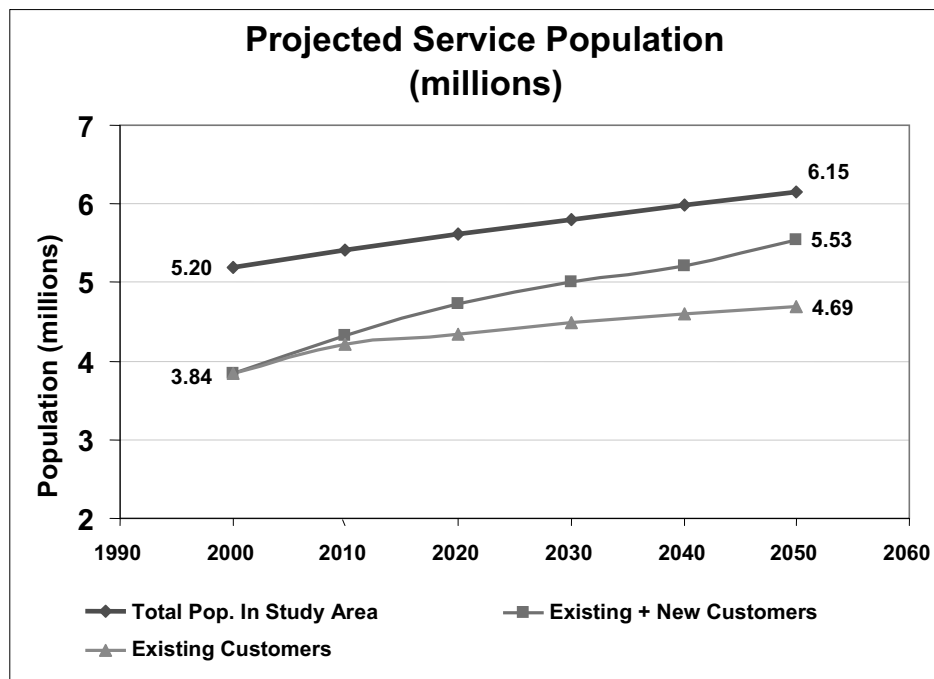
June 28, 2011

Detroit Water and Sewerage Department CIP Review

Introduction and Background:

The Comprehensive Water Master Plan published in 2004 projected water demands forward to the year 2051 based on growth of the serviced population within the DWSD service area from 3.84 million people in the year 2000 to 4.69 million people in 2050. In addition, within the service area, the Master Plan projected that the serviced population might grow as high as 5.53 million people with the potential for new customer communities being added. The population projections were made with the assistance of the Southeast Michigan Council of Governments (SEMCOG) for the SEMCOG member counties. Population projections from the Master Plan are summarized in Figure 1 following.

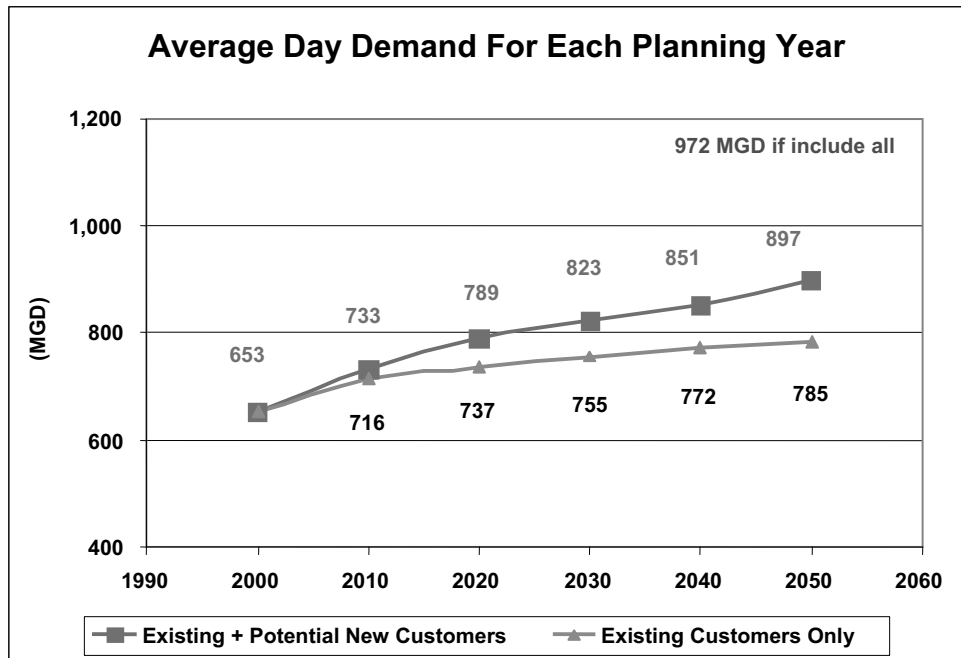
FIGURE 1
Service Population Projection



Water demands were projected on the basis of the communities' growth. Average day water demands were projected to grow from the year 2000 level of about 650 MGD to between 800 MGD and 900 MGD depending on how many new customer communities joined the system.

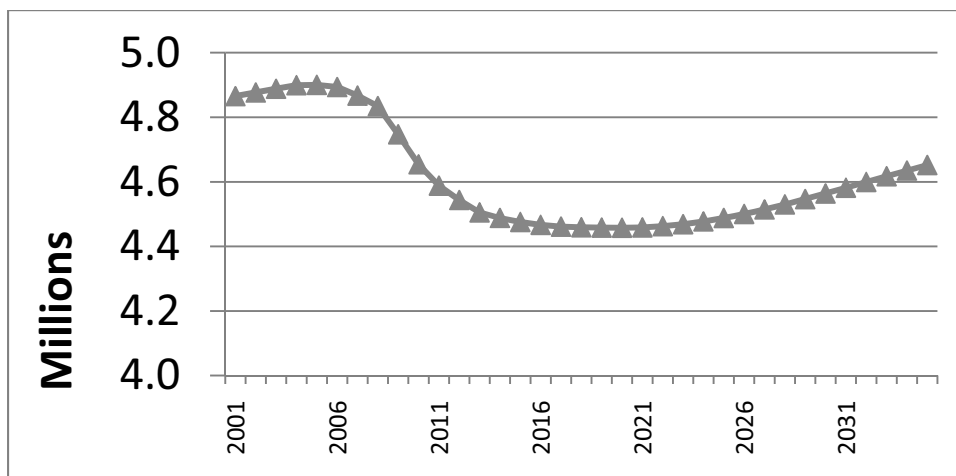
The average day system demands as projected in the Master Plan are summarized in Figure 2 below.

FIGURE 2
Average Daily Water Demand Projection



The global economic downturn commencing in 2007 and through 2008 had particularly devastating effects on Southeast Michigan. The Greater Detroit Area in particular is heavily dependent on the auto sector manufacturing and that sector was especially hard hit. Full recovery is not expected in the foreseeable future and SEMCOG projects that there will be fewer people living in the area in 2035 than there were in 2009. Recovery of the population to the levels of the year 2000 is not projected to well into the future beyond 2035. This is all outlined in Figure 3 below taken from a SEMCOG presentation to the DWSD Technical Advisory Committee on September 16, 2010.

FIGURE 3
SEMCOG Population Projections



DWSD water demands have experienced a similar downturn and average and maximum day water demands on the DWSD system for the past 5 years are summarized following:

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Average Day Demand	600 MGD	575 MGD	602 MGD	557 MGD	515 MGD
Maximum Day Demand	1,041 MGD	1,092 MGD	961 MGD	802 MGD	957 MGD

(Source – The Foster Group)

The decreasing trend in both population growth and water demands is of major concern as it relates to both a decreasing revenue base and uncertainties with the future planning of the DWSD system. Current CIP planning is based primarily on the projections and recommendations contained in the Master Plan and it is clear that a shift in direction is essential.

Review of System Operation:

The current system operation is based on water being supplied from five different water treatment plants and then distributed throughout the service area. The current rated treatment capacity of the five water treatment plants is summarized as follows:

Lake Huron:	400 MGD
Northeast:	300 MGD
Water Works Park:	240 MGD
Springwells:	540 MGD
Southwest:	<u>160 MGD</u>
Total	<u>1,640 MGD</u>

It is clear that there is significant excess treatment capacity to meet the current and projected future maximum day demands on the system. In addition, the SEMCOG projections outlined above indicated that water demands will not increase back to current (2010) levels until 2030 or beyond.

The question that arises is: “Is there a different way to operate the system by reducing the number of treatment plants and thereby reducing the CIP requirements?” In conjunction with this, a corollary question is “Are all of the transmission mains recommended in the Master Plan still needed within the time frame suggested?”

Alternative Operating Scenarios:

The approach was to develop alternative operating scenarios and to test these scenarios using the DWSD hydraulic model to determine the ability of the system to move water to where it is needed, i.e. where the demands are located.

Three scenarios were considered and these are described as follows:

Scenario 1

Scenario 1 would retire the Southwest water treatment plant and supply of water to the Southwest service area would be from a combination of the Springwells and Water Works Park water treatment plants. The Southwest treatment plant would be taken out of service; however the 30 MG storage reservoirs and the high lift pumping station at the treatment plant site would remain in service. Water would be pumped from the reservoirs to the service area using the existing high lift pumps. The reservoirs would be filled from both the Water Works Park and Springwells water treatment plants, although it is expected that the majority of the demand would be supplied from the Springwells plant.

Scenario 2

Scenario 2 would retire the Northeast water treatment plant and supply to the Northeast service area would be from a combination of Water Works Park, Springwells and Lake Huron. Similar to Scenario 1, the treatment plant would be taken out of service; however the existing 60 MG reservoir and the high lift pumping station would remain in service. The operation would be similar to Scenario 1 above in that water would be pumped from the reservoirs to the service area using the existing high lift pumps. The reservoirs would be filled from both the Water Works Park and Springwells water treatment plants. A separate pipeline would likely be required from the Water Works Park plant to the Northeast reservoirs. Hydraulic modeling of the system is required to determine the ability of the existing transmission system to transport water from the Springwells plant to the Northeast plant.

Scenario 3

Scenario 3 would be a combination of Scenario 1 and Scenario 2, i.e. retire both the Northeast and Southwest treatment plants.

A quick review of this scenario indicates that the maximum day demand for the service areas of the Northeast, Water Works Park, Springwells and Southwest plants could be in the range of 700 MGD to 800 MGD based on a review of the past 5 years of operating records. The supply to this area would be primarily from the combination of the Water Works Park and Springwells water treatment plants that together have a capacity of 780 MGD (WWP @ 240 and SPW @540). This supply capacity is extremely limiting and would need to be carefully analyzed to determine whether more supply could be directed to the area from the Lake Huron facility.

Approach to Analysis:

The planned approach to the analysis was to apply the DWSD hydraulic model to each scenario as described above and determine the ability or inability of the system to supply water to the areas of demand at acceptable pressures.

Unfortunately, the DWSD model does not have the capability for continuous simulation and is therefore not able to simulate the operation of the system with respect to filling and drawing water from the storage reservoirs at the various water treatment plant sites.

One scenario only has been tested using the DWSD model, that being the retirement of the Southwest plant, i.e. Scenario 1. The system was modeled applying customer contracted maximum day demands. The model showed some pressure issues with the Springwells pumps

that indicated that the Springwells pumping station could not supply the Southwest service area on its own.

It is likely however that the addition of the existing 30 MG reservoir and pumping station at the Southwest plant site into a continuous simulation model would show a successful operation.

We have requested DWSD staff to update the model with 2010 customer demands and to test the system hydraulics on that basis, for both Scenarios 1 and 2 above. This work has not yet been completed.

Limitation of Findings to date:

The limitations of the DWSD model will not allow the detail of analysis necessary to make a definitive conclusion on any of the above scenarios. Continuous simulation of the system operation to analyze the operation of filling and drawing from the reservoirs is critical to good decision making.

The most desirable scenario from the perspective of system operation; water treatment plant age and condition; and CIP reduction is Scenario 2 – the elimination of the Northeast plant. This plant is in the most deteriorated condition of all of the plants and has the largest CIP planned for the plant rehabilitation.

Preliminary Recommendations:

The following list of preliminary recommendations has been developed as a result of this review:

1. **Northeast WTP:** There is a good probability that either the Northeast or the Southwest water treatment plants can be retired and water supplied to the system from the combination of the remaining three plants. Scenario 2 which is the retirement of the Northeast plant is the most desirable as it is the plant with the largest capital allowance to rehabilitate the plant to an acceptable level of operation. It is our opinion that all work associated with the treatment processes at the Northeast plant should be put on hold until a detailed analysis can be undertaken to determine how water can be supplied to the service area of the Northeast plant. The CIP currently has approximately **\$102 M** allocated to the rehabilitation of the Northeast plant treatment processes, the largest majority of which is planned for the next five year period. The high lift pumping station will be required for the long term and work relating to the rehabilitation of the high lift pumping facilities should continue.
2. **Southwest WTP:** For the same reasons stated above, work on rehabilitation of the treatment trains at the Southwest plant should also be put on hold until a detailed analysis of the system hydraulics can be completed. Similar to the Northeast plant, the storage reservoirs and the high lift pumping facility will be required for the long term and work related to the high lift pumping should continue. The CIP currently has approximately \$85M allocated to the Southwest treatment plant of which approximately \$50M is scheduled within the next 5 years. Of this amount, approximately **\$24M** is

allocated to construction of improvements to the filtration facility within the next five year period.

3. **Water Works Park WTP:** The CIP contains an amount of **\$24.5M** for re-working the discharge piping from the high lift pumping station through the plant yard to the transmission system piping on Jefferson Avenue. The transmission piping on Jefferson Avenue is slated for rehabilitation and the design of this work is still in the planning stage. In addition, it is not yet clear whether there will be a need for significant changes in the piping layout to provide a separate feed to the Northeast plant site from Water Works Park. On this basis, this expenditure should be put on hold until better decisions can be made with respect to the future needs from this plant.
4. **Springwells:** This water treatment plant is of strategic importance to the long term operation of the DWSD transmission system. Continuing with the work relating to the filter rehabilitation and pumping is important and should continue. This includes:
 - 1958 Filter Rehabilitation \$122,965,000
 - Low lift and High lift pumps replacement \$105,935,000
 - Pre-treatment improvements \$164,250,000
 - Discharge Header Replacement \$ 49,200,000
 - Total \$442,350,000

However one area of effort that should be delayed until detailed evaluation determines the need is the treatment of the solids from the settling tanks and the backwash water. An alternative that needs more investigation is the discharge of this waste to the sewers for treatment at the wastewater treatment plant. We have discussed this with the wastewater treatment plant management and are advised that capacity for the solids treatment is available at the WWTP; however in order to not disrupt the solids treatment train at the WWTP, the discharge to the sewers must be at a controlled rate. This will required some equalization storage for the water plant waste; however this kind of facility will be less costly than providing extensive solids treatment at the water plant. The CIP has currently allocated **\$164M** for this work. Of this amount, the design accounts for **\$11M** over the next five year period and the remaining **\$153M** is for the construction phase beyond the five year period.

5. **Pumping Stations:**
 - a. The CIP contains an amount of **\$35M** for the Chesterfield / Snover pumping station. This pumping station was planned in the short term to boost pressures along the 24 mile road development in Macomb County. The twinning of the 24 mile main which is well under way should eliminate the need for this station and this amount should be removed from the CIP. In the long term, when the second feed from Lake Huron is needed, this pumping station will be required to boost the pressures to feed the flow from this main westerly into the area of demand.

This however, based on current growth projections, is so far into the future that it is not necessary to consider within the context of the current CIP. The one important feature to consider is to the retention of property for this facility in the future.

- b. The CIP contains an amount of **\$38M** for the Ready Road pumping station in the “down river” area. This pumping station is planned in order to boost pressures for the communities in this area. It is our opinion that it may be much more effective to twin feeder mains in this southern area of the system rather than localized pumping to solve local problems. This looping was not addressed in the Master Plan, other than a general requirement to continue to loop mains within the system. However it is our understanding that this pumping station has been contractually committed to the customers in this area. In any event looping of the mains would also require funds in the same order of magnitude and we have not recommended any change in the CIP planning in this respect. Looping of the transmission mains in this southern area of the system should be investigated as part of the master plan update.
6. **Transmission Mains:**
- a. North Oakland Transmission System and Flint Loop: Although the CIP recognizes major expenditures for this system, it is not included in the five year program. Based on current planning projections, all of this work should be removed from the CIP. The total of this work is in the amount of approximately **\$584M**.
 - b. Eight Mile Road and Wixon / South Lyon Pipelines: Both of these pipelines were identified in the Master Plan and were recommended on the basis of growth. The Eight Mile pipeline was projected as a result of growth of existing customers and the South Lyon pipeline was projected to serve a potential new customer. These pipelines are identified in the CIP beyond the five year planning period. These pipelines together represent approximately **\$65M** and this amount should be removed from the CIP.
 - c. Parallel 48-inch main from Wick Station to Hannan: This main was identified in the Master Plan to boost pressure and capacity in this service area. A section of this main has already been constructed and it is recommended that this section from Wick Station to Hannan remain in the CIP. The amount of this CIP item is in the amount of **\$20M** planned over the next three year period.
 - d. 24 Mile Road twinning mains: This is an important main required to provide service to existing customers along the 24 mile corridor. This main eliminates the

need for the Chesterfield Pumping Station. This main was recommended in the Master Plan and should remain in the CIP. The CIP contains two items for this main – Foss to Fairchild at **\$10M** and Rochester Station to Plank Rd at **\$36M**. These projects are planned over the next 5 year period and should continue.

- e. 24 Mile and Dequinder relocation: This project involves the relocation of an existing 96-inch diameter main that is currently routed through a contaminated landfill site and is under approximately 40 feet of landfill cover. This main is critical to the operation of the transmission system in this area and this project must remain as a high priority. The CIP has allocated **\$17.7M** for this project over the next four year period.
- 7. **Transmission Mains Renewal and Rehabilitation:** The CIP contains an amount of **\$92M** for renewal, rehabilitation, replacement of existing transmission mains over the next five years. Although this work is needed and was recommended in the Master Plan, it is doubtful that the department can accomplish this amount of work within this time frame. The department has identified critical areas of the transmission main system both within Detroit and in the suburban area. The total amount of this work identified to be completed within the next five years is **\$50M**. On this basis **\$42M** should be removed from the CIP under this item.
- 8. **Urban Distribution Mains Renewal and Rehabilitation:** The CIP contains an amount of **\$85M** for renewal, rehabilitation, replacement of existing distribution mains within the city. This work is required and is recommended in the Master Plan. The department has advised that a reasonable estimate of how much work can be accomplished in one year is about **\$10M**. Over a five year period this amounts to approximately **\$50M**. On this basis, approximately **\$35M** should be removed from the CIP for this item.
- 9. **Hydraulic Model:** DWSD needs to expand its hydraulic modeling capability in order to analyze the system under a continuous simulation mode. This is necessary to properly evaluate the operation of system storage and pumping at both the Northeast and Southwest treatment plant sites as proposed under the operating scenarios described above. This tool will also be required for the planned updating of the Master Plan and it would be desirable to undertake this work immediately as a first step in the planning process. This work could either be done “in house” by DWSD staff, or alternatively by an experienced and qualified consulting engineering firm. There are a number of accepted and proven models on the market today and the first step should be to determine the most appropriate model for use by DWSD. If this work is undertaken by a consulting engineering firm, it is estimated that the cost of this work would be in the order of approximately **\$300,000**.

CIP Summary Recommendations:

The following summary provides a list of potential deletions or deferrals from the CIP. The CIP provides details on a year by year basis for each project plus a lump sum for work that is scheduled beyond the five year time frame. The following summary lists the potential deletions or deferrals in two categories – capital planned within the five year period, and then capital allocations beyond the five year period.

Project Description	CIP for five years 2010-11 to 2014-15 \$ x 1000	CIP for period Beyond 2014-15 \$ x 1000	Comments
Treatment Plants:			
Northeast Water Treatment Plant - Treatment process	\$98,420	\$3,896	Delay this work until a decision can be made regarding the future need for this plant. (CIP #s 1077 & 931)
Southwest Water Treatment Plant - Treatment process	\$24,440		Construction of filtration improvements scheduled for 2012 – 2015. Delay this work until a decision can be made regarding the future need for this plant. (CIP # 1067)
Water Works Park Treatment Plant - Yard piping	\$29,476		Delay this work until details are know with respect to transmission main rehab work on Jefferson and how to transfer water to the Northeast WTP. (CIP # 1166)
Springwells Water Treatment Plant - Pre-treatment works	\$11,215	\$153,035	Delay this work and investigate the feasibility of discharge of the waste to the sewer system. (CIP # 1075)
Pumping Stations:			
Chesterfield / Snover Pumping Station	\$30,100	\$5,000	Delete this from the CIP as the twinning of the 24 mile road transmission main eliminates the need for this facility. (CIP # 1124)
Transmission Mains:			
North Oakland Transmission System and Flint Loop		\$584,430	Delete from CIP. This main is growth related with the addition to a redundant supply to Flint / Genesee. (CIP #s 1180 & 1181)
Eight Mile Road and Wixom – South Lyon pipelines		\$65,000	Delete these mains as they are primarily growth related. (CIP #s 906 & 907)
Transmission mains renewal / rehabilitation / replacement	\$42,000		This renewal program is important but should be scaled back in the CIP to address the expectations of how much can actually be accomplished. CIP # 1230)
City of Detroit mains renewal / rehabilitation / replacement	\$35,000		This renewal program is important but should be scaled back in the CIP to address the expectations of how much can actually be accomplished. (CIP #463)
Totals:	\$270,651	\$811,361	

In summary, it is recommended that approximately \$270M should be delayed from the current five year program until more detailed evaluation can be made. Some of this will need to be added back into the program when more details and definitive needs can be established. However, none of these items are "mission critical" to the system operation in the interim.

Approximately \$810M should be deleted from the CIP beyond the five year planning period. The major component of this is the North Oakland Transmission System and the Flint Loop. The North Oakland Transmission System is a recommendation contained in the Master Plan. However it is primarily a growth oriented main and should be considered when growth patterns in the service area justify its need.

It is emphasized that detailed hydraulic evaluation is needed to assess the preferred operation scenario going forward. However, it is our opinion that the retirement of the Northeast Water Treatment plant is the most desirable alternative as this plant is in the most deteriorated condition of all of the plants and has the highest CIP allowance to bring the plant back to acceptable standards. In conjunction with this it is important that DWSD develop its hydraulic model to incorporate a continuous simulation capability. This is critical in order to properly assess the operation of reservoir storage and pumping, particularly at the Northeast and Southwest treatment plants.

All of which is respectfully submitted

CH2MHILL

A handwritten signature in cursive script, appearing to read "John C. Anderson".

John C. Anderson P.E.

APPENDIX A-2

Water System Evaluation

ENGINEERING EVALUATION



DWSD WATER SUPPLY SYSTEM

2011

Prepared by:

METCO

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DRAFT

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1.0 WATER SUPPLY SYSTEM

1.01 General

The Detroit Water Supply System consists of three intake facilities, five water treatment plants, transmission and distribution system of approximately 3,500 miles of pipelines, 22 booster pumping stations and 22 water storage reservoirs. The entire system operation is being continuously monitored and controlled on a real-time basis from a central System Control Center (SCC). The aggregate pumpage of water into the system during the last five years is as below:

<i>Fiscal year</i>	<i>2005-06</i>	<i>2006-07</i>	<i>2007-08</i>	<i>2008-09</i>	<i>2009-10</i>
<i>Days in Year</i>	<i>365</i>	<i>365</i>	<i>366</i>	<i>365</i>	<i>365</i>
<i>Pumpage (MG)</i>	<i>218,870</i>	<i>209,926</i>	<i>219,633</i>	<i>203,326</i>	<i>188,080</i>

The above table illustrates the magnitude of the Detroit water supply system. The downward trend in the total pumpage of water into the system during the last two fiscal years appears to be consistent with the depressed economic activity in this area. We anticipate, with the improving economic activities in the region, the total demand as represented by the pumpage, should trend upwards in the coming years to the level seen in years before the onset of the economic depression in this region.

1.02 Supply Intake

The primary source of the fresh water supply is the Great Lakes System, with three intake facilities – located at Lake Huron to the north, at Detroit River to the south, and at Lake St. Clair to the east. These intake facilities supply water to the five treatment plants.

The Lake Huron intake facility is located at approximately five miles north of Port Huron and five miles into Lake Huron and has been in operation since 1974. The raw water from this intake is transported through a six-mile tunnel to the Lake Huron water treatment plant.

The Belle Isle intake facility is located at the eastern end of Belle Isle where Lake St. Clair flows into the Detroit River and has been in operation since 1931. This intake supplies raw water to the Water Works Park, Springwells, and Northeast Water Treatment Plants.

The third intake - Fighting Island intake is located under the Detroit River on the Canadian side of the river just west of the northern end of Fighting Island and supplies raw water to the Southwest Plant through a tunnel. This facility has been in operation since 1964.

These intake facilities have been periodically inspected approximately once in every five years. The primary focus of these inspections is to determine the structural integrity of these facilities

as well as to monitor the impact of the zebra mussels on the capacity of these structures. It is our understanding that the last inspection of the intake structures was done during Spring of 2005 and no detailed underwater inspections were performed since then. However, an intake upgrade project was executed at the Fighting Island Intake in 2007-2009.

METCO's observations below are based upon the last intake structure inspections of 2005 and our further discussions with the Water Treatment Plant managers.

Although historically, zebra mussels have been somewhat problematic, they have not been a nuisance in recent years. Zebra mussels, originally only found in Europe, were transported to the Great Lakes by shipping vessels. The mussels often attach to the inside walls of intakes, potentially reducing the capacity of the structures and causing occasional taste and odor problems. The Department constructed a pre-chlorination facility at the Belle Isle intake and is successfully controlling zebra mussels through the use of chlorine and physical removal.

The intake condition survey of 2005 indicated that the Belle Isle Intake Facility had experienced somewhat increased zebra mussel concentration as, those encountered during the condition survey in 1994. The Belle Isle components inspected included: the screen house wet well, the intake shaft for the 15.5-foot diameter intake tunnel, 500 feet of the 15.5-foot diameter intake tunnel starting from the intake shaft, the shore shaft for the 15.5-foot diameter intake tunnel, 200 feet of the 15.5-foot diameter intake tunnel starting from the shore shaft, the Detroit River intake crib shaft, the emergency intake structure, the exterior of the Belle Isle intake structure, the shore shaft leading to the 10/11-foot diameter tunnel, 500 feet of the 10/11-foot diameter tunnel starting from the shore shaft, the intake shaft for the 10/11-foot diameter intake tunnel, and a 500-foot tunnel penetration of the 10-foot diameter intake tunnel. These portions of the intake system were generally reported to be in good condition. The zebra mussel accumulation on the bar racks was light, with only a few isolated areas showing more than 50 percent blockage by zebra mussels. It appeared that the chemical treatment system was able to maintain the intake system in relatively zebra mussel-free condition. However, there was some accumulation of seaweed and algae growth along the lower eight feet of the bar rack sections.

Also, the observations from the 2005 condition survey of the Lake Huron intake system indicated that the general condition is similar with increased zebra mussel concentration at the intake shaft. The Lake Huron intake system components inspected included the low lift shaft, the intake shaft, the intake crib, and tunnel penetration of 500 feet from the low lift and 1,000 feet from the intake shaft. Multiple layers and clusters of zebra mussels within the Lake Huron intake shaft, crib, and tunnel were observed. However, there has been a general decrease of the zebra mussel issue at the intake in the recent years as reported by the Plant manager during our discussions.

The general structural condition of the low lift, intake shaft, and inspected portions of the tunnel

appeared to be good. The timbers were structurally sound at the crib. Lake Huron plant personnel reported that the intake system is in good working condition.

The Fighting Island intake facilities' condition survey indicated that the intake system is in similar condition as that observed during the last survey in April 2002. Department personnel reported that it is in good working order. In general, the Fighting Island intake structure, intake shaft, shore shaft, and inspected portions of the tunnel are in good condition. Some localized deterioration of the concrete shaft wall was observed at the bottom of the shore shaft, similar to what was observed in 2002.

Recently, in 2007-2009, some of the defects observed during the last inspection were addressed under the contract SW-549. Under this contract, a closure cylinder was also installed to close the intake in case of a spill in the river or any maintenance work. Bar racks were cleaned. New alarms and electronic monitoring devices were installed and all the buildings were refurbished. Also, no significant presence of zebra mussels was observed.

In general, the zebra mussel population has generally been kept under control in the past several years and the Department has adequate program in place to undertake additional control measures, should they become necessary.

1.03 Treatment Plants

Water Treatment process; in general, consists of screening, flocculation and sedimentation, filtration, taste and odor control, and disinfection. The unit processes of a treatment plant include low lift pumping to lift the raw water into the plant for treatment; flocculation, which includes the addition and mixing of chemicals to form a precipitate; sedimentation, which involves partial removal of suspended materials; filtration, which involves further removal of suspended materials from the water; disinfection, taste, and odor control, which involve the addition of chemicals to kill harmful organisms and to remove other compounds affecting water quality; and high lift pumping to transfer the treated water into the transmission and distribution system.

All Treatment Plants are designed and operated in compliance with the industry standards as established by NSF, AWWA, SDWA, MDEQ, Michigan Health Authorities and other applicable agencies. These treatment plants were constructed and placed in operation at different time periods to meet the then growing demand for the water supply. The details of operational start of various plants are listed in Table 1.

Table 1
Water Treatment Plants

<u><i>Treatment Plant</i></u>	<u><i>Placed in Operation</i></u>
Water Works Park ^(a)	2003
Springwells ^(b)	1931/59
Northeast	1956
Southwest	1964
Lake Huron	1974

(a) A new water treatment plant was constructed on the site of the old Water Works Park treatment plant. The new plant began operation in 2003.

(b) A major addition was completed in 1959, doubling the capacity of the water treatment plant by adding a new reservoir, sedimentation basins, and a filtration facility. Source: The Department.

Currently, raw water for both the Springwells Plant and the Northeast Plant is pre-disinfected at Water Works Park. Additional disinfection facilities with multiple application points are available at both of these plants.

Each of the System's treatment plants is equipped with its own operational laboratory facilities. In order to meet the more stringent monitoring requirements of the 1986 Safe Drinking Water Act ("SDWA") Amendments, a new state-of-the-art laboratory was constructed in 1992. This laboratory enables the Department to comply with all current monitoring requirements of the SDWA. If additional laboratory capacity is needed as a result of new regulations, then it is anticipated that the Department will contract services to certified private laboratories.

The rated treatment capacities and water production figures since 2006 for the five treatment plants are listed in Table 2. The largest facility – Springwells WTP, produced between 25 and 33 percent of the total system average day demand during this period. As shown in

Table 2, during the past five years, the maximum day demand on the plants was in the range of 49% to 70% of their rated capacities.

Table 2 Summary of Water Treatment Plant Production Statistics						
Treatment Plant	Capacity MGD	FY 2006 MGD	FY 2007 MGD	FY 2008 MGD	FY 2009 MGD	FY 2010 MGD
Water Works Park (1)	240					
Average Day		85.7	82.5	96.2	106.2	88.3
Maximum Day		114	135	138	119	146
Springwells	540					
Average Day		180	187	176	153	158
Maximum Day		411	379	336	321	296
Northeast (2)	340					
Average Day		107	106	128	96.2	91.4
Maximum Day		256	231	267	245	172
Southwest (3)	240					
Average Day		72.5	61.0	72.6	60.9	52.8
Maximum Day		133	138	152	156	99.7
Lake Huron	400					
Average Day		154	139	129	141	125
Maximum Day		255	256	274	243	205
Total System	1760					
Average Day		600	575	602	557	515
Maximum Day		1,041	1,092	961	802	957
(1) - Current Plant Capacity - Expandable to 320 MGD						
(2) - Installed Capacity; MDEQ approved 190 MGD due to sediment basin capacity. Improvements under way.						
(3) - Installed Capacity; MDEQ approved 160 MGD as no other documentation approving the higher capacity is available.						

The condition of the System's water treatment plants ranges from adequate to good. The Water Works Park Plant was upgraded in September of 2003 and is in the best condition of all of the plants operated by the Department. Major capital improvement projects (CIP) to the critical process areas such as filtration, high service pumps, sedimentation and electrical power system at Springwells and Northeast Water Treatment Plants are under way and at different stages of completion. Similar capital improvement projects at Lake Huron Water treatment plant are needed, but are not included in the current 5-Year CIP, and need to be considered as a long term measure to address the aging and fatigue of the existing process equipment. Each plant is described in the following paragraphs, including a discussion of the current condition and capital improvement needs.

1.03.01 Springwells WTP

The DWSD Springwells Water Treatment Plant is a 540 million gallons per day (MGD) surface water treatment plant. It is DWSD's largest water treatment plant in terms of its production capacity. In general, the DWSD Springwells Water Treatment Plant consists of two parallel treatment trains that both include rapid mixing for coagulation, flocculation, sedimentation and filtration. Chemical addition and powdered activated carbon addition are utilized as part of the treatment scheme. Chlorine gas is employed for the secondary disinfection and maintaining chlorine residuals in the distribution system. The first treatment train was constructed in 1930 and has a rated treatment capacity of 200 MGD, and the second in 1958 with a capacity of 340 MGD. Pre-chlorinated raw water is delivered to both treatment trains by the low lift pumping station. Finished water from both treatment trains is sent to the reservoirs and/or the high lift pumping station for delivery to the water distribution system and customer base.

Raw water enters the plant at the 1930 low lift building through a 12 foot diameter tunnel that terminates into the circular suction (surge) flume located at the bottom of the low lift building. The total pumping capacity of the low lift pumping station is 820 MGD.

The 1930 and 1958 filters at the Springwells Water Treatment Plant consist of 108 rapid media filters. The 1958 filter plant has 40 filters while the 1930 filter plant has 68 filters. The filters are backwashed using one of the three 400 horsepower vertical turbine pumps located in the 1958 service building. Filter backwashing is necessary to keep the filter process effective. Filters are typically backwashed approximately every 24 to 48 hours depending on the raw water turbidity loads, other water conditions, water production demands, and overall plant operations.

However, continuous residuals removal is not provided in the sedimentation basins both in 1930 and 1958 treatment basins. There is no means provided for removal of residuals from the influent channel. Because of the channel length and limited access, the residual removal from the channel is difficult and cumbersome. Also, the processing of residuals to the sewer system is creating operational concerns for the City's waste water treatment plant.

Phosphoric acid is injected within 1930 and 1958 filtered water conduits immediately upstream of the post-filter chlorine solution injection points. Phosphoric acid is used to control corrosion in the water distribution system in compliance with Federal, State and local regulations. In recent years, major upgrade projects to the chemical feed and mixing system were implemented resulting in the enhanced reliability.

Once the filtered water has been injected with phosphoric acid and chlorine solution it is considered to be finished water and suitable for public consumption as potable water. Finished water is the same as potable water. Finished water is conveyed to the 1958 and 1930 weir chambers before being transmitted to the reservoirs and/or high lift pumping station.

Finished water is pumped into the water distribution system at the high lift pumping station which consists of 16 vertical split case centrifugal pumps. The high lift pumping station has a total capacity of 840 MGD. Much of these equipment dates back to the 1930 and 1958 plant construction projects and require significant level of operator input and maintenance. Nevertheless, these systems are currently being operated with fairly adequate level of reliability.

In addition, several CIP upgrades under the contracts DWS-563 and CS-1474 have been initiated to the pre-treatment, filtration processes, filtration controls and high lift and low lift pumping system to mitigate the concerns regarding the long term reliability of these systems. Also, under the recently completed project DWS-837C, this facility was installed with additional primary power feed from DTE along with new emergency transformer thereby providing added redundancy to the power system of the plant.

Other planned and on-going CIP include replacement of the primary and secondary electrical distribution system (CS-1474) and modifications to the discharge header of the high lift pumps. The present CIP does not however address the issues regarding removal and on-site processing of the residuals from the sedimentation tanks.

We anticipate that with the completion of above listed Capital Improvement Projects, the Plant would be able to function at the designed capacity with much higher operational efficiency and reliability.

1.03.02 Northeast WTP

DWSD's Northeast Water Treatment Plant (NEWTP) was placed on-line in 1956 to serve the needs of a growing suburban population north and east of the city. Northeast is one of the three DWSD treatment facilities which utilizes the Belle Isle intake to obtain raw water from the Detroit River (Belle Isle also provides the source of supply for DWSD's Water Works Park and

Springwells WTPs). Raw water from Belle Isle flows through a 14 foot diameter concrete tunnel which branches into separate tunnels serving NEWTP and Springwells WTP.

Chlorine and fluoride are added to the raw water at Water Works Park approximately seven miles from NEWTP, which satisfies most SWTR primary disinfection requirements upstream of the plant. Raw water enters the NEWTP low lift caisson about 90 feet below ground level from where pumps boost the water to levels sufficient for gravity flow through the treatment units. The low lift pumps discharge into two 84 inch raw water conduits (and/or an auxiliary raw water conduit), which feed into the Rapid Mix Chambers. Additional chlorine is typically added in the raw water conduits, and powdered activated carbon (PAC) is added intermittently in the rapid mix chambers to combat seasonal taste and odor.

The NEWTP is a conventional surface water treatment facility employing coagulation, flocculation, sedimentation, granular media filtration, and chemical disinfection. Free chlorine is used for both primary disinfection and secondary disinfection within the DWSD transmission and distribution system. Phosphoric acid is added to the filtered water to impart an orthophosphate residual designed to minimize lead solubility in customer service lines and home plumbing.

Flocculation is accomplished in 4 chambers with 112 paddle type flocculators, which are in adequate condition. The flocculator drives are original equipment and have reached the end of their useful life. Most of the flocculation equipment is kept operational with intensive maintenance efforts. The flocculation system needs extensive rehabilitation that will enhance flocculation performance and provide sufficient basin capacity for increased system redundancy and reliability and is being currently addressed under the Project CS-1475.

The NEWTP utilizes four rectangular sedimentation basins with a total volume of approximately 26.2 million gallons. They are in adequate condition. However, their existing configuration results in excessive loading rates higher than Ten State Standards.

The on-going design under CS-1475 for a complete rehabilitation of flocculation and upgrade of sedimentation basins is intended to address all these deficiencies and should result in optimization of process efficiency. The proposed upgrades under the above CIP include:

- Flocculation and Sedimentation Basins Upgrade
- Continuous Sludge Collection Equipment in the Sedimentation Basins
- New residuals Treatment Facility and Facility for Disposal of Sludge

The Plant is equipped with 48 dual-media gravity filters providing a total capacity of approximately 300 MGD at the MDEQ-approved loading rate of 4.0 gpm/sf. The media has been in service for almost 45 years and has never been replaced with significant loss of filter media resulting in significant restriction in the filtration capacity and eventually on the overall plant

capacity.

The other auxiliary equipment and instrumentation and control devices associated with the filtration system such as rate-of-flow controllers, level detectors, wash water pumps, tanks valves and valve actuators, etc. have outlived their expected life, and requires frequent and complex maintenance efforts. The ventilation and de-humidification of the filter bed area and filter pipe gallery are inadequate, and as a result most of the equipment in those areas exhibit severe corrosion.

The major rehabilitation improvements to mitigate the above issues are planned under the current on-going Projects under CS-1494.

The plant's two reservoirs are underground and are in fairly good condition as indicated by the Plant personnel during our inspection. However, significant leakage has been observed in the inlet raw water conduit tunnel, and is currently being addressed under one of the existing skilled maintenance contracts.

The plant is equipped with six (6) low lift pumps and twelve (12) high service pumps, and these equipment are in adequate conditions although they have been in service for more than 35 years and are past their useful life. Major improvements to service water pumps and rehabilitation of all valves associated with high and low lift pumps were recently completed under contract NE-376. To enhance the reliability, the plant was installed with 4X2 MW emergency generator system under the contract DWS-837B. In addition, redundancy to the primary power supply to this plant was enhanced by installing third primary feeder from the utility company (DTE) under the contract DWS-837C.

Also, major upgrade to the high service pumping station, including the replacement of three existing high lift pumping units with higher head units and providing variable frequency drives for the proposed units are being planned in the upcoming projects.

Other projects at the NEWTP include major and high priority improvements to the electrical and mechanical system, and improvements to the administration building HVAC system; they are currently under design, and scheduled to be constructed by 2012-2013.

Overall, the NEWTP is marginally in adequate condition, and has been operating with highly intensive operator input and maintenance efforts. The planned major CIP, which are currently under various stages of completion, should sufficiently address the existing major deficiencies in different process areas.

1.02.03 *Southwest WTP*

In 1964, the Wayne County Road Commission constructed the Southwest Plant. Before completion of construction, the plant was sold to the Department under a lease/purchase arrangement. The Southwest Plant receives raw water from the Detroit River via the Fighting Island intake facility through a four-mile tunnel. The conceptual design for minor improvements and rehabilitation to the intake structure has recently been completed.

The Southwest Water Treatment Plant is located at 14700 Moran Road, Allen Park, Michigan. The plant was completed about 1963 and was subsequently purchased by DWSD. The original plant included a raw water tunnel, high and low lift pumping stations, pretreatment process, filtration complex, finished water reservoir, clarifiers and administration and laboratory facilities. Though the current plant has a stated capacity of 240 million gallons per day (MGD), it can reliably produce 180 MGD. The original design was for 160 MGD, but in the late 1970s the configuration of filter media was changed, larger orifice plates were installed on the individual filter effluent lines and the by-pass weirs at the raw water traveling screens were raised, resulting in the higher capacity.

The current bulk storage and feed systems for aluminum sulfate (alum) and powdered activated carbon (PAC) were part of the original plant construction. However, some of the transfer pumps and feed equipment have been replaced over the years. The plant currently disinfects the water with chlorine supplied in one-ton containers. In the early 1990's the plant upgraded its disinfection system to the current gaseous, vacuum chlorine system. A hydrofluosilicic acid (fluoride) system was added in the 1970s and a phosphoric acid system was added in the 1990s.

The buildings at Southwest are primarily built of structural steel and/or concrete with exterior facades that are a combination of precast concrete panels and brick veneer. The original expansion joints have failed. Over the years many of the systems necessary to operate the plant have been rebuilt or upgraded.

There are six vertical centrifugal pumps used for low lift pumping at this plant. They were all available at the time of the physical assessment and are operating in good condition. The installation of an additional low lift pump, motor, and controls is planned and included in the CIP. The raw water screens were recently replaced and are operating in good condition. Liquid alum, chlorine, fluoride, and carbon slurry are added to the water ahead of the rapid mixing chamber. The chlorine facilities are in good condition with sensors to detect any leakage and a scrubber system to remove chlorine gas from the air. The alum feed system was replaced within the last few years. The remaining chemical feed equipment is in adequate condition.

The CIP contains a project to address necessary improvements to the chemical systems, including: demolishing the existing components of the abandoned sodium hypochlorite, chlorine

dioxide, and ammonia systems; installing new activated carbon slurry recirculation and metering pumps; upgrading the alum feed equipment; installing a local instrumentation and control system; and implementing new chlorine and fluoride feed systems. The project will also include remodeling of the plant laboratory and other building structural and architectural repairs, as required.

After chemical addition, flow enters a mixing chamber utilizing baffles. Flocculation is accomplished with four chambers, each housing five walking beam flocculators. The walking beam flocculators were installed under a CIP project completed in 1998. The motor controls for the flocculators were also replaced in 1998. At the time of the site visit, four flocculators were out of service and in need of repairs. The Southwest Plant utilizes four settling basins, which are in good condition, although one was out of service at the time of inspection for routine cleaning. Currently, this plant uses 40 rapid sand filters, which are in adequate condition. The filter media has never been replaced and may be nearing the end of its useful life. The Department is considering a conversion from declining rate filters to constant rate filters to improve the available filtration capacity of the plant. The pipes in the pipe gallery under the filters are adequately painted, exhibit little rust, and are in good condition despite minor leaking. Two 2-speed pumps accomplish backwashing. The backwash system is in adequate condition.

The current five-year CIP includes a project DWS-1065 to address necessary filter improvements at the Plant. This project includes: replacing the transfer and washwater supply pumps, motors, and related appurtenances; adding variable frequency drives; providing controls to enable automatic control of the pumps; replacing all filter controls; providing electronic actuators for all valves; installing a local instrumentation and control system to monitor and operate the equipment; replacing orifice plates with rate control valves; and performing structural repairs and architectural rehabilitation.

The Southwest Plant utilizes three aboveground steel reservoirs for onsite storage. Reservoir no. 1 was rehabilitated recently; No. 3 needs to be rehabilitated – planned for the new Reservoir Program Management Contract in the CIP. Seven vertical centrifugal pumps pump water to the distribution system. Minor improvements to the high lift pump building are scheduled in the CIP. All pumps appear to be in adequate to good condition.

Sludge produced at the Southwest Plant is dewatered and then hauled to a landfill. The Department is currently leasing a centrifuge to dewater the sludge produced during treatment. The water extracted from the sludge is discharged to the Wayne County sewer system. The Department has a National Pollution Discharge Elimination System (“NPDES”) special conditions permit to discharge decant water to the Saxton-Kilfoil drain, a backup disposal method. Under the CIP, DWS-548 contract, improvements are under way to make suitable modifications to the sedimentation basins for continuous removal and on-site processing of the residuals. This project is scheduled to be completed by 2012.

In addition, the Department is planning to rehabilitate the existing HVAC and install new dehumidification units at various process areas including filter galleries, pipe galleries under the existing CIP DWS-550. This project is currently on-going and is scheduled to be complete by the end of 2011.

Though the actual plant capacity is 240 MGD, it is rated at 160 MGD by MDEQ as no documents are available to show the approval for the higher capacity of the plant.

Overall, the Southwest Plant is in adequate condition and is able to produce water that meets current regulations.

1.02.04 Lake Huron WTP

The Lake Huron Plant was commissioned in 1974. The plant draws water from Lake Huron through a six-mile long intake tunnel equipped with an intake structure 40 feet below the water's surface. As indicated earlier, based upon the Intake Inspection report of 2005, the structures are reported to generally be in good condition and it was also confirmed by the Plant personnel during our discussions with them.

The Lake Huron Plant was originally built with enough filters for a normal capacity of 600 MGD. However, due to lowered population projections, a limited number of filters were equipped and sedimentation and flocculation basins were only constructed to treat 240 MGD. The Department determined the need to expand the plant and conducted pilot plant testing to gain state approval for expanding the plant as a direct filtration facility. MDEQ approved the Department's request and therefore the plant can be expanded without the construction of new basins. Based on the recent completion of the waste washwater treatment facility and various other improvements, the MDEQ approved a new rated capacity of 400 MGD in January 2006. Currently, the plant is operating in good condition.

The Lake Huron Plant has four low lift pumps, all of which are in good condition. One of the low lift pumps is equipped with variable frequency drive installed in 1999. In order to have a higher degree of operational flexibility, the current CIP includes replacement of one of the low lift pumps with new motor and a variable frequency drive. The design and construction of this improvement is scheduled for 2011-2013.

Chlorine, fluoride, alum, carbon, and polymer are added ahead of the rapid mixing chamber. The chemical feed systems are in good condition. The original chlorine feed system was replaced by a new vacuum feed system, including new evaporators and a chemical type gas scrubber in 1999. The coagulant polymer feed system was installed at the plant in August 2002 to aid in the flocculation process. Since the addition of the polymer feed system, the turbidity of the plant's effluent has decreased, along with the required alum dosage.

Rapid mixing is accomplished by four vertical turbine type mixers, which were replaced in 1998. From the rapid mixing chamber, water enters the flocculation chamber. The 20 paddle flocculators in the flocculation chamber were upgraded within the last few years and are in good condition. The flocculators are proactively maintained on a rotating six-month schedule.

After flocculation, the flow enters two 15 million-gallon settling basins, which are in good condition, although there appears to be a drainage problem on the surface above them. The Lake Huron Plant is designed to operate with 40 granular media gravity filters out of which only thirty (30) filters currently in operation providing a total capacity of approximately 400 MGD at the MDEQ-approved loading rate of 4.0 gpm/sf. The media has been in service since original construction of the plant and has never been replaced. There has been gradual loss of media resulting in the reduction of the filtration capacity and consequently in the throughput capacity of the plant.

Also, the existing filtration control system consisting of control valves, rate-of-flow controllers, level detectors and other devices is based on the antiquated technology, and requires intensive maintenance in order to keep them operational. The existing filter controls also requires continuous operator intervention and has not been interfaced with the highly sophisticated OVATION control system installed at the plant under the Contract PC-713. Filter backwashing is accomplished with four backwash pumps that are in good condition.

The heating and ventilation system including dehumidification system for the filter bed area and the filter pipe gallery are not adequate resulting in these areas remaining very damp and corrosive. All equipment installed within these areas exhibit severe signs of corrosion.

There has been no recent improvements done to the system and no significant improvement projects are listed in the current CIP to mitigate some of the concerns observed and noted in our subsequent discussions with the plant personnel. It will be therefore necessary to develop additional projects of medium to high priority to be included in the future CIP.

From our discussions with the plant personnel, we have observed that the both North and South Clearwell are operating satisfactorily. South Clearwell was rehabilitated recently in 2008 following the roof collapse. A new third Clearwell, with a capacity of 14 million gallons, was completed in 2000.

Water is pumped to the distribution system by eight high service pumps, which are in good condition. Under a recent Project LH-395, four of these pumps were fitted with Variable Frequency Drives with the primary objective to modulate the pumps in response to the malfunctioning of any line pump at downstream – Imlay Pump Station. This was done to minimize the hydraulic hammering and the potential damage to the 96-inch transmission line from the Lake Huron Plant. Also, the existing flow meter on the discharge header of the high lift pumps is completely damaged and need to be reconfigured to relocate it in a more accessible

section of the pipe line. There is currently no mechanism to reliably measure the flow out of this plant. The current CIP does not include any improvements to mitigate this concern.

The existing electrical distribution system is based on very old technology and much of the equipment date back to 1970, making maintenance of this equipment very difficult. There have been few reported failures of these equipment resulting in the plant being forced to operate with very low level of redundancy. The current five-year CIP does not include any specific projects to address the concerns in this area. It will be necessary to develop additional projects of medium to high priority to be included in the future CIP.

The sludge generated in the water treatment process is sent to nine lagoons on the plant site for drying. The resulting dry solids are subsequently sent to a landfill every five to ten years. Five of these lagoons were completed in 1992 and four new lagoons were completed in 2005, expanding the sludge handling capacity and providing enhanced sludge dewatering.

The washwater treatment facility, including new chemical feed systems for sodium sulfate and coagulant polymer was recently completed. This facility is capable of treating up to 12 MGD of filter backwash water. The outfall for the backwash water treatment plant effluent is located approximately 1,200 feet into Lake Huron.

The overall condition of the plant is in adequate to good condition with the exception of few critical process areas where we have noted the effects of aging and fatigue on the system. The plant is able to meet or exceed current regulatory requirements. This plant is critical in terms of supplying water to certain geographic areas. There is very little redundancy available to continue to supply water in these areas if something were to happen to this plant. Therefore, it is necessary to perform a comprehensive needs assessment study to identify and develop list of CIP that will mitigate the current concerns in various process areas and ensure high level of operational efficiency and reliability.

1.02.05 *Water Works Park WTP*

Water Works Park is the newest of the Department's five plants, with the plant coming into operation in parallel with the old Water Works Park plant in September 2003. In February 2004, the old plant ceased operations. The new plant was constructed under a design-build-maintain contract (WW-534) to reduce design and construction schedules and costs compared to traditional practices. This contract was also designed to address the problem the Department has encountered in retaining maintenance staff, as the contractor was required to provide onsite maintenance for a period of seven years after the plant went online, or through first quarter of 2011. The end result is a state- of- art facility capable of producing 240 MGD of superior quality water utilizing ozone as the disinfectant. The plant was also designed with enough flexibility to accommodate future expansion capacity to 320 MGD.

The new Water Works Park treatment plant is the Department's first facility to utilize ozone for disinfection. Ozone is a strong disinfectant widely regarded as the most effective for a broad spectrum of pathogens, including viruses and bacteria. The plant uses three ozone contact chambers for primary disinfection. The flocculation and sedimentation processes are combined into six flocculation/sedimentation basins using inclined plate settlers, alum, sulfuric acid, and polymer to achieve optimum settling of solids. High-rate filtration is achieved by 12 anthracite monomedia filters. Eight thickeners and two centrifuges are designed to process the solids removed from the water. The solids are then taken by truck to a landfill for disposal.

The plant has been designed with numerous redundant features ensuring that it can continue to produce potable water during unforeseen events and circumstances. For example, two smaller control rooms have been constructed in addition to the main control room to allow a plant operator to monitor and control the plant's vital systems from several locations in the facility. Water can quickly be rerouted to isolate sections of the plant in need of cleaning, repair, or general maintenance.

In addition to providing pre-chlorination to the water transported to Springwells Plant and Northeast Plant, Water Works Park can provide chlorine for post-chlorination, filter backwash water, and primary disinfection, should the ozone disinfection system fail or be forced out of service. The new plant provides tanks for one-day and thirty-day storage of each of the thirteen chemicals used in the water treatment process. Other facilities include a water quality testing laboratory and an administration building.

Certain portions of the old plant such as the systems relating to high lift pump station, pre-chlorination facilities, the screening building, and the raw water booster pump station for transfer of raw water to Springwells and Northeast plants are being used in conjunction with the new plant.

As part of the new Plant project WW-534, old 35 million-gallon reservoir was demolished and a new 8 million-gallon reservoir was constructed. The existing 20 million-gallon reservoir remains on site and was refurbished in 2005. The total current reservoir capacity of 28 million gallons is approved by MDEQ as adequate to meet the daily demands of the system.

This plant was also installed with bank of 4X2 MW Emergency generator system under the recently completed CIP DWS-837A so as to allow the plant to be operated at the level necessary to maintain sufficient water pressure in the distribution system during power failure situations.

The raw water booster station is used only in extreme high demand periods of time. It is in adequate operating condition per Department personnel. The proposed CIP under WW-533 includes rehabilitation of raw water booster station building including rehabilitation of booster pumps, associated valves and other building system. In addition, the on-going Project WW-536 includes replacement of yard piping, high service pump discharge header valves and flow

measurement devices with associated instrumentation and control system. This Project is scheduled to be completed by 2013-2014.

In addition, we have also noted from our discussions with the Plant personnel during the inspection that the existing High Lift Pumps and motors have been in service for over 40 years and have outlived their useful life. In order to maintain the reliability and enhanced operational efficiency of the Plant, it is critical that all existing high lift pumps and associated motors be replaced with new system along with Variable Frequency drives so as to achieve desired level of reliability and operational flexibility. The existing active or proposed CIP does not address this requirement and we recommend adequate consideration be given in the future CIP to include replacement of all existing High Lift pumping Units and some of them equipped with variable frequency drive.

2.0 COMMON ISSUES - WATER TREATMENT

2.01 Washwater Disposal & Residuals Handling

Presently, the residuals handling consists of periodic cleaning of the sedimentation basin by flushing the solids through the plant drain system. The residuals are dewatered and hauled to the land fill. The filtered waste wash water is recycled to the plant head end. However, continuous residuals removal is not provided in the sedimentation basins at Northeast WTP and Springwells WTP. There is no means provided for removal residuals from the influent channel. The current practice of manual residual removal is highly inefficient and cumbersome. Also, the processing of residuals to the sewer system is creating operational concerns for the City's waste water treatment plant. The Department has initiated Projects both at Northeast WTP and at Southwest WTP to modify the pre-treatment facility and sedimentation tanks to allow for continuous removal of settled solids with on-site dewatering and disposal facility.

2.02 Treated Water Quality

Environmental regulations continue to mandate improvements to finished water quality. All of the Department's treatment plants produce finished water of exceptional quality, as evidenced by the low turbidity readings and the absence of water quality violations. The treatment facilities are in compliance with current Federal and State drinking water regulations. It is impossible to predict what the future regulations will dictate, but the Department actively monitors regulatory developments and is in a good position to comply with future water quality requirements.

2.03 Personnel Issues

All treatment plants are suffering from a shortage of qualified operators. Shift coverage is accomplished by overtime and loans from other plants. Overall, staffing levels have decreased from past years – mostly due to retiring personnel. The plants are not only losing the personnel,

but also invaluable knowledge of the system and its operations. For example, NEWTP lost its plant manager and several other key personnel within a short time.

Although this is not uncommon in the industry, no substantial Department-wide training or development programs appear to be in place. Individual plant managers take responsibility to ensure that training required by law is conducted. Plant personnel have also taken responsibility for implementing more formalized on-the-job training courses to compensate for the lack of formal Department-wide training. Additionally, efforts to transfer knowledge from the experienced staff are not in place. With the installation of more modern state-of-the-art process control and instrumentation system, it is very essential that each plant should be staffed with technicians with specialized skills in maintaining these systems.

2.04 Disinfection Alternatives

Although there are no concerns about the formation of carcinogenic compounds resulting from the chlorination process in the System, the Department is looking to phase out the use of chlorine for primary disinfection and gradually replace its use with either ozone or ultraviolet (UV) disinfection. As discussed previously, the Water Works Park treatment plant utilizes ozone for primary disinfection.

The Department does not currently have any projected ozone conversion projects for the other four treatment plants in the five-year CIP. However, it is suggested that ozone disinfection should be considered seriously in the future CIP for other four treatment plants due to its multiple advantages.

2.05 Phosphoric Acid Addition

As a corrosion treatment, phosphoric acid is dosed in the filter channel ahead of the Equalization Chamber at all five plants. A similar feed system is employed at all five plants, which consists of two stainless steel tanks, concrete containment dikes, and control equipment. Plant personnel stated that the systems were operating properly and they appeared to be well maintained. It appears that the addition of phosphoric acid has facilitated compliance with the Lead and Copper Rule requirements.

However, since implementation of this treatment system, a white precipitate composed of calcium, aluminum and/or phosphorous has been evident in the low lift pump impellers, valve operators and other plumbing appurtenances. The presence of this precipitate results from the location of phosphate dosing ahead of filter backwash supply and service water supply. Upon evaluation of various alternatives, Department has initiated projects to relocate the feed points and construction of new service water station. This approach has been already implemented in Lake Huron and Northeast WTP. Similar improvement is under construction at Southwest WTP under project DWS-550, and at Springwells WTP. This modification to the phosphoric acid

dosing location is scheduled for construction in 2011-2012.

2.06 Standby Power Generation

As part of Y2K contingency plan and also to provide long-range power reliability, the Department has installed standby power generators in 2000 at three treatment facilities and at seven critical booster pump stations. Subsequently, additional emergency generator systems were installed at the remaining two water treatment plants and at two additional booster pump stations in 2008 under DWS-837A. With the installation of the additional generator units, Department, currently has sufficient capability to respond to any extended power outage and still maintain minimum supply pressure at the distribution system. In addition, Department had initiated under DWS-837B extensive upgrade to the control system to these generators to ensure faster and automatic response to any power outage as well as to allow periodic exercising of these generators to ensure their readiness.

The standby power capabilities at the treatment facilities were designed to meet average day demands, and were never intended to meet demands greater than average day. Therefore, the power generated by the standby generators that are currently in use does not allow each treatment facility to produce potable water at its maximum rated treatment capacity.

2.07 Security Improvements

The Department has recently improved and upgraded security at the majority of its facilities. Security is currently being upgraded at remote sites under contract DWS-844A. Currently, each water treatment facility is equipped with twenty-four hour security personnel, motion detectors, and motion sensor systems on security fences. Infrared and video surveillance cameras are also operational along fence lines and in critical areas. Access control, utilizing electronic card readers, to critical assets within the facilities has also been implemented. Another security upgrade project, DWS-862A is underway to be able to fill in the gaps in the Department's facility security network.

All booster pump stations and system reservoirs are equipped with mechanical security gates, motion sensor systems on security fences, and infrared cameras. All booster pump stations and reservoirs are currently under daily perimeter security surveillance conducted by a contracted private security firm's personnel. The current CIP contains a security systems upgrade project to further enhance security for the water treatment plants to minimize the frequency of false alarms.

2.08 Needs Assessment

The Department has recently completed a needs assessment project at Springwells, Southwest, and Northeast plants to determine and prioritize the short-range needs of each facility. The individual plant needs assessment reports were finalized in fiscal year 2004. The current

Department CIP primarily reflects those identified needs at these three facilities. In addition, where required, the Department has initiated supplemental studies to address the any new concerns of these plants.

Similar needs assessment study will be necessary for Lake Huron WTP as some of critical process and other associated support system exhibit signs of aging and fatigue and will need to be suitably addressed in the future CIP. As with other plants, the above suggested needs assessment study will facilitate in developing an overall plan and also identify specific improvements necessary to address the concerns of the plant.

2.09 Plant Automation and Monitoring

With the completion of system-wide instrumentation project PC-713, the Department is equipped with a highly sophisticated control system capable of monitoring and controlling all critical parts of the system from a centralized System Service center.

Except for certain areas of the Plant, the entire water supply system including all pump stations and the high lift pumps at the Plant are currently being monitored and controlled on “auto” mode of operation from the central location at System Control Center. In addition, to meet any contingency due to communication failure, the control system has been designed such that all these facilities can be controlled locally either at individual equipment or from a dedicated control station located at each of these facilities.

To meet the ever changing technological advancements, the five- year CIP includes several upgrade projects to the control system which will facilitate the system to be maintained consistent with the prevailing technology.

2.10 Redundancy

One of the most critical aspects of the Water System facilities such as water treatment plants and Booster Pump Stations is its ability to maintain normal level of operation with various critical components are out of service.

Through our working with the Department over the years, we have observed that all critical equipment such as Pumps, Valves, chemical feed system, air compressors and major electrical equipment are provided with ‘N+1’ level of redundancy which should allow the facilities to be operated at the desired level during the outage of any of the equipment.

Also, all water plants except for Southwest WTP are provided with three incoming primary electric feeds from the utilities thus offering adequate level of redundancy. All booster pumping stations are provided with dual power feeds from the utility company with each feed capable of supporting the pump station operation at the designed capacity.

In addition, utility feeds at all water treatment plants are supplemented by bank of emergency generators with the capacity sufficient to maintain the plant operation at the desired level during

the complete power outage. Similarly, all critical booster pumping stations are equipped with emergency generators of adequate capacity.

2.11 Summary

Overall, the System's treatment facilities are in adequate to good condition. The new plant at Water Works Park provides an enhanced level of reliability to the overall system. Under the current CIP, there are major projects planned at the Springwells and Northeast plants to address the concerns over the deteriorating condition of various systems as identified in the needs assessment report.

However, it is anticipated that additional expenditures may be required to complete the rehabilitation work necessary to maintain the integrity of the water treatment plants. The needs assessment studies for Springwells WTP, Southwest WTP and Northeast WTP have established the benchmark and overall plan for needed improvements at the three older water treatment facilities. As most of the system at Lake Huron WTP is fast approaching end of its useful life, it will be necessary to initiate a similar needs assessment study to identify and develop an overall plan for the needs improvements to various systems at the Plant.

Progress on these overall plans will continue to be monitored by the Department, and it is anticipated that the CIP will be modified, if necessary, to reflect the capital expenditures necessary to ensure continued reliable operation of the plants. Successful completion of the projects in the CIP should continue to result in an adequate to good evaluation for the overall condition of the water treatment plants. Because of the age of all the water plants except Water Works Park WTP, these facilities may continue to require non-routine renovation, upgrading, and repairs outside those identified in the needs assessment report to ensure continued reliable operation.

3.0 DISTRIBUTION SYSTEM

3.01 Pipe Lines

The transmission and distribution system consists of approximately 720 miles of water mains ranging in size from 24-inch to 120-inch diameters. The distribution systems are owned and operated by individual wholesale customers except in the cities of Detroit and Dearborn. The City of Dearborn's distribution system is closely integrated with the Detroit distribution system. As such, Dearborn is treated as a wholesale customer with unmetered connections to the Detroit distribution system. The System is divided into three pressure zones labeled as high, intermediate, and low. The Lake Huron, Northeast, and Springwells plants supply the high-pressure system. The Springwells, Southwest, and Water Works Park plants serve the intermediate pressure zone. The low-pressure zone is a small area in the city of Detroit and is served by Water Works Park Plant.

There is an ongoing program of replacement of distribution mains in the City, due to several of the older mains reaching the end of their useful lives. This program of renovation and replacement is a continuing annual improvement program. In certain other areas within the City, distribution mains are being replaced with larger mains to ensure that adequate water supplies are available to meet customer demands.

The Department's water transmission system has several areas that require additional lines to meet the increasing service needs of the wholesale customers and improve overall System reliability. The outer edges of the service area are, in several cases, dependent upon single source "dead end" mains. Several major main improvement projects have been included in the CIP which will connect certain of those "dead-end" mains and thus improve service and reliability to the Department's customers and, in some cases, provide relief to overloaded segments of the water transmission system.

The Department is constantly embarking on upgrading and/or installing new transmission lines in response to the needs of their serving communities. Currently, two major CIP involving a new pump station at Reddy Road along with 12 miles of a 30-inch transmission line is being designed for scheduled construction in 2012-2013. These projects have been initiated to address the existing concerns of low water pressure during peak demand periods in the Downriver service areas and more specifically at Ash Township and Huron Township. These projects are also intended to provide redundant source of supply to these communities as well as to Sumpter Township.

Similarly, in order to mitigate the concerns regarding low pressure and reliability of the water supply to Macomb Township and to other North Macomb County Communities, the current CIP includes projects such as Snover Road Pump Station and construction of parallel transmission lines along 24 Mile Road serving those areas. In our discussions with the DWSD personnel, we noted that the proposed Snover Road Pump station is put on hold at this time; the proposed new 24 Mile water main is anticipated to mitigate the low pressure issues in these services areas.

3.02 Booster Stations

The System includes 20 water booster stations. Fifteen of these have associated water storage reservoirs. These booster stations are used to maintain adequate supply and pressure of water in the transmission system. The evaluations of the condition of these facilities stated in this report are based on field investigations completed in March, 2011 and evaluation of the work outlined in DWSD's five-year CIP.

Twelve of the booster stations contain both in-line and reservoir pumps. Five stations contain only in-line pumps, and three stations contain only reservoir pumps. Table-2 below illustrates the capacity of the individual pump station. The detailed description and the capacity profile is

appended in appendices produced as part of this Report.

BOOSTER STATIONS	TABLE 2 – PUMP CAPACITY		
	PUMPS	Capacity (MGD)	Total Dynamic Head (ft)
Adams	L1	18.2	191
	L2	18.2	191
	L3	18.2	191
	L4	18.2	191
	R1	18	350
	R2	18	350
Eastside (Canyon)	Pump 1	10	150
	Pump 2	10	150
	Pump 3	10	150
Electric	Pump 1	5.04	75
	Pump 2	5.04	75
	Pump 3	5.76	150
	Pump 4	8.64	150
Ford	L1	18.14	60
	L2	10.08	120
	L3	10.08	120
	L4	10.08	120
	L5	10.08	120
	R6	10.08	210

	R7	10.08	210
	R8	10.08	210
	R9	10.08	210
	R10	10.08	210
Franklin	L1	22	250
	L2	22	250
	L3	22	250
	L4	30L-22R	253L/320R
	R1	22	320
	R2	22	320
Imlay	R1	75	335
	R2	75	335
	L3/R2	75	335
	L4/R3	70	390
	L5/R4	70	390
	L6/R5	70	390
	L7/R6	70	390
	L8/R7	70	390
Joy Road	L1	15.88	288
	L2	15.88	288
	L3	15	286
	R1	16.13	332
	R2	16.13	332

	R3	15	332
Michigan	Pump 1	3.6	90
	Pump 2	3.6	90
	Pump 3	4.32	110
	Pump 4	8.64	150
	Pump 5	8.64	150
Newburgh	Pump 1	8	200
	Pump 2	8	200
	Pump 3	12	200
	Pump 4	12	200
	Pump 5	12	200
Haggerty	L1	21	100
	L2	21	100
	L3/R3	21L-14R	100L/200R
	R1	14	200
	R2	14	200
	FPP	2.25	225
North Service Center	Pump 2	23/30	240/370
	Pump 3	19.3/25.5	260/400
	Pump 4	23/30	240/370
	Pump 5	19.3/25.5	260/400
	Pump 6	19.3/25.5	260/400
	Pump 7	30	370

	Pump 8	30	370
	Pump 9	30	370
	Pump 10	30	370
	R1	15	75
	R2	15	75
	R3	20	76
	R4	20	76
Northwest	Pump 1	10	150
	Pump 2	10	150
	Pump 3	10	150
	Pump 4	10	150
	Pump 5	10	150
Orion	L1	2	85
	L2	4	85
	L3	4	85
	L4	4	85
Rochester	L1	14.4	205
	L2	14.4	205
	L3	14.4	205
	L4	14.4	205
	L5	14.4	205
Roseville	L1	3	185
	L2	3	185

	L3	5	185
	L4	10	183
	L1	20	170
Schoolcraft	L2	20	170
	R1	20	238
	R2	20	238
	Pump 1	7.4	180
	Pump 2	7.4	180
West Chicago	Pump 3	4.3	110
	Pump 4	7.2	185
	Pump 5	7.2	185
	Pump 6	7.2	185
	L1	29.95	101
	L2	29.95	101
	L3	29.95	101
	L4	28.8	188
West Service Center	L5	29.5	188
	L6	29.5	188
	R1	24	96
	R2	24	96
	R3	20	85
	R4	20	85
Wick	L1	18	252

L2	18	252
R1	12	328
R2	12	328
R3	12	328

Ypsilanti

L1	18	250
L2	18	250
L3	18	250

In addition, the characteristics of the individual pumping stations in the system, the date placed in service, and the source of water supply for each station under normal operating conditions are presented in the Table-3.

The Table 3 also presents information regarding the characteristics and physical condition of the reservoirs in the system. All of the reservoirs in the system are located adjacent to pumping stations. Reservoirs are used to store treated water used during peak demand periods. The reservoir pumps draw water from the storage reservoirs during periods of diurnal peak demands. The reservoirs are refilled during off-peak periods by bleeding water into them from the water transmission system.

Table 3 Condition of Booster Stations and Reservoirs

Station	Date Place In Service	Normal Source of Water Supply	Capacity of Water Storage Reservoirs	In-Line/ Reservoir Pumps	Condition of Station/ Reservoir	Improvements Scheduled in CIP (Station/Reservoir) (C)
Adams Road	1973	North Service Center Water Works Park	10	X/X	Adequate/Good	X/-
Eastside	NA		10	-/X	(a) (b)	-/-

Electric Avenue	1954	Springwells WTP	7	X/X	Adequate/Poor	X/X
Ford Road	1963	Springwells WTP	10	X/X	Adequate/Good	-/-
Franklin	1970	West Service Center	10	X/X	Good/Adequate	X/-
Haggerty	2004	West Service Center	10	X/X	Good/Good	X/X
Imay	1973	Lake Huron WTP	20	-/X	Good/Adequate	X/-
Joy Road	1973	Schoolcraft; Ford Road	10	X/X	Good/Adequate	X/-
Lake Orion	1982	Adams Road Station		X/-	Adequate/NA	-/-
Michigan Avenue	1946	Springwells WTP	7	X/X	Good/Adequate	X/-
Newburgh	1966	West Service Center		X/-	Adequate/NA	X/-
North Service Center	1964	Lake Huron WTP	20	X/X	Good/Adequate	X/
Northwest	1954	Springwells WTP	10	-/X	Adequate/(b)	-/-
Rochester	1997	Imlay Station		X/-	Good/NA	X/-
Roseville	1955	Northeast WTP		X/-	Adequate/NA	X/-
Schoolcraft	1973	Springwells WTP	10	X/X	Adequate/Adequate	X/
West Chicago	1954	Springwells WTP	10	X/X	Adequate/Good	X/-
West Service Center	1967	Springwells WTP	20	X/X	Good/Adequate	X/X
Wick Road	1980	Southwest WTP	10	X/X	Adequate/(b)	X/-

Ypsilanti	1990	Wick Road Station	X/-	Good/NA	X/-
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NA - Not Available

(a) Out of service at time of site visit.

(b) Reservoirs at these locations are underground and have not been inspected by METCO

(c) “X” indicates a project is currently scheduled in the Department’s CIP.

As indicated in the above Table, the reservoirs range in capacity from 1 million to 20 million gallons. The Department operates 15 above-ground concrete reservoirs, three below-ground concrete reservoirs, and four steel reservoirs. Currently, there is no elevated storage in the transmission system.

The Department completed an extensive investigation on the condition of the reservoirs between 1985 and 1990. This study included inspection of reservoirs and prioritized the rehabilitation work required. The reservoirs at the Joy Road and Imlay stations were determined to have the highest priority and these facilities were rehabilitated in the early 1990s. The results of the study also initiated a long-term rehabilitation program. It was executed under Contract DWS-823 and majority of the reservoirs were inspected and rehabilitated under it. A subsequent reservoir rehabilitation program management contract is planned in the current CIP.

The reservoir rehabilitation program also includes improvements to the reservoirs to facilitate draining for ongoing maintenance activities. The current CIP includes an adequate annual allowance for reservoir repairs.

The overall condition of the pump station is in good condition with all stations are provided with “N+1” redundancy level for all critical equipment such as pumping system and other associated electrical and control equipment. All pump stations are remotely monitored and controlled on a real-time basis through a sophisticated “OVATION” based Instrumentation and control system and associated system-wide SCADA network installed under CIP (PC-713).

The current five-year CIP contains projects addressing the capacity and condition of the pumping stations. These projects include electrical equipment replacement and rehabilitation, installation of new pumping units, and improvements to North Service Center, Rochester, West Service Center, Wick Road, and Ypsilanti stations are currently ongoing and included in the CIP.

Various other improvements to Ypsilanti and Joy Road stations are scheduled in the current CIP. The physical and functional condition of the booster stations range from adequate to good.

3.03 Systems Control Center

The transmission and distribution of water throughout the system is controlled and monitored by the Systems Control Center, currently located in the Department's Central Services Facility. The booster stations are operated remote from the Systems Control Center to meet the changing demands placed on the System by its customers.

In order to improve the operation of the Systems Control Center and to optimize the use of pumping units, the Department has completed a major instrumentation and computerization project PC-713 as part of the CIP. The new Systems Control Center, as mentioned above, is now located at the Central Services Facility and equipped with "state-of the art" control and monitoring system capable of monitoring and controlling high lift pump stations at each water treatment plant and the 20 booster pumping stations located around the System. Forty three pressure points throughout the system are also monitored on a real-time basis. With the completion of the system-wide instrumentation project under PC-713 and other associated SCADA projects, the Department is currently provided with highly sophisticated system to offer instantaneous responses to the fluctuating demands of the serving communities.

Additionally, SCC has developed and implemented a redundant system control facility at a remote location from where all essential functions to manage the system operations can be managed in case of emergency situation at the SCC making it to be inaccessible.

3.04 System Maintenance and other items

Staffing levels are adequate to operate the facilities properly and to repair equipment and the transmission and distribution system as breakdowns occur. A common concern among the plant superintendents is the shortage of maintenance staff in the skilled trades. Currently, skilled maintenance services are being performed when needed, but with an aging system, maintenance demands are often greater than the available supply of personnel. Consequently, to keep up with general needs, some preventative maintenance is being performed at regular intervals. The Department's efforts are being supplemented through a number of as-needed skills trade contract.

Maintenance efforts at the majority of treatment plants appear to be reactive rather than proactive. While the lack of preventative maintenance has not significantly impacted the Department's ability to provide water service, long-term deferred maintenance will have an adverse effect on the useful life of the facilities, which will require increased capital expenditures. In an effort to provide additional staff in certain skilled maintenance areas, the Department has continued to contract private companies to provide skilled maintenance services.

The recent upgrade of the maintenance and billing system has provided the Department the ability to compare current maintenance performance to previous periods and allocate their

resources very efficiently.

The Department has also taken steps in the direction of reducing the power consumption by initiating several projects incorporating variable frequency drives to efficiently operate their pumps. Additionally, the Department is looking in to ways in which they could operate the various pumps in the most efficient ways to meet the system demands. The Department is also looking into updating its current hydraulic model in order to efficiently use it for energy management and to develop future CIP.

4.0 OPINIONS

As a result of our investigations and analyses of the System facilities, we have formulated the following opinions:

1. The System has an excellent and abundant supply of raw water from the Great Lakes System that is naturally available. Although all three intake facilities of the System have not been inspected since 2005, our discussions with the plant personnel indicate that they are generally in good working order. However, it will be prudent to perform periodic under water inspection of these structures to determine their structural integrity as well to determine the presence and the impact of zebra mussels on the overall capacity of these facilities.
2. Overall, the treatment facilities and booster stations are in adequate to good operating condition, while the System's storage reservoirs are in good operating condition. Major repairs, replacements, and improvements are necessary to enhance the ability of the Springwells and Northeast water treatment plants to continue to produce water that meets current water quality standards and increasing customer demands. Additional major improvements beyond the five-year CIP will be necessary to maintain the reliable operation of the System.
3. Major improvements in the Filtration system, electrical distribution system and Heating and Control System at Lake Huron treatment Plant will be necessary beyond the projects currently listed in five-year CIP. A comprehensive needs assessment study will be required to be initiated for this Plant in order to develop an overall plan and specific projects to address the above needs of this Plant.
4. The new water treatment facility at Water Works Park has enhanced the long-term viability of the Department's water supply capabilities. However, further improvements are needed to replace the old plant components – such as High Lift pumps and associated infrastructure.
5. The current CIP does not address the need for continuous removal and on-site processing of residuals from the sedimentation basins and influent channel at Springwells treatment plant. Additional improvements beyond the current five-year CIP will be necessary to reflect this requirement at Springwells WTP.

6. While operation and maintenance of the System is adequate, additional personnel would facilitate the filling of shift schedules, allow for increased training of operating personnel, and provide for better routine and preventative maintenance of the System. In order to meet the increasing maintenance needs of the sophisticated instrumentation and control system at the plants and at the pump stations, a comprehensive plan will be necessary to develop centralized pool of highly specialized technical staff. Such plan will also include continuing training of these personnel to keep abreast of changing technology. While the experienced staff is retiring, it is imperative that the Department initiate and implement a program to transfer knowledge from these personnel.
7. The completion of the Department's standby power generation projects at the Water Works Park and Northeast plants should enable long-range power reliability to meet the System's average day demands during emergency situations. However, serious consideration needs to be given to utilize these Generator Systems in reducing the peak power demand from the utility power source. That could provide substantial benefits by lowering the operating costs of the facilities especially the Water treatment plant.

APPENDIX A-3

Regulatory Requirement Evaluation

May 24, 2011

Mr. Bart Foster
President
The Foster Group, LLC
P.O. Box 26282
Leawood, KS 66225

Re: DWSD Water Supply System
Evaluation of Regulatory Requirements

Dear Mr. Foster:

Attached please find an analysis of regulatory requirements pertaining to the Detroit Water and Sewerage Department (DWSD) Water Supply System. This report has been prepared as a document which can be incorporated into the Official Statement which will be prepared in conjunction with the issuance of revenue bonds to support capital improvements for the System. The purpose of this report is to present findings relating to the status of compliance with regulatory requirements for the Water Supply System which is owned and operated by the Detroit Water and Sewerage Department. This evaluation considers the state and federal requirements imposed on the Water Supply System under the Federal Safe Drinking Water Act, the Michigan Safe Drinking Water Act, the Michigan Natural Resources and Environmental Protection Act, and other pertinent laws and regulations.

The analysis is based on a review of DWSD's raw water and finished water quality, as compared to the Maximum Contaminant Levels (MCLs) and treatment techniques required by U.S. EPA and the Michigan Department of Environmental Quality (MDEQ). In addition, the analysis also considers other regulatory requirements, including preparation of Consumer Confidence Reports, corrosion control activities to keep water at the National Lead and Copper Rule, management of disinfectants and disinfection byproducts, filter backwash disposal, taste and odor controls, source water protection programs, and Emergency Response Plans.

The evaluation confirms that DWSD's public water supply system is in compliance with all regulatory requirements, and is undertaking the necessary program activities to protect the public health and to meet the environmental protection goals established under the Safe Drinking Water Act.

Very truly yours,

Hinshon Environmental Consulting, Inc.



Richard T. Hinshon, P.E.
President

RTH:sp
FGR-01
Attachment

Cc: Ms. Cheryl Porter, DWSD

FGR.eval of reg req 5-24-11.doc

WATER SUPPLY SYSTEM FEASIBILITY REPORT

Regulatory Requirements

There are numerous federal and state regulatory requirements which directly or indirectly impact on DWSD's water supply system. These include the Federal Safe Drinking Water Act, Michigan Safe Drinking Water Act 1976 PA 399, and the Michigan Natural Resources and Protection Act (the "Michigan Environmental Code"), and the administrative rules and regulations which have been promulgated pursuant to these statutes. These programs affect many facets of DWSD's water supply system, including design, construction and operation of water intakes, water Treatment Plants, storage facilities and the water distribution system, the quality of finished water distributed to retail and wholesale customers, management and disposal of filter backwash water, and the handling, storage and management of hazardous materials.

The Federal Safe Drinking Water Act establishes Maximum Contaminant Levels (MCL's) for many parameters to protect the public health of consumers. MCL's have been adopted for microorganisms, disinfectants, disinfection byproducts, inorganic chemicals, organic chemicals, and radionuclides. The Safe Drinking Water Act also establishes monitoring requirements for community water supplies, and requires that specific treatment techniques such as filtration be used to remove contaminants to specified levels. In addition, U.S. EPA has adopted National Secondary Drinking Water Regulations, which are non-enforceable guidelines for contaminants which contribute to cosmetic effects such as skin or tooth discoloration, or aesthetic concerns such as taste, odor and color in drinking water. The Safe Drinking Water Act also includes requirements relating to the preparation and distribution of consumer confidence reports, and source water assessment studies to ensure that raw water intakes are adequately protected.

DWSD's water treatment facilities are in compliance with all current federal and state drinking water regulations. DWSD's water supply system has demonstrated the ability to produce finished water of exceptional quality as evidenced by low turbidity levels, and the absence of any water quality violations. DWSD is implementing corrosion control activities through the application of phosphoric acid at its five water filtration plants. Filter backwash water is disposed of in accordance with requirements set forth by the Michigan Department of Environmental Quality (MDEQ).

Additional details on these regulatory requirements and the current status of DWSD's water supply system is included in the Appendix included with this report.

WATER SUPPLY SYSTEM FEASIBILITY REPORT

APPENDIX

Regulation of the DWSD water supply system is accomplished primarily through the Safe Drinking Water Act (SDWA) as amended in 1986. Under that statute, U.S. EPA has established national limits on the contaminant levels in drinking water which are known as Maximum Contaminant Levels (MCL's). MCL's have been promulgated for microorganisms, disinfectants, 11 disinfection byproducts, 16 inorganic chemicals, 53 organic chemicals, and several radionuclides, for a total 91 regulated contaminants. In some cases, EPA has established mandatory treatment techniques to serve in lieu of an MCL as the mechanism to control contaminant levels in the water supply.

System Configuration and Annual Pumpage

The Detroit Water and Sewerage System utilizes three intakes and five Treatment Plants to supply water for its wholesale and retail customers. These include an intake at the southern end of Lake Huron which provides raw water to DWSD's Lake Huron Water Treatment Plant, and an intake in the Detroit River near Belle Isle which serves the Water Works Park Water Treatment Plant, the Northeast Water Treatment Plant, and the Springwells Water Treatment Plant. The Southwest Water Treatment Plant utilizes raw water from the Fighting Island intake in the Detroit River. Pumpage volumes for the five Treatment Plants are reported to MDEQ monthly. The cumulative annual volume for each Treatment Plant for the last Fiscal Year covering the period July 1, 2009 -- June 30, 2010 is shown on Table 1.

**TABLE 1
ANNUAL PUMPAGE VOLUME FOR FY 09-10
FOR DWSD'S WATER TREATMENT PLANTS**

Facility	Annual Volume (Million Gallons)
1. Water Works Park	30,515
2. Springwells	50,072
3. Southwest	20,863
4. Northeast	34,466
5. Lake Huron	45,479
TOTAL	181,395

Overall Water Quality

The quality of the raw water at DWSD's three intakes varies somewhat due to the different conditions at each point of withdrawal. Nevertheless, the raw water quality at all three intakes is generally excellent. DWSD's five water Treatment Plants provide finished water which is generally excellent in quality, and which meets or surpasses all Safe Drinking Water Act requirements.

All five water Treatment Plants achieve turbidity levels in finished water which are far below the maximum national standard of 0.3 NTU based on 95% of samples taken. DWSD is able to consistently achieve its goal of 0.1 NTU, which is three times more stringent than the national requirements as set forth in EPA's Enhanced Surface Water Treatment Rule. In addition, the finished water quality at all five of DWSD's water Treatment Plants meets or exceeds all other MCL's established by EPA under the Safe Drinking Water Act. A summary of the overall compliance with MCL's for 2010 is shown in Table 2.

TABLE 2
SUMMARY OF ANALYTICAL RESULTS FOR
REGULATED DETECTED CONTAMINANTS
(2010 Data)

Contaminant	Test Date	Units	Health Goal MCLG	Allowed Level MCL	Highest Level Detected	Range of Detection	Violation Yes/No	Major Sources in Drinking Water
Inorganic Chemicals – Annual Monitoring at Plant Finished Water Tap								
Fluoride	2010	ppm	4	4	1.19	0.63 – 1.19	No	Erosion of natural deposit; Water additive which promotes strong teeth; Discharge from fertilizer and aluminum factories.
Nitrate	08/23/2010	ppm	10	10	0.28	n/a	No	Runoff from fertilizer use; Leaching from septic tanks, sewage; Erosion of natural deposits.
Barium	06/09/2008	ppm	2	2	0.01	n/a	No	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits.
Selenium	06/09/2008	ppb	50	50	1	n/a	No	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines.
Disinfectant Residuals and Disinfection Byproducts – Monitoring in Distribution System (level detected is the highest running annual average based on quarterly sampling)								
Total Trihalomethanes (TTHM)	Feb-Nov 2010	ppb	n/a	80	23.1	2.7 – 40.1	No	Byproduct of drinking water chlorination.
Haloacetic Acids (HAA5)	Feb-Nov 2010	ppb	n/a	60	10.2	1.8 – 19.6	No	Byproduct of drinking water chlorination.
Disinfectant (Bromate)	Jan-Dec 2010	ppb	0	10	2.0	0.0-2.4	No	Byproduct of drinking water disinfection.
Disinfectant (chlorine)	Jan-Dec 2010	ppm	MRDGL 4	MRDL 4	0.73	0.49-0.85	No	Water additive to control microbes.
2010 Turbidity – Monitored every 4 hours at Plant Finished Tap								
Highest Single Measurement Cannot Exceed 1 NTU	Lowest Monthly % of Samples Meeting Turbidity Limit of 0.3 NTU (Minimum 95%)				Violation Yes/No		Major Sources in Drinking Water	
0.28	100%				No		Soil Runoff	
Turbidity is a measure of the cloudiness of water. We monitor it because it is a good indicator of the effectiveness of our filtration system.								
2010 Microbial Contaminants – Monthly Monitoring in the Distribution System								
Contaminant	MCLG	MCL		Highest Detected		Violation Yes/No		Major Sources in Drinking Water
Total Coliform Bacteria	0	Presence of coliform bacterial >5% of monthly samples		1.7%		No		Naturally present in the environment.
E. Coli or Fecal Coliform Bacteria	0	A routine sample and a repeat sample are total coliform positive, and one is also fecal or E. coli positive		0 ¹		No		Human waste and animal fecal waste.
2008 Lead and Copper Monitoring at Customers' Tap								
Contaminant	Test Date	Units	Health Goal MCLG	Action Level AL	90 th Percentile Value*	Number of Samples Over AL	Violation Yes/No	Major Sources in Drinking Water
Lead	2008	ppb	0	15	4	0	No	Corrosion of household plumbing system; Erosion of natural deposits; leaching from wood preservatives.
Copper	2008	ppm	1.3	1.3	0.083	0	No	
* The 90 th percentile value means 90 percent of the homes tested have lead and copper levels below the given 90 th percentile value. If the 90 th percentile value is above the AL, additional requirements must be met.								

Regulated Contaminant	Treatment Technique	Running Annual Average	Monthly Ratio Range	Violation Yes/No	Typical Source of Contaminant
Total Organic Carbon (ppm)	The Total Organic Carbon (TOC) removal ratio is calculated as the ratio between the actual TOC removal and the TOC removal requirements. The TOC is measured each quarter and because the level is low, there is no requirement for TOC removal.			No	Erosion of natural deposits.

2010 Special Monitoring					
Contaminant	Units	MCLG	MCL	Level Detected	Source of Contamination
Sodium	ppm	N/A	N/A	4.80	Erosion of natural deposits.

¹ On December 7 and 8, 2010, one routine and one repeat E. coli positive samples were detected at a Detroit fire station. Additional samples were collected on December 9 and 10, 2010 and it was determined the contamination was restricted to the bathroom faucet aerator within the Detroit fire station. The quality of the water being delivered to the customers of the City of Detroit Water and Sewerage Department was never affected.

Lead and Copper Rule/Corrosion Control Program

Under the Safe Drinking Water Act, water systems serving more than 50,000 people (large water systems) are required to monitor lead and copper levels by collecting samples of tap water from homes served by the system. If 10% or more of the samples exceed the threshold levels of 0.0015 mg/l for lead or 1.3 mg/l for copper, the water supplier must undertake a program to effectuate control corrosion in the distribution system to reduce lead and copper levels. DWSD's monitoring program determined in 1992 that the levels were high enough to trigger corrosion control activities. Subsequently, DWSD instituted a program for phosphoric acid addition at all Water Treatment Plants to satisfy this regulation. Sampling conducted in 2008 demonstrates that DWSD has achieved compliance with the Safe Drinking Water Act requirements since the lead level of 4 ppb is well below EPA's 15 ppb MCL, and the copper level of .083 ppm is well below EPA's 1.3 ppm MCL. DWSD will conduct its required triennial monitoring program in 2011, and will continue to monitor water quality parameters in the distribution system to assess the efficacy of the corrosion control treatment program. The monitoring frequency has been reduced from 4 times per year to 2 times per year, per MDEQ requirements.

Disinfection and Disinfection Byproducts

DWSD utilizes chlorine and ozone to disinfect its raw and finished water, and control microorganisms including coliforms, giardia, cryptosporidium, and viruses. DWSD carefully monitors the dosage and contact time for disinfectants to achieve Safe Drinking Water Act requirements for inactivation of these contaminants.

DWSD has adopted goals for disinfection byproducts such as trihalomethanes, haloacetic acids, and bromate which are less than the MCLs established by EPA under the Safe Drinking Water Act. DWSD has conducted Stage I compliance monitoring based on a running annual average of quarterly sample averages. Stage II compliance with the disinfection byproduct rule will be based on sampling which will begin in April, 2012. Stage II compliance will be determined from locational running averages for specific sampling sites identified during the Initial Distribution System Evaluation.

In accordance with EPA's Long Term Enhanced Surface Water Treatment Rule, DWSD has collected and analyzed cryptosporidium, turbidity and *E. coli*. The results indicate that no additional treatment modifications are needed to comply with the regulation based on the quality of DWSD's source water. A second round of sampling will take place in 2015 to determine if there have been any changes in the source water quality.

Filter Backwash Water

DWSD uses a variety of methodologies to manage backwash water from the filtration process at its Water Treatment Plants. These include treatment and discharge pursuant to NPDES discharge permits, dewatering and transport of solids to landfills for disposal, and/or recycle of filtered backwash water to the head end of the Water Treatment Plant.

Taste and Odor

DWSD routinely measures taste and odor of finished water at each Treatment Plant, and a flavor profile panel convenes periodically to evaluate finished water quality. DWSD has consistently achieved its goal of less than 1 TON (Threshold Odor Number) which is far more restrictive than the 3 TON National Secondary Drinking Water Regulation adopted by EPA under the Safe Drinking Water Act.

Consumer Confidence Reports

Consistent with the requirements of the Safe Drinking Water Act, DWSD prepares and distributes an annual water quality report to its customers describing the quality of water being distributed by the system. The report includes educational materials, information on the sources of contaminants in drinking water, and a status report on DWSD's overall compliance with Safe Drinking Water Act requirements.

Source Water Protection Program

DWSD has worked with MDEQ to complete the development of a Source Water Assessment Program pursuant to the Safe Drinking Water Act requirements, and continues to work with MDEQ on implementation of the Source Water Protection Program. DWSD assisted MDEQ in identifying and evaluating point and non-point source pollutant contributors upstream of the three water intakes, and has provided assistance in the development of a river flow computer model that can be used to simulate potential impacts from a chemical spill originating in an upstream area. The Source Water Assessment Program provides a basis for developing future management controls to protect the quality of raw water and to ensure that it is not adversely impacted by upstream activities.

Emergency Response Plans

DWSD has prepared Emergency Response Plans for each of its five Water Treatment Plants. The purpose of these documents is to establish procedures which can be implemented in the event of an emergency so that the problem can be corrected quickly and the impacts mitigated. Typical emergency situations addressed in the plans include loss of pressure, source water contamination, natural disasters and terrorist acts.

Key contact persons are identified in the plans and outside resources (e.g. construction contractors, equipment suppliers) who can provide assistance on short notice. The plans also list critical customers who are dependent on an uninterrupted source of safe water.

Plans for each Water Treatment Plant are reviewed annually and updated as necessary. Copies are kept on site at each plant for easy access in an emergency. The scope and content of the Emergency Response Plans meet state and federal regulatory requirements.

Summary and Conclusion

DWSD is undertaking all of the necessary program activities to allow it to achieve and maintain compliance with Safe Drinking Water Act requirements, and to ensure that the public health and environmental protection goals of the Safe Drinking Water Act are met.

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**CITY OF DETROIT
WATER FUND**

Basic Financial Statements

June 30, 2010

(With Independent Auditors' Report Thereon)

**CITY OF DETROIT
WATER FUND**

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KPMG LLP
Suite 1200
150 West Jefferson
Detroit, MI 48226

Independent Auditors' Report

The Board of Water Commissioners,
The Honorable Mayor Dave Bing,
and the Honorable Members of the City Council
City of Detroit, Michigan:

We have audited the accompanying basic financial statements of the Water Fund (the Fund), an enterprise fund of the City of Detroit, Michigan (the City), as of and for the year ended June 30, 2010, as listed in the table of contents. These basic financial statements are the responsibility of the Fund's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with auditing standards generally accepted in the United States of America. 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 consideration of internal control over financial reporting as a basis for designing audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Fund's internal control over financial reporting. Accordingly, we express no such opinion. An audit also includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements, assessing the accounting principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation. We believe that our audit provides a reasonable basis for our opinion.

As discussed in note 1 to the basic financial statements, the financial statements referred to above present only the Water Fund of the City and are not intended to present fairly the financial position of the City as of June 30, 2010, the changes in its financial position, or, where applicable, its cash flows for the year then ended, in conformity with U.S. generally accepted accounting principles.

In our opinion, the basic financial statements referred to above present fairly, in all material respects, the financial position of the Water Fund as of June 30, 2010, and the changes in its financial position and its cash flows for the year then ended, in conformity with U.S. generally accepted accounting principles.

As discussed in note I(o) to the basic financial statements, the Fund adopted the provisions of Governmental Accounting Standards Board Statement No. 53, *Accounting and Financial Reporting for Derivative Instruments*, as of July 1, 2009.

The Fund has not presented a management's discussion and analysis, schedule of employer contributions, and schedule of funding progress that U.S. generally accepted accounting principles require to supplement, although not be a part of, the basic financial statements.

KPMG LLP

Detroit, Michigan
December 21, 2010

**CITY OF DETROIT
WATER FUND**

Statement of Fund Net Assets

June 30, 2010

Current assets:	
Cash and cash equivalents	\$ 11,585,084
Investments	21,192,353
Accounts receivable:	
Billed accounts receivable	61,573,023
Unbilled accounts receivable	26,702,430
Other accounts receivable	2,284,629
Allowance for doubtful accounts	(25,061,864)
Total accounts receivable, net	65,498,218
Due from other funds	118,670,060
Inventories	7,251,842
Prepaid expenses	1,273,189
Restricted:	
Cash and cash equivalents	5,554,329
Investments	106,879,144
Other accounts receivable	339,247
Due from other funds	9,393,793
Total current assets	347,637,259
Noncurrent assets:	
Restricted:	
Cash and cash equivalents	14,192,858
Investments	221,486,588
Net pension asset	85,525,858
Deferred charges	40,268,106
Fair value of derivatives	26,984,477
Capital assets:	
Land and land rights	6,062,803
Land improvements	103,037,813
Buildings and structures	797,401,686
Mains	986,996,016
Services and meters	165,186,458
Machinery, equipment, and fixtures	945,462,983
Construction in progress	160,010,296
Total capital assets	3,164,158,055
Less accumulated depreciation	(999,296,329)
Total capital assets, net	2,164,861,726
Deferred outflows of resources	4,500,379
Total noncurrent assets and deferred outflows	2,557,819,992
Total assets and deferred outflows	\$ 2,905,457,251

**CITY OF DETROIT
WATER FUND**

Statement of Fund Net Assets

June 30, 2010

Current liabilities:

Current liabilities payable from unrestricted assets:

Accounts and contracts payable	\$ 15,051,600
Accrued salaries and wages	2,519,342
Due to other funds	93,795,792
Due to fiduciary funds	5,056,959
Accrued interest payable	—
Other accrued liabilities	12,081,083
State revolving loans	411,250
Pension obligation certificates of participation	593,104
Capital leases	663,649
Accrued compensated absences	7,078,769
Accrued workers' compensation	2,011,000
Claims and judgments	80,000
Pollution remediation obligation	—
Total current liabilities payable from unrestricted assets	<u>139,342,548</u>

Current liabilities payable from restricted assets:

Revenue bonds and state revolving loans	36,348,750
Accrued interest	58,466,586
Accounts and contracts payable	18,171,185
Due to other funds	21,419,307
Other current accrued liabilities	451,905
Total current liabilities payable from restricted assets	<u>134,857,733</u>
Total current liabilities	<u>274,200,281</u>

Long-term liabilities:

Revenue bonds and state revolving loans, net	2,153,379,619
Pension obligation certificates of participation, net	80,477,124
Capital leases	22,423
OPEB obligation	27,944,436
Accrued compensated absences	4,059,727
Accrued workers' compensation	8,942,000
Claims and judgments	4,469,000
Pollution remediation obligation	80,000
Derivative Instruments – swap liability	215,506,801
Total long-term liabilities	<u>2,494,881,130</u>
Total liabilities	<u>2,769,081,411</u>

Fund net assets:

Invested in capital assets, net of related debt	131,394,921
Restricted:	
Restricted for capital acquisitions	25,818,115
Restricted for debt service	97,828,028
Unrestricted	(118,665,224)
Total fund net assets	<u>\$ 136,375,840</u>

See accompanying notes to basic financial statements.

**CITY OF DETROIT
WATER FUND**

Statement of Revenues, Expenses, and Changes in Fund Net Assets

Year ended June 30, 2010

Operating revenues:	
Water sales – Detroit	\$ 65,580,546
Water sales – suburban	210,662,057
Miscellaneous	9,227,823
	<hr/>
Total operating revenues	285,470,426
	<hr/>
Operating expenses:	
Source of supply	1,600,836
Low-lift pumping	4,897,562
High-lift pumping	17,971,502
Purification	15,464,412
Water quality operations	792,590
Transmission and distribution	34,158,895
Services and meters	8,096,307
Hydrant division	314,729
Commercial	7,632,044
Operations and maintenance	45,426,798
Central city staff services	6,225,681
Administrative and general	15,351,608
	<hr/>
Total operating expenses before depreciation	157,932,964
Depreciation	81,660,122
	<hr/>
Total operating expenses	239,593,086
	<hr/>
Operating income	45,877,340
	<hr/>
Nonoperating revenues (expenses):	
Investment earnings losses:	
Losses on investment activity	(1,894,055)
Change in fair value of derivatives	(22,085,744)
Interest expense, net of capitalized interest	(107,044,663)
Miscellaneous expense	664,100
	<hr/>
Total nonoperating expenses, net	(130,360,362)
	<hr/>
Decrease in net assets before capital contributions	(84,483,022)
Capital contributions	111,777
Transfers in	—
	<hr/>
Decrease in fund net assets	(84,371,245)
Fund net assets – beginning of year, as restated – See note 9	220,747,085
	<hr/>
Fund net assets – end of year	\$ 136,375,840
	<hr/> <hr/>

See accompanying notes to basic financial statements.

**CITY OF DETROIT
WATER FUND**

Statement of Cash Flows

Year ended June 30, 2010

Cash flows from operating activities:	
Receipts from customers	\$ 273,476,418
Loans to other funds	(8,480,336)
Payments to suppliers	(79,771,425)
Payments to employees	(64,305,673)
Net cash provided by operating activities	<u>120,918,984</u>
Cash flows from noncapital financing activities:	
Interest paid on pension obligation certificates of participation	(4,658,657)
Miscellaneous nonoperating income	496,903
Net cash used in noncapital financing activities	<u>(4,161,754)</u>
Cash flows from capital and related financing activities:	
Acquisition and construction of capital assets	(99,984,025)
Proceeds from sale of capital assets	189,844
Principal paid on revenue bonds and state revolving loan:	(35,778,213)
Principal paid on pension obligation certificates	(257,165)
Interest paid on revenue bonds and state revolving loan:	(110,288,855)
Payment to escrow agent for refunded bonds	—
Proceeds from issuance of revenue bonds and state revolving loan:	2,028,744
Net cash used in capital and related financing activities	<u>(244,089,670)</u>
Cash flows from investing activities:	
Proceeds from sales and maturities of investments	1,040,490,480
Purchase of investments	(906,689,260)
Investment in derivative instruments	—
Interest received on investments	(17,982,004)
Net cash provided by investing activities	<u>115,819,216</u>
Net decrease in cash and cash equivalents	(11,513,224)
Cash and cash equivalents at beginning of year	<u>42,845,495</u>
Cash and cash equivalents at end of year	<u>\$ 31,332,271</u>
Reconciliation of operating income to net cash provided by operating activities:	
Operating income	\$ 45,877,340
Adjustments to reconcile operating income to net cash provided by operating activities	
Depreciation	81,660,122
Write-off of construction in progress	3,502,420
Loss on disposal of capital assets	6,100,976
Changes in assets and liabilities:	
Accounts receivable	(11,994,008)
Due from other funds	(50,782,945)
Inventories	(1,697,493)
Prepaid expenses	(61,279)
Net pension asset	(3,845,611)
Accounts and contracts payable	1,075,886
Accrued salaries and wages	100,556
Due to other funds	42,302,609
Due to fiduciary funds	1,830,443
Other accrued liabilities, compensated absences, and workers' compensation	(674,507)
Net OPEB obligation	11,332,667
Claims and judgments payable	(3,867,200)
Pollution remediation obligations	59,008
Net cash provided by operating activities	<u>\$ 120,918,984</u>
Noncash activities:	
Deferred outflows of derivatives	\$ 4,500,379
Deferred defeasance	75,071,404
Adjustment to beginning net assets at July 1, 2009 (see note 9)	84,114,479

See accompanying notes to basic financial statements.

**CITY OF DETROIT
WATER FUND**

Notes to Basic Financial Statements

June 30, 2010

(1) Summary of Significant Accounting Policies

The City of Detroit (the City) Charter established the Water Department in the year 1836 to supply water within and outside the City under the administration of the Board of Water Commissioners. The Water Fund (the Fund), an enterprise fund, separately accounts for the Water Supply System (the System), as is required by bond ordinances of the City. The following is a summary of the more significant accounting policies followed in the preparation of the Fund's financial statements. These policies conform to U.S. generally accepted accounting principles (GAAP).

The financial statements of the Fund have been included in the City of Detroit's Comprehensive Annual Financial Report and reported as an enterprise fund. Copies of these reports, along with other financial information, can be obtained at the Fund's administrative office, located at 735 Randolph, Detroit, Michigan, 48226.

(a) Basis of Accounting

The accounting policies of the Fund conform to GAAP as applicable to governmental entities. The accounts of the Fund, which are organized as an enterprise fund, are used to account for the Fund's activities, which are financed and operated in a manner similar to a private business enterprise. Accordingly, the Fund maintains its records on the accrual basis of accounting. Revenues from operations, investments, and other sources are recorded when earned. Expenses (including depreciation and amortization) of providing services to the public are accrued when incurred.

Nonexchange transactions, in which the Fund receives value without directly giving equal value in return, include contributions and grants. On an accrual basis, revenue from contributions and grants is recognized in the fiscal year in which all eligibility requirements have been satisfied. Eligibility requirements include timing requirements and expenditure requirements. Timing requirements specify the year when the resources are required to be used or the fiscal year when use is first permitted. Expenditure requirements specify the year in which the resources are provided to the Fund on a reimbursement basis.

In accordance with Governmental Accounting Standards Board (GASB) Statement No. 20, *Accounting and Financial Reporting for Proprietary Funds and Other Governmental Entities That Use Proprietary Fund Accounting*, the Fund applies all applicable GASB pronouncements, as well as all Financial Accounting Standards Board (FASB) Statements and Interpretations, Accounting Principles Board (APB) Opinions, and Accounting Research Bulletins (ARBs) issued on or before November 30, 1989, unless those pronouncements conflict with or contradict GASB pronouncements. The Fund also has the option of following FASB guidance issued after November 30, 1989, but has elected not to do so.

(b) Cash and Cash Equivalents

Cash and cash equivalents include cash on hand, demand deposits, and short-term investments with original maturities of three months or less from the date of acquisition.

**CITY OF DETROIT
WATER FUND**

Notes to Basic Financial Statements

June 30, 2010

(c) Investments

Investments are reported at fair value based on quoted market prices.

(d) Inventories

Inventories consist of operating and maintenance and repair parts for water assets and are valued at the lower of cost or market, with cost being determined on an average cost method.

(e) Capital Assets

Capital assets are recorded at historical cost, together with interest capitalized during construction. Depreciation is computed using the straight-line method over the estimated useful lives of the related assets as follows:

Land improvements	67 years
Building and structures	40 years
Mains	67 years
Services and meters	67 years
Machinery, equipment, and fixtures	3 – 20 years

The Fund capitalizes qualifying net interest costs of the System on bonds issued for capital construction in accordance with Statement of Financial Accounting Standards (SFAS) No. 34, *Capitalization of Interest Cost*, as amended. Accordingly, capitalized interest for the year ended June 30, 2010 was \$13,480,143.

(f) Taxes and City Services

The Fund pays no direct federal, state, or local taxes, except local taxes on excess property and federal social security taxes. The Fund reimburses the City for most of the direct services furnished by other City departments, including general staff services. Charges are billed for all water services provided to City departments.

(g) Shared Costs

Costs related to shared facilities and personnel are allocated to the Fund on a basis that relates costs incurred to the fund benefited.

(h) Compensated Absences

The liability for compensated absences reported in the financial statements consists of unpaid, accumulated vacation, and sick leave balances. Unused vacation pay and banked overtime accumulate up to a maximum level until termination of employment, while there is no vesting of sick pay until an employee reaches age 60 or completes 25 years of service. The liability for compensated absences has been calculated using the vesting method, in which leave amounts for both employees who currently are eligible to receive termination payments and other employees who are expected to become eligible in the future to receive such payments upon termination are included. The liability

**CITY OF DETROIT
WATER FUND**

Notes to Basic Financial Statements

June 30, 2010

has been calculated based on the employees' current salary level and includes salary-related costs (e.g., social security and Medicare tax).

(i) Bond Premiums, Discounts, Issuance Costs, and Deferred Amounts on Refundings

Bond premiums, discounts, issuance costs, and deferred amounts on refundings are deferred and amortized over the life of the bonds. Bond premiums and discounts are amortized using the effective-interest method, and bond issuance costs and deferred amounts on refunding are amortized using the straight-line method. Bonds payable are reported net of the applicable bond premium, discounts, and deferred amounts on refundings. Bond issuance costs are reported as deferred charges.

(j) Net Assets

Net assets are categorized as follows:

Invested in Capital Assets – This consists of capital assets, net of accumulated depreciation and related debt.

Restricted – This consists of net assets that are legally restricted by outside parties or by law through constitutional provisions or enabling legislation. When both restricted and unrestricted resources are available for use, generally it is the Fund's policy to use restricted resources first, and then unrestricted resources when they are needed.

Unrestricted – This consists of net assets that do not meet the definition of "restricted" or "invested in capital assets."

(k) Unbilled Revenue

The Fund records unbilled revenues for services provided prior to year-end by accruing actual revenues billed in the subsequent month.

(l) Interest Expense

Interest expense in the statement of revenues, expenses, and changes in fund net assets includes amounts paid on interest rate swaps, as well as the amortization of premiums, discounts, issuance costs, and deferred amounts on refunding. Interest expense is reported net of capitalized interest of \$13,480,143 for the year ended June 30, 2010.

(m) Classification of Revenues and Expenses

The Fund classifies its revenues and expenses as either operating or nonoperating.

Operating revenues include activities that have the characteristics of exchange transactions, such as revenue from charges for water service. Nonoperating revenue includes activities that have the characteristics of nonexchange transactions, such as contributions and investment income.

**CITY OF DETROIT
WATER FUND**

Notes to Basic Financial Statements

June 30, 2010

Operating expenses include the costs of operating the water utility, administrative expenses, and depreciation on capital assets. All expenses not meeting this definition, including interest expense, are reported as nonoperating expenses.

(n) Use of Estimates

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

(o) New Accounting Pronouncements

In June 2008, GASB issued GASB Statement No. 53, *Accounting and Financial Reporting for Derivative Instruments*. This statement addresses the recognition, measurement, and disclosure of information regarding derivative instruments. Specifically, it requires that derivative instruments be reported at fair value. The changes in fair value of derivative instruments that are used for investment purposes or that are reported as investment derivative instruments because of ineffectiveness are reported within the investment revenue classification. Alternatively, the changes in fair value of derivative instruments that are classified as hedging derivative instruments are reported in the statement of fund net assets as deferrals. Statement No. 53 was implemented in the current year by the Fund retroactively. As a result, net assets of the Fund as of July 1, 2009 were decreased by \$84,114,479. Current year net assets were decreased by \$24,836,062. See note 9 for more information.

(2) Deposits and Investments

The deposits and investments of the Fund at June 30, 2010 are reported in the financial statements as follows:

	Cash and cash equivalents	Investments
Current unrestricted assets	\$ 11,585,084	21,192,353
Current restricted assets	5,554,329	106,879,144
Noncurrent restricted assets	<u>14,192,858</u>	<u>221,486,588</u>
Total cash and investments	\$ <u>31,332,271</u>	<u>349,558,085</u>

State law authorizes the Fund to make deposits in the accounts of federally insured financial institutions. Cash held by fiscal agents or by trustees is secured in accordance with the requirements of the agency or trust agreement.

**CITY OF DETROIT
WATER FUND**

Notes to Basic Financial Statements

June 30, 2010

The Fund is authorized to invest in obligations of the U.S. government or its agencies, certificates of deposit, savings and depository accounts of insured institutions, commercial paper of certain investment quality, repurchase agreements, banker's acceptances, mutual funds of certain investment quality, and investment pools as authorized by State law.

(a) Custodial Credit Risk of Bank Deposits

Custodial credit risk is the risk that in the event of bank failure, the Fund's deposits may not be returned by the bank. The Fund does not have a deposit policy for custodial credit risk. At June 30, 2010, the Fund had deposits of \$38,994,968, which were exposed to custodial credit risk, as they were uninsured and uncollateralized.

(b) Custodial Credit Risk of Investments

Custodial credit risk is the risk that in the event of failure of the counterparty, the Fund will not be able to recover the value of its investments or collateral securities that are in the possession of an outside party. The Fund does not have a policy for custodial credit risk. As of June 30, 2010, the Fund had no investments subject to custodial credit risk.

(c) Interest Rate Risk

Interest rate risk is the risk that, over time, the value of investments will decrease as a result of an increase in interest rates. The Fund's investment policy does not specifically restrict investment maturities other than commercial paper, which can only be purchased with a 270-day maturity. The Fund's policy minimizes interest rate risk by requiring that the Fund attempt to match its investments with anticipated cash flow requirements. Unless related to a specific cash flow, the Fund is generally not permitted to directly invest in securities maturing more than 10 years from the original date of purchase. As of June 30, 2010, the maturities for the Fund's fixed income investments are as follows:

		Investment maturities in years	
	Fair value	Less than one year	One to five years
Investment:			
U.S. government agency securities	\$ 190,964,320	—	190,964,320
Commercial paper	23,442,000	23,442,000	—
Money market	135,151,765	135,151,765	—
Total investments	<u>\$ 349,558,085</u>	<u>158,593,765</u>	<u>190,964,320</u>

(d) Credit Risk

Credit risk is the risk that the Fund will not recover its investments due to the inability of the counterparty to fulfill its obligation. The Fund limits its investments in commercial paper, mutual

**CITY OF DETROIT
WATER FUND**

Notes to Basic Financial Statements

June 30, 2010

funds, and external investment pools that purchase commercial paper to the top two rating classifications issued by two nationally recognized statistical rating organizations (NRSROs).

As of June 30, 2010, the credit quality ratings for the Fund's fixed income investments are as follows:

Investment	Fair value	Ratings	
		S&P	Moody's
U.S. government agency securities	\$ 175,967,946	AAA	Aaa
U.S. government agency securities	14,995,350	NR	Aaa
Commercial paper	24,115,052	A-1	P-1
Money market	13,443,606	NR	NR
Money market	121,709,183	AAAm	Aaa
Total investments	\$ 350,231,137		

(e) Concentration of Credit Risk

Concentration of credit risk is the risk of loss attributed to the magnitude of the Fund's investment in a single issuer. The Fund's policy specifies a number of limitations to minimize concentration of credit risk, including prohibiting investing more than 5% of the portfolio in securities (other than U.S. government, mutual funds, external investment pools, and other pooled investments) of any one issuer.

More than 5% of the Fund's investments are in Federal Home Loan Bank, Federal Farm Credit, Federal Home Loan Mortgage, Federal National Mortgage Association securities, and GE Capital Commercial Paper. These investments represent 13%, 5%, 11%, 25%, and 7%, respectively, of the Fund's total investments as of June 30, 2010.

(3) Restricted Assets

Restricted assets, principally cash and investments, are available for debt service on revenue bonds and to provide funds for improvements, enlargements, extensions, and construction. In certain instances, minimum levels of assets are required by bond ordinance provisions or by Board of Water Commissioners' decree. These assets are maintained as follows: (1) With respect to the Bond and Interest Redemption Fund, after provision has been made for expenses of operation and maintenance of the System, a sum proportionately sufficient to provide for payment, when due, of the current principal and interest is set aside. The Bond Reserve Account is part of the Bond and Interest Redemption Fund, and the amounts credited to this account are to be used only to pay principal and interest on the bonds when current revenues are not sufficient. (2) With respect to the Extraordinary Repair and Replacement Reserve Fund, after meeting the requirements of the foregoing funds, monthly deposits in an amount equal to one-twelfth of 3% of the budgeted operation and maintenance expense of the System for the fiscal year must be set aside until the aggregate amount funded totals at least 15% of that year's budgeted operating and maintenance costs. These deposits are to be used for major unanticipated repairs and replacement to the

CITY OF DETROIT
WATER FUND

Notes to Basic Financial Statements

June 30, 2010

System with actual or anticipated cost exceeding \$1 million. Once this fund is fully funded, deposits required are amounts needed to maintain fully funded status. Borrowings of up to 50% of the balance in this fund on the first day of the related fiscal year are allowed for transfer to and use from the Improvement and Extension Fund. Any such borrowings must be repaid prior to any deposits being made to the Improvement and Extension Fund. (3) After the above deposits have been made, excess amounts may be deposited in the Improvement and Extension Fund, established for the payment of improvements, enlargements, repairs, extensions, or betterment to the System. (4) With respect to the Construction Fund, the portion of the proceeds of the sale of bonds for building or improving the System is deposited in this fund. A separate depository account is required for each series of bonds. Proceeds for construction purposes received from federal and state grants and other sources that restrict the use of such proceeds are also deposited into this account.

**CITY OF DETROIT
WATER FUND**

Notes to Basic Financial Statements

June 30, 2010

(4) Capital Assets

Capital asset activity for the year ended June 30, 2010 was as follows:

	Balance, June 30, 2009	Additions	Disposals	Balance, June 30, 2010
Nondepreciated capital assets:				
Land and land rights	\$ 5,581,670	481,133	—	6,062,803
Construction in progress	<u>238,605,814</u>	<u>58,664,931</u>	<u>(137,260,449)</u>	<u>160,010,296</u>
Total nondepreciable assets	<u>244,187,484</u>	<u>59,146,064</u>	<u>(137,260,449)</u>	<u>166,073,099</u>
Depreciated capital assets:				
Land improvements	100,484,564	2,565,322	(12,073)	103,037,813
Buildings and structures	789,456,005	9,706,978	(1,761,297)	797,401,686
Mains	908,134,988	79,124,297	(263,269)	986,996,016
Services	48,698,887	320,380	(222,603)	48,796,664
Meters	47,317,970	69,693,547	(621,723)	116,389,794
Machinery, equipment, and fixtures	<u>911,319,086</u>	<u>37,643,254</u>	<u>(3,499,357)</u>	<u>945,462,983</u>
Total depreciable assets	<u>2,805,411,500</u>	<u>199,053,778</u>	<u>(6,380,322)</u>	<u>2,998,084,956</u>
Less accumulated depreciation:				
Land improvements	(6,733,179)	(7,389,558)	—	(14,122,737)
Buildings and structures	(233,447,644)	(4,714,823)	143,261	(238,019,206)
Mains	(296,483,639)	(13,006,731)	—	(309,490,370)
Services	(25,512,835)	(601,274)	—	(26,114,109)
Meters	(33,374,396)	(1,300,489)	—	(34,674,885)
Machinery, equipment, and fixtures	<u>(322,321,517)</u>	<u>(54,647,247)</u>	<u>93,742</u>	<u>(376,875,022)</u>
Total accumulated depreciation	<u>(917,873,210)</u>	<u>(81,660,122)</u>	<u>237,003</u>	<u>(999,296,329)</u>
Net capital assets	<u>\$ 2,131,725,774</u>	<u>176,539,720</u>	<u>(143,403,768)</u>	<u>2,164,861,726</u>

**CITY OF DETROIT
WATER FUND**

Notes to Basic Financial Statements

June 30, 2010

(5) Long-Term Obligations

Changes in long-term obligations for the year ended June 30, 2010 were as follows:

	Balance, June 30, 2009, as restated	Increase	Decrease	Balance, June 30, 2010	Amount due within one year
Revenue bonds	\$ 2,264,170,000	—	(33,560,000)	2,230,610,000	35,115,000
State revolving loans	<u>21,668,776</u>	<u>2,028,744</u>	<u>(1,610,000)</u>	<u>22,087,520</u>	<u>1,645,000</u>
Total revenue bonds	2,285,838,776	2,028,744	(35,170,000)	2,252,697,520	36,760,000
Add unamortized premiums	63,289,392	—	(3,179,071)	60,110,321	—
Less:					
Unamortized discounts	(4,232,415)	—	219,330	(4,013,085)	—
Deferred amounts on refunding	<u>(124,751,833)</u>	<u>—</u>	<u>6,096,696</u>	<u>(118,655,137)</u>	<u>—</u>
Total revenue bonds, net	<u>2,220,143,920</u>	<u>2,028,744</u>	<u>(32,033,045)</u>	<u>2,190,139,619</u>	<u>36,760,000</u>
Pension obligation certificates					
2005 series	28,862,049	—	(257,165)	28,604,884	593,104
Pension obligation certificates					
2006 series	51,506,122	—	—	51,506,122	—
Less deferred amounts on refunding	<u>962,089</u>	<u>—</u>	<u>(2,867)</u>	<u>959,222</u>	<u>—</u>
Total pension obligation certificates, net	<u>81,330,260</u>	<u>—</u>	<u>(260,032)</u>	<u>81,070,228</u>	<u>593,104</u>
Other long-term liabilities:					
Capital lease payable	1,551,450	—	(865,378)	686,072	663,649
OPEB obligation	16,611,769	19,349,255	(8,016,588)	27,944,436	
Accrued compensated absences	19,011,350	5,986,504	(13,859,358)	11,138,496	7,078,769
Accrued workers' compensation	10,695,000	5,793,447	(5,535,447)	10,953,000	2,011,000
Claims and judgments	8,416,200	145,000	(4,012,200)	4,549,000	80,000
Pollution remediation obligation	<u>20,992</u>	<u>80,000</u>	<u>(20,992)</u>	<u>80,000</u>	<u>—</u>
Total other long-term liabilities	<u>56,306,761</u>	<u>31,354,206</u>	<u>(32,309,963)</u>	<u>55,351,004</u>	<u>9,833,418</u>
Total	<u>\$ 2,357,780,941</u>	<u>33,382,950</u>	<u>(64,603,040)</u>	<u>2,326,560,851</u>	<u>47,186,522</u>

**CITY OF DETROIT
WATER FUND**

Notes to Basic Financial Statements

June 30, 2010

(6) Revenue Bonds Payable (Including State Revolving Loans)

Revenue bonds payable were \$2,252,697,520 at June 30, 2010. Net revenues of the Fund are pledged to repayment of bonds. The following is a schedule of the revenue bonds payable at June 30, 2010:

Issue	Bond date	Amount issued	Range of interest rates (%)	Maturity date	Outstanding balance at June 30, 2010
Series 1993	10/15/93	\$ 38,225,000	6.50	7/1/14-15	\$ 24,725,000
Series 1995-A	10/15/95	102,100,000	5.40 to 5.55	7/1/10-12	10,455,000
Series 1995-B	10/15/95	60,485,000	5.40 to 5.55	7/1/10-12	26,905,000
Series 1997-A	8/1/97	29,080,000	5.75 to 6.00	7/1/11-15	20,215,000
Series 1997-A	8/1/97	186,220,000	5.00 to 5.25	7/1/10-27	74,575,000 c
Series 1999-A	11/1/99	256,340,000	5.13	7/1/10	2,000,000
Series 2001-A	5/1/01	1,320,000	4.50	7/1/11	1,320,000
Series 2001-A	5/1/01	301,165,000	5.00	7/1/29-30	73,790,000 c
Series 2001-C	5/8/08	4,055,000	3.00 to 4.25	7/1/10-18	3,575,000
Series 2001-C	5/8/08	186,350,000	4.50 to 5.75	7/1/19-29	186,350,000 c
Series 2003-A	1/28/03	234,805,000	4.50 to 5.00	7/1/19-34	181,835,000 c
Series 2003-B	1/28/03	131,175,000	Variable (*)	7/1/09-14	12,270,000
Series 2003-B	1/28/03	41,770,000	5.00	7/1/34	41,770,000 c
Series 2003-C	1/28/03	16,695,000	3.60	7/1/10-11	180,000
Series 2003-C	1/28/03	4,335,000	Variable (*)	7/1/13-14	4,335,000
Series 2003-C	1/28/03	25,325,000	4.25 to 5.25	7/1/15-22	25,325,000 c
Series 2003-D	8/14/06	3,180,000	4.00 to 4.20	7/1/10-16	2,195,000
Series 2003-D	8/14/06	139,575,000	4.25 to 5.00	7/1/17-33	139,575,000 c
Series 2004-A	8/14/06	17,600,000	3.75 to 5.25	7/1/12-16	17,580,000
Series 2004-A	8/14/06	55,165,000	4.50 to 5.25	7/1/17-25	55,165,000 c
Series 2004-B	8/14/06	52,840,000	4.00 to 5.00	7/1/10-16	43,615,000
Series 2004-B	8/14/06	100,990,000	4.25 to 5.00	7/1/17-23	100,990,000 c
Series 2005-A	3/11/05	20,965,000	3.10 to 5.00	7/1/10-15	13,245,000
Series 2005-A	3/11/05	84,035,000	3.90 to 5.00	7/1/16-35	84,035,000 c
Series 2005-B	5/8/08	19,070,000	4.00 to 5.50	7/1/10-18	19,070,000
Series 2005-B	5/8/08	175,830,000	4.75 to 5.50	7/1/19-35	175,830,000 c
Series 2005-C	3/11/05	36,405,000	5.00	7/1/10-15	34,845,000
Series 2005-C	3/11/05	90,200,000	5.00	7/1/16-22	90,200,000 c
Series 2006-A	8/14/06	42,795,000	5.00	7/1/11-16	42,795,000
Series 2006-A	8/14/06	237,205,000	5.00	7/1/17-34	237,205,000 c
Series 2006-C	8/14/06	12,585,000	4.00 to 5.00	7/1/10-19	10,915,000
Series 2006-C	8/14/06	208,060,000	5.00	7/1/19-33	208,060,000 c
Series 2006-D	8/14/06	4,430,000	4.00 to 5.00	7/1/10-16	3,505,000
Series 2006-D	8/14/06	142,160,000	4.25 to 5.00	7/1/17-32	142,160,000 c
Bonds remarketed in March 17, 2009:					
Series 2006-B	4/1/09	900,000	2.60 to 5.00	7/1/11-19	900,000
Series 2006-B	4/1/09	119,100,000	5.50 to 7.00	7/1/23-36	119,100,000 c
Total revenue bonds payable					<u>\$ 2,230,610,000</u>

* Interest rates are reset periodically at the stated current market interest rate.

c Indicates bonds are callable under terms specified in the indenture; all other bonds are noncallable.

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The following is a schedule of the state revolving loans payable at June 30, 2010:

<u>Issue</u>	<u>Bond date</u>	<u>Amount issued</u>	<u>Range of interest rates (%)</u>	<u>Maturity date</u>	<u>Outstanding balance at June 30, 2010</u>
Series 2005 SRF-1	9/22/05	\$ 10,914,772	2.125	10/1/10-26	\$ 9,019,772
Series 2005 SRF-2	9/22/05	8,014,219	2.125	10/1/10-26	6,679,219
Series 2006 SRF-1	9/21/06	4,802,588	2.125	10/1/10-26	4,052,588
Series 2008 SRF-1	9/29/08	2,590,941	2.500	10/1/10-26	<u>2,335,941</u>
Total state revolving loans payable					<u>\$ 22,087,520</u>

The State Revolving Fund Bonds are issued as part of the State of Michigan's Revolving Fund Loan Program. As the System draws additional amount from time to time hereafter, the outstanding principal amounts of such bonds will correspondingly increase. All loans are callable under terms specified in the loan agreements.

As of June 30, 2010, aggregate debt service requirements of the Fund's debt (fixed rate and variable rate) and net receipts/payments on associated hedging derivative instruments are as follows. These amounts assume that current interest rates on variable rate bonds and the current reference rates of hedging derivative instruments will remain the same for their term. As these rates vary, interest payments on variable rate bonds and net receipts/payments on the hedging derivative instruments will vary. Refer to note 9 for information on derivative instruments.

	<u>Principal</u>	<u>Interest</u>	<u>Hedging derivatives, net</u>	<u>Total requirements</u>
Year ending June 30:				
2011	\$ 36,760,000	116,570,965	126,928	153,457,893
2012	45,090,000	114,655,082	121,512	159,866,594
2013	47,310,000	112,458,317	106,313	159,874,630
2014	49,620,000	110,185,602	91,767	159,897,369
2016	51,990,000	107,648,827	48,478	159,687,305
2016 – 2020	302,050,941	494,500,176	—	796,551,117
2021 – 2025	381,241,579	407,407,962	—	788,649,541
2026 – 2030	484,700,000	296,976,076	—	781,676,076
2031 – 2035	614,590,000	160,722,916	—	775,312,916
2036 – 2039	239,345,000	22,861,956	—	262,206,956
	<u>\$ 2,252,697,520</u>	<u>1,943,987,879</u>	<u>494,998</u>	<u>4,197,180,397</u>

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Bonds outstanding at June 30, 2010 include approximately \$1.9 billion of bonds and loans callable at various dates after June 30, 2010. These bonds are callable at varying premiums, depending on the issue and length of time to maturity.

(a) Issuance of Revenue Bonds

Fiscal Year 2010 Activity

The City received loans from the State of Michigan Drinking Water Revolving Loan Fund totaling \$2,028,744 during the year ended June 30, 2010. The proceeds of the loans were used to pay costs of acquiring, contracting extensions, and making certain repairs and improvements to the Water Supply System. At June 30, 2010, \$12,187,480 in bonds were authorized and unissued.

(b) Defeased Debt

In prior years, the Fund defeased certain revenue bonds by placing the proceeds of new revenue bonds in an irrevocable trust to provide for all future debt service payments on the old bonds. Accordingly, the trust account assets and the liability for the defeased bonds are not included in the Fund's financial statements. At June 30, 2010, \$496,925,000 of bonds outstanding are considered defeased.

(c) Capital Leases

The Fund has entered into a lease agreement as lessee for financing the purchase of certain computer equipment. This lease agreement qualifies as a capital lease for accounting purposes and, therefore, has been recorded at the present value of the future minimum lease payments as of the inception date. The future minimum lease obligations and the net present value are as follows:

Year ending June 30:		
2011	\$	663,649
2012		<u>30,598</u>
Total minimum lease payments		694,247
Less amount representing interest		<u>(8,175)</u>
Present value of minimum lease payments	\$	<u><u>686,072</u></u>

(d) Pledges of Future Revenue

The Fund has pledged substantially all revenue of the Fund, net of operating expenses to repay the above water revenue bonds and state revolving loans. Proceeds from the bonds provided financing for the construction of the water supply system. The bonds are payable solely from the net revenues of the water system. The remaining principal and interest to be paid on the bonds is \$4,197,169,397. During the current year, net revenues of the system were \$147,011,832 compared with the amount

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pledged for annual debt requirements of \$153,457,893. In addition, the Fund has approximately \$95 million in bond and interest reserves on hand at June 30, 2010.

(7) Pension Obligation Certificates (POCs)

The Detroit Retirement Systems Funding Trust issued POCs for the purpose of funding certain unfunded accrued actuarial liabilities (UAAL) of the two retirement systems of the City, which include the General Retirement System (GRS) and the Police and Fire Retirement System (PFRS). The GRS includes employees and retirees of certain governmental funds, proprietary funds (Transportation Fund, Sewage Disposal Fund, and Water Fund) and the Detroit Public Library, a discretely presented component unit of the City.

A trust was created by the General Retirement System Service Corporation (GRSSC) and the Police and Fire Retirement System Service Corporation (PFRSSC), both blended component units of the City. The City entered into service contracts with the GRSSC and PFRSSC to facilitate the transaction.

The POCs were allocated to the governmental activities and the Transportation, Sewage Disposal, and Water funds based on those funds' portion of the overall UAAL liquidated by the use of the POCs' net proceeds. Since the Detroit Public Library is a discretely presented component unit of the City, its prorated portion of the POCs' liability assumed was included in the balance of the POCs obligation recorded in the governmental activities.

The Fund's portion of future principal and interest amounts for the POCs as of June 30, 2010 is as follows:

	Principal	Interest	Hedging derivatives, net	Total
2011	\$ 593,104	2,240,121	2,370,171	5,203,396
2012	913,613	2,214,000	2,372,096	5,499,709
2013	1,250,905	2,173,317	2,372,096	5,796,318
2014	1,604,980	2,116,989	2,372,096	6,094,065
2015	1,801,509	2,043,754	2,372,096	6,217,359
2016 – 2020	11,743,941	8,774,436	11,817,055	32,335,432
2021 – 2025	15,199,805	6,114,981	11,091,411	32,406,197
2026 – 2030	19,968,077	3,782,775	8,611,094	32,361,946
2031 – 2035	27,035,072	2,696,781	2,524,880	32,256,733
Total	<u>\$ 80,111,006</u>	<u>32,157,154</u>	<u>45,902,995</u>	<u>158,171,155</u>

(8) Risk Management

The Fund is exposed to various types of risk of loss including torts; theft of, damage to, or destruction of assets; errors or omissions; job-related illnesses or injuries to employees; natural disasters; and environmental occurrences. The Fund is self-insured for losses such as workers' compensation, legal, disability benefits, and vehicular liabilities. Also included is the risk of loss associated with providing health, dental, and life insurance benefits to employees and retirees.

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The Fund, through the City, provides health and dental insurance benefits to employees and retirees through self-insured health plans that are administered by third-party administrators. The Fund does not purchase excess or stop-loss insurance for its self-insured health plans.

The Fund purchases public official liability insurance, property insurance for certain properties, and general liability insurance for accidents occurring at certain properties. The Fund assumes a \$250,000 self-insured retention for any one loss or occurrence under its self-insured public official liability program. The Fund purchases excess liability insurance for its general liability for certain properties that provides per occurrence and aggregate protection. The Fund is fully self-insured for environmental-related liabilities and purchases no excess environmental liability insurance.

There were no significant changes in the insurance coverage from coverage provided in the prior year for any of the above-described risks.

A liability for claims is reported when it is probable that a loss has occurred and the amount of the loss can be reasonably estimated. Liabilities include an amount for claims that have been incurred but not reported. Claim liabilities are calculated considering the effects of recent claim settlement trends including frequency and amount of payouts and other economic and social factors. The claim liabilities also include estimated costs for claim administration fees and outside legal and medical assistance costs.

Changes in the balance of claim liabilities for the years ended June 30, 2010 and 2009 are as follows:

	<u>2010</u>	<u>2009</u>
Balance at beginning of year	\$ 19,111,200	18,666,700
Current year claims and changes in estimates	5,938,447	3,722,673
Claims payments	<u>(9,547,647)</u>	<u>(3,278,173)</u>
Balance at end of year	<u>\$ 15,502,000</u>	<u>19,111,200</u>

(9) Derivative Instruments

In fiscal year 2010, the Fund implemented GASB Statement No. 53, *Accounting and Financial Reporting for Derivative Instruments*. This statement was implemented retroactively. Therefore, beginning net assets have been restated as follows:

Net assets at June 30, 2009, as previously reported	\$ 304,861,564
Adjustment to reflect implementation of GASB 53	<u>(84,114,479)</u>
Net assets at June 30, 2009, as restated	<u>\$ 220,747,085</u>

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The table below summarizes derivative instrument activity during the reporting period and balances at the end of the period:

		Changes in fair value		Fair value at June 30, 2010		Notional amount
	Classification		Amount	Classification	Amount	
Cash flow hedges:						
Pay-fixed interest rate swaps	Deferred outflow	\$	(3,669,159)	Long-term liabilities	\$ (15,974,255)	60,045,338
Investment derivatives:						
Negative fair values	Interest and investment earnings		(51,646,080)	Long-term liabilities	(199,532,546)	1,201,250,000
Investment derivatives:						
Positive fair values	Interest and investment earnings		29,560,337	Long-term assets	26,984,477	384,275,000

The fair values of the interest rate swaps were estimated using the zero-coupon method. This method calculates the future net settlement payments required by the swap, assuming that the current forward rates implied by the yield curve correctly anticipate future spot interest rates. These payments are then discounted using the spot rates implied by the current yield curve for hypothetical zero-coupon bonds due on the date of each future net settlement on the swaps.

(a) Objectives

In order to better manage its interest rate exposure and to reduce the overall costs of its financings, the Fund has entered into seven separate pay-fixed, receive-variable interest rate swaps. The Fund is also allocated a portion of the City's four separate pay-fixed, receive-variable interest rate swaps related to the POCs and the GRS.

In addition to the interest rate swaps described above, the Fund entered into three swaptions in conjunction with the termination of three previous interest rate swaps. Specifically, the Fund entered into one interest rate swap in February 2003 and two interest rate swaps in April 2004 related to the issuance of variable rate water bonds. Those interest rate swap agreements included provisions that allowed for the counterparty to put the Fund into a swaption arrangement upon termination. Upon the restructuring of those variable rate bonds in August 2006 to fixed rate bonds, the interest rate swaps were terminated, and the counterparty executed the swaptions. The swaptions give the counterparty the option to make the Fund enter into a pay-variable, receive-fixed interest rate swap. If the option is exercised, the Fund may consider the potential to issue variable rate refunding bonds and terminate the swaption, but it is not committed to doing so.

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(b) Terms

Certain key terms and fair values relating to the outstanding hedging and investment derivative instruments are presented below.

Associated financing issue	Notional amounts (1)	Effective date	Fixed rate paid	Rate received	Fair values	Swap termination date	Final maturity of bonds
Hedging derivatives:							
Cash flow hedges, pay-fixed interest rate swaps:							
Water 2003-B	\$ 2,290,000	1/30/2003	3.31%	CPI+1.12%	\$ (5,774)	7/1/2010	7/1/2010
Water 2003-B	2,500,000	1/30/2003	3.55	CPI+1.25%	(42,669)	7/1/2011	7/1/2011
Water 2003-B	2,175,000	1/30/2003	3.74	CPI+1.33%	(55,724)	7/1/2012	7/1/2012
Water 2003-B	2,800,000	1/30/2003	3.87	CPI+1.34%	(88,354)	7/1/2013	7/1/2013
Water 2003-B	2,505,000	1/30/2003	4.00	CPI+1.36%	(92,833)	7/1/2014	7/1/2014
Water 2003-C	2,005,000	1/30/2003	3.87	CPI+1.34%	(63,268)	7/1/2013	7/1/2013
Water 2003-C	2,330,000	1/30/2003	4.00	CPI+1.36%	(86,348)	7/1/2014	7/1/2014
Pension obligation certificates -							
GRS (3)	14,792,275	6/12/2006	6.26	3 MTH LIBOR +0.34%	(5,460,075)	6/15/2034	6/15/2034
Pension obligation certificates -							
GRS (3)	6,927,894	6/12/2006	6.22	3 MTH LIBOR +0.30%	(2,308,801)	6/15/2029	6/15/2029
Pension obligation certificates -							
GRS (3)	14,792,275	6/12/2006	6.26	3 MTH LIBOR +0.34%	(5,461,361)	6/15/2034	6/15/2034
Pension obligation certificates -							
GRS (3)	6,927,894	6/12/2006	6.22	3 MTH LIBOR +0.30%	(2,309,048)	6/15/2029	6/15/2029
Total	\$ 60,045,338				\$ (15,974,255)		
Investment derivatives:							
Pay-fixed interest rate swaps:							
Water 2001-C	\$ 112,765,000	6/7/2001	4.90	SIFMA (2)+0.0%	\$ (28,124,832)	7/1/2026	7/1/2026
Water 2005-B	195,000,000	4/1/2005	4.71	SIFMA (2)	(42,521,125)	7/1/2035	7/1/2035
Water 2006-B	120,000,000	3/1/2007	5.00	SIFMA (2)	(34,440,619)	7/1/2036	7/1/2036
Water hedge swap	150,000,000	3/1/2010	4.93	SIFMA (2)	(46,873,172)	7/1/2039	N/A
Water hedge swap	50,000,000	3/1/2010	4.93	SIFMA (2)	(14,014,902)	7/1/2039	N/A
Water hedge swap	76,510,000	7/1/2011	4.87	SIFMA (2)	(14,096,809)	7/1/2029	N/A
Water 2003-D	148,695,000	7/2/2011	SIFMA (2)	4.06%	(12,768,576)	7/1/2033	N/A
Water 2004-A	77,010,000	7/1/2005	SIFMA (2)	3.94	(2,278,007)	7/1/2025	N/A
Water 2004-B	151,270,000	7/1/2005	SIFMA (2)	3.85	(3,110,412)	7/1/2023	N/A
Pay-floating interest rate swap:							
Water 2006-B offsetting swap	120,000,000	4/1/2009	SIFMA (2)	3.65	(1,304,092)	7/1/2036	7/1/2036
Total	\$ 1,201,250,000				\$ (199,532,546)		

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Associated financing issue	Notional amounts (1)	Effective date	Fixed rate paid	Rate received	Fair values	Swap termination date	Final maturity of bonds
Pay-floating interest rate swaps							
Water 2001-C offsetting swap	\$ 112,765,000	5/14/2008	SIFMA (2)	3.50	\$ 7,913,195	7/1/2026	7/1/2026
Water 2005-B offsetting swap	195,000,000	5/6/2008	SIFMA (2)	3.65	12,663,558	7/1/2035	7/1/2035
Water hedge swap offsetting swap	76,510,000	7/1/2011	SIFMA (2)	4.00	6,407,724	7/1/2029	N/A
Total	\$ 384,275,000				\$ 26,984,477		

(1) Notional amount balance as of June 30, 2010

(2) The Securities Industry and Financial Markets Association Municipal Swap Index™.

(3) Denotes the system's allocation of the associated notional amount.

(c) Credit Risk

Credit risk can be measured by actual market value exposure or theoretical exposure. When the fair value of any swap has a positive market value, then the Fund is exposed to the actual risk that the counterparty will not fulfill its obligations. As of June 30, 2010, the Fund had no net exposure to actual credit risk on its hedging derivatives or its investment derivatives (without regard to collateral or other security arrangements) for any of its counterparties. The table below shows the credit quality ratings of the counterparties to each swap. The Fund uses six different counterparties, as one way of diversifying its credit risk. In addition, the swap agreements contain varying collateral agreements with the counterparties. The swaps require full collateralization of the fair value of the swap should the counterparty's credit rating fall below certain rating levels by Fitch Ratings, Standard & Poor's (S&P), and/or Moody's Investors Service (Moody's). Collateral on all swaps is to be in the form of cash or U.S. government securities held by a third-party custodian. The Fund has not calculated theoretical credit exposure.

Counterparty	S&P	Moody's
Citigroup Financial Products, Inc.:		
Guaranteed by Citigroup Global Markets Holdings, Inc.	A	A3
JP Morgan Chase Bank, NA	AA-	Aa1
Loop Financial Products:		
Credit Support provided by Deutsche Bank AG	A+	Aa3
Morgan Stanley Capital Services, Inc.	A+	A2
SBS Financial Products Company, LLC:		
Credit Support provided by Merrill Lynch Capital Services, Inc. and guaranteed by Merrill Lynch & Co.	A	A2
UBS, AG	A+	Aa3

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(d) Interest Rate Risk

All hedging derivatives are pay-fixed, receive-variable, cash flow hedges hedging a portion of the Fund's variable rate debt. The Fund believes it has significantly reduced interest rate risk attributable to the principal amount being hedged by entering into interest rate swaps.

There are thirteen investment derivatives in the portfolio. Four of the investment derivatives that are pay-fixed, receiving-floating swaps have offsetting receive-fixed, pay-floating swaps that serve to remove the interest rate risk of the change in the floating rate index. Five of the investment derivatives are pay-fixed, receive-floating swaps and are subject to changing cash flows as the variable index changes; however, these five derivatives are not effective as of June 30, 2010.

(e) Basis Risk

The Fund is exposed to basis risk when the variable interest received on a swap is based on a different index than the variable interest rate to be paid on the associated variable rate debt obligation. At June 30, 2010, the associated debt used the same index for all Consumer Price Index (CPI) referenced swaps, as well as the POCs (based on LIBOR) in the table above. As a result, there is no significant exposure to basis risk as of June 30, 2010.

(f) Termination Risk

The Fund or counterparty may terminate any of the swaps if the other party fails to perform under the terms of the contract. In such cases, the Fund may owe or be due a termination payment depending on the fair value of the swap at that time. The termination payment due to a counterparty may not be equal to the fair value. If any of the swaps were terminated, the associated variable rate financings would no longer carry synthetic interest rates.

For the swaps associated with the Water 2001-C, 2001-C Offsetting (mirror), and 2005-B Offsetting (mirror) issuances, the Fund pays a lower fixed rate in exchange for granting the counterparty a special termination option. Under this option, the counterparty can terminate the swap without payment if SIFMA averages 7% or higher for a consecutive 180-day period. All special termination provisions are currently effective. The termination of any of the above-mentioned swaps requires simultaneous termination of the related mirror or original swap.

In light of recent debt rating declines of the City, in concert with falling ratings of the City's Swap Agreement Insurers, a risk of a Swap Agreement Termination exists related to the Swap Agreements issued in conjunction with the issuance of the General, Police, and Fire Retirement Systems Trusts' Pension Obligation Certificates (POCs). As of June 30, 2010, the City had eight such interest rate exchange agreements (the Swap Agreements) in effect. With the Swap Agreements, the City maintains a potential payable to the Swap Agreements' Counterparty should certain termination events occur. Potential termination events in the original Swap Agreements included cases where the POCs ratings were withdrawn, suspended, or downgraded below "Baa3" (or equivalent) or if the Swap Insurers' ratings fell below an "A3" (or equivalent) rating.

On January 8, 2009, the City received formal notice from the Swap Counterparty to four of the eight Swap Agreements stating that an event had occurred, which, if not cured by the City, would

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constitute an Additional Termination Event. On January 14, 2009, the City also received formal notice from the Swap Counterparty to the four remaining Swap Agreements, stating that the applicable Swap Insurers had been downgraded below the thresholds set forth in the Swap Agreements. Under the Swap Agreements, such Swap Insurer downgrades, coupled with the downgrades of the POCs, if not cured by the City, constitute an Additional Termination Event. In June 2009, the City and the Counterparties agreed to an amendment to the Swap Agreements, and thereby eliminating the Additional Termination Event and the potential for an immediate demand for payment to the Swap Counterparties. As part of the amended Swap Agreements, the Counterparties waived their right to termination payments. Additionally, the City now directs its Wagering Tax revenues to a Trust as collateral for the quarterly payment to the Counterparties, increased the Swap rate by 10 basis points effective July 1, 2010, and agreed to other new termination events. The termination events under the amended Swap Agreement includes a provision for the Counterparties to terminate the amended Swap Agreement if certain coverage levels of the Wagering Taxes over the required quarterly payment are not met or if POCs ratings are withdrawn, suspended, or downgraded below “Ba3” (or equivalent). Should such Termination Events occur in connection with these Swap Agreements, and not be cured, the City’s obligations to the Counterparties could increase significantly and there is some risk that the City may not be able to meet the cash demands under the terms of the amended Swap Agreements.

(g) Rollover Risk

The Fund is exposed to rollover risk on swaps that mature or may be terminated prior to the maturity of the associated financings. When these swaps terminate, or in the case of the termination option, if the counterparty exercises its option, the Fund will not realize the synthetic rate offered by the swaps on the underlying issues. The Fund is exposed to rollover risk on the GRS swaps should they be terminated prior to the maturity of the associated financings (POCs).

(h) Foreign Currency Risk

All derivatives are denominated in U.S. dollars, and therefore, the Fund is not exposed to foreign currency risk.

(10) Employee Benefit Plan

Substantially all City employees, including Fund employees, are covered by a single-employer plan composed of a defined benefit with an optional employee-contributed annuity through the General Retirement System (GRS). The GRS pays a monthly pension to qualified individuals upon retirement. The amount is based upon a combination of years of service and annual salary.

(a) Plan Description

The GRS is administered in accordance with the City of Detroit Charter and union contracts, which assign the authority to establish and amend contributions and benefit provisions to the GRS board of trustees. The GRS issues separate, stand-alone financial statements annually. Copies of these financial statements can be obtained at the Coleman A. Young Municipal Center, 2 Woodward Ave., Rm. 908, Detroit, MI, 48226.

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(b) *Funding Policy and Annual Pension Cost*

The GRS funding policy provides for periodic employer contributions at actuarially determined rates that, expressed as percentages of annual covered payroll, are sufficient to accumulate sufficient assets to pay benefits when due. The contribution requirements are established and may be amended by the GRS' board of trustees based on information provided by the GRS' consulting actuary. The City's contribution is set by the City Council in conjunction with its approval of the City's annual budget based on information provided by the GRS' consulting actuary.

The recommended contribution rate is determined by the GRS' consulting actuary using the entry age normal actuarial cost funding method. Significant actuarial assumptions used to compute contribution requirements are the same as those used to compute the actuarial accrued liability.

Based upon the 2008 actuarial valuation, the actuarial required contribution rate for the Fund was 11.32% of covered payroll for the year ended June 30, 2010. Contributions for the Fund were \$6,910,469 for the year ended June 30, 2010.

Employees may also elect to contribute (a) 3% of annual compensation up to the Social Security wage base and 5% of any excess over that, (b) 5%, or (c) 7% toward annuity savings. Contributions received from Fund employees were \$2,589,149 during the year ended June 30, 2010.

The contribution requirements of plan members and the City are established and may be amended by the board of trustees in accordance with the City Charter, union contracts, and plan provisions. Members may retire with full benefits after attaining 30 years of service; age 55 with 30 years of service if hired after January 1, 1996; age 60 with 10 years of service; or age 65 with 8 years of service. Employees may retire after 25 years of service and collect an actuarially reduced retirement benefit. Monthly pension benefits, which are subject to certain minimum and maximum amounts, are determined according to fixed rates per year of credited service. Members of the GRS who separated prior to July 1, 1981 met the age and service requirements, and who did not withdraw their accumulated annuity contributions are generally eligible for a pension at the time they would have been eligible had they continued in City employment. Members who separate after July 1, 1981 are not required to leave their accumulated annuity contributions in the System. Pension benefits for all members of the GRS are increased annually by 2.25% of the original pension.

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The annual pension cost and the changes in net pension asset allocated to the Fund for the year ended June 30, 2010 are as follows:

Annual required contributions	\$ 4,515,102
Interest on net pension asset	(6,452,740)
Adjustment to annual required contribution	<u>5,002,496</u>
Annual pension cost	3,064,858
Contributions made (employer)	<u>6,910,469</u>
Changes in net pension asset	3,845,611
Net pension asset, beginning of year	<u>81,680,247</u>
Net pension asset, end of year	<u><u>\$ 85,525,858</u></u>

The actuarial methods and significant assumptions used to determine the annual required contributions (ARCs) for the year ended June 30, 2010 were as follows:

Valuation date	June 30, 2008
Actuarial cost method	Entry age
Amortization method	Level percent
Remaining amortization period for unfunded accrued liabilities	30 years
Asset valuation method	3-year smoothed market
Actuarial assumptions:	
Investment rate of return	7.9%
Projected salary increases*	4.0% – 8.9%
Cost-of-living adjustments	2.25%

* Includes inflation rate of 4%.

(c) Three-Year Trend Information

	<u>Fiscal year ended</u>	<u>Annual pension cost (APC)</u>	<u>Percentage of APC contributed</u>	<u>Net pension asset</u>
General Retirement System	June 30, 2008	\$ 4,332,093	151%	\$ 77,642,310
	June 30, 2009	2,401,349	269	81,680,247
	June 30, 2010	3,064,858	225	85,525,858

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Notes to Basic Financial Statements

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(d) Administrative Expenses

Actuarial investment management and bank trustee fees and expenses are included in the GRS plan's administrative expenses when incurred. In addition, the GRS plan's administrative salary, rent, accounting services, duplicating, telecommunications, and travel expenses are included in the GRS plan's administrative expenses when incurred.

(e) Funded Status and Funding Progress

As of June 30, 2009, the most recent actuarial valuation date, the GRS plan was 92% funded. The actuarial accrued liability for benefits to all City employees participating in GRS was \$3,689,065,726 and the actuarial value of assets was \$3,412,411,183, resulting in an UAAL of \$276,654,543. Of this amount, it was estimated that 12% is attributable to the Fund. The covered payroll (annual payroll of all City employees covered by the plan) was \$357,072,833 and the ratio of the UAAL to covered payroll was 77.5%. The covered payroll for employees of the fund was \$48,265,000.

A schedule of funding progress, which presents multiyear trend information about whether the actuarial value of plan assets is increasing or decreasing over time relative to the actuarial accrued liability for benefits, is included in the City's comprehensive annual financial report.

(11) Other Postemployment Benefits

(a) Plan Description

The employees of the Fund participate in the Health and Life Insurance Benefit Plan (Benefit Plan), which is a single-employer defined benefit plan administered by the City and the City's Retirement Systems. The Benefit Plan provides hospitalization, dental care, vision care, and life insurance to all officers and employees of the City who were employed on the day preceding the effective date of the Benefit Plan and who continue in the employ of the City on and after the effective date of the Benefit Plan. Retirees are allowed to enroll in any of the group plans offered by the City to active employees. The City provides healthcare coverage for substantially all retirees in accordance with terms set forth in union contracts or provisions found in Section 13, Article 8 of the Code of Ordinances.

The healthcare benefit eligibility conditions for Fund employees hired before 1995 are 30 years of creditable service or age 60 and 10 years of creditable service or age 65 and 8 years of creditable service. The healthcare benefit eligibility conditions for Fund employees hired on after 1995 are age 55 and 30 years of creditable service, or age 60 and 10 years of creditable service, or age 65 and 8 years of creditable service. The City provides full healthcare coverage to Fund employees who retired prior to January 1, 1984, except for the Master Medical benefit that was added on to the coverage after that date. The Fund pays up to 90% of healthcare coverage if retired after January 1, 1984; however, for Fund employees who retired between January 1, 1984 and June 30, 1994, the retiree share has been reduced by 50% by appropriations from City Council. The Fund also pays healthcare coverage for the spouse, under the same formulas noted above, as long as the spouse continues to receive a pension. The Fund does not pay healthcare coverage for a new non-City retiree spouse. Dental and vision coverage is provided for the retiree and the spouse.

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The City does provide healthcare coverage to Fund employees that opt for early retirement. For employees hired before 1995, the healthcare benefit eligibility conditions are 25 years of creditable service and employees hired after 1995 is age 55 and 25 years of creditable service. The coverage begins when the retiree would have been eligible for normal retirement. The Fund pays up to 90% of healthcare coverage for the retiree and the spouse. The Fund pays up to 90% of healthcare coverage for the spouse as long as the spouse continues to receive a pension. The City does not pay for healthcare coverage for a new non-City retiree spouse. Dental and vision coverage is provided for the retiree and the spouse.

The City also provides healthcare coverage to Fund employees who meet certain healthcare benefit eligibility conditions at reduced rates for those that retire under the Deferred Retirement Benefits (Vested), the Death-in-Service Retirement Benefits Duty and Non-Duty Related, and the Disability Retirement Benefits Duty and Non-Duty Related. Complementary healthcare coverage is provided by the City for those Fund retirees that are Medicare-Eligible. Fund retirees who opt out of the retiree healthcare coverage may obtain coverage at a later date.

In addition to healthcare coverage, the City allows Fund retirees to continue life insurance coverage under the Group Insurance Protection Plan offered to active employees in accordance with Section 13, Article 9 of the Code of Ordinances. The basic life insurance coverage for Fund employees is based on the employee's basic annual earnings to the next higher thousand dollars. The life insurance benefit amounts range from \$3,750 to \$12,500.

The Supplemental Death Benefit Plan (Supplemental Plan) is a prefunded single-employer defined benefit plan administered by the Employee Benefits Board of Trustees. The money is held in the City of Detroit Employee Benefit Trust and the City uses the trust fund to account for the Supplemental Plan. In accordance with Section 13, Article 8 of the Code of Ordinances, effective July 1, 1999 and prior to the member's retirement from the City, a death benefit of \$10,000 will be paid. After retirement of the member from the City, the amount of death benefit paid is based upon the retiree's years of City service ranging from \$1,860 (for ten (10) or less years of service) to \$3,720 (for thirty (30) years of service). For years of service beyond thirty (30) years, ninety-three dollars (\$93) will be added per year for each additional year of service.

There were 1,511 retirees eligible for benefits as of June 30, 2009, the date of the most recent actuarial valuation. These plans do not issue separate financial statements.

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(b) Funding Policy

Health and Life Insurance Benefit Plan – The cost of benefits for the Benefit Plan, which are financed on a pay-as-you-go basis for the year ended June 30, 2010, for the Fund retiree's are as follows:

<u>Benefits</u>	<u>City cost</u>	<u>Retiree cost</u>	<u>Total cost</u>
Hospitalization	\$ 7,521,986	1,895,056	9,417,042
Dental	403,504	—	403,504
Vision	67,636	—	67,636
Life insurance	11,551	5,221	16,772
	<u>\$ 8,004,677</u>	<u>1,900,277</u>	<u>9,904,954</u>

A retiree is generally required to pay on a monthly basis, either 10% or 20% of the health insurance premium.

Supplemental Death Benefit Plan – The cost of benefits for the Supplemental Plan, which are a pre-funded plan and the funds are held in the City of Detroit Employee Benefit Trust, for the year ended June 30, 2010 for the Fund retiree's are as follows:

<u>Benefit</u>	<u>City cost</u>	<u>Retiree cost</u>	<u>Total cost</u>
Supplemental Death Benefit Plan	\$ 11,911	1,149	13,060
Total	<u>\$ 11,911</u>	<u>1,149</u>	<u>13,060</u>

The City of Detroit Employee Benefit Trust paid death benefits in the amount of \$94,102 for Fund retirees for the year ended June 30, 2010.

(c) Annual OPEB Costs and Net OPEB Obligation

The Fund's annual other postemployment benefit (OPEB) cost (expense) is calculated based on the annual required contribution (ARC), an amount actuarially determined in accordance with the parameters of GASB Statement 45. The ARC represents a level of funding that, if paid on an ongoing basis, is projected to cover normal costs each year and amortize any unfunded actuarial liabilities (or funding excess) over a period not to exceed thirty years.

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The following table shows the components of the Fund's annual OPEB cost for the year ended June 30, 2010, the amount actually contributed to the plans, and changes in the Fund's OPEB obligation for the retirees of the Fund:

	Health and Life Insurance Benefit Plan	Supplemental Death Benefit Plan	Total
Annual required contribution (ARC) \$	19,194,074	44,434	19,238,508
Interest on net OPEB obligation	664,465	7	664,472
Adjustment to ARC	(553,721)	(4)	(553,725)
Annual OPEB Cost (Expense)	19,304,818	44,437	19,349,255
Contributions Made	(8,004,677)	(11,911)	(8,016,588)
Changes in Net OPEB Obligation	11,300,141	32,526	11,332,667
Net OPEB Obligation, beginning of year	16,611,635	134	16,611,769
Net OPEB Obligation, end of year \$	27,911,776	32,660	27,944,436

The annual OPEB cost, the percentage of annual OPEB cost contributed to each plan, and the OPEB obligation for the three most recent fiscal years ended June 30 for the retirees of the Fund were as follows:

	Year ended	Annual OPEB cost	Actual contributions	Percentage of annual OPEB cost contributed	Net OPEB obligation
Health and Life Insurance Benefit Plan	June 30, 2010	\$ 19,304,818	8,004,677	41.5%	\$ 27,911,776
	June 30, 2009	16,629,596	7,629,870	45.9	16,611,635
	June 30, 2008	15,920,197	8,308,288	52.2	7,611,909
Supplemental Death Benefit Plan	June 30, 2010	\$ 44,437	11,911	26.8%	\$ 32,660
	June 30, 2009	11,258	13,385	118.9	134
	June 30, 2008	14,865	12,604	84.8	2,261

(d) Funding Status and Funding Progress

Health and Life Insurance Benefit Plan (Benefit Plan) – As of June 30, 2009, the most recent actuarial valuation date for the Benefit Plan, the actuarial accrued liability for benefits related to all City employees was \$4,971,236,281, and the actuarial value of assets was zero, resulting in an unfunded actuarial accrued liability (UAAL) of \$4,971,236,281. The covered payroll (annual payroll

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of all active City employees covered by the plan) was \$591,242,616 and the ratio of the UAAL to the covered payroll was 841%. The funded status related to the retirees of the Fund was not available.

Supplemental Death Benefit Plan (Supplemental Plan) – As of June 30, 2009, the most recent actuarial valuation date for the Supplemental Plan, the actuarial accrued liability for benefits related to all City employees was \$29,747,480 and the actuarial value of assets was \$24,184,701, resulting in an unfunded actuarial accrued liability (UAAL) of \$5,562,779. The covered payroll (annual payroll of all active City employees covered by the plan) was \$591,242,616 and the ratio of the UAAL to the covered payroll was 0.9%. The funded status related to the retirees of the Fund was not available.

Actuarial valuations of the ongoing plans involve estimates of the value of reported amounts and assumptions about the probability of occurrence of events far into the future. Examples include assumptions about future employment, mortality, and the healthcare cost trend. Amounts determined regarding the funded status of the plan and the annual required contributions of the employer are subject to continual revision as actual results are compared with past expectations and new estimates are made about the future.

(e) Actuarial Methods and Assumptions

Projections of benefits for financial reporting purposes are based on the substantive plan (the plan as understood by the employer and the plan members) and include the types of benefits provided at the time of each valuation and the historical pattern of sharing of benefit costs between the employer and the plan members to that point. The actuarial methods and assumptions used include techniques that are designed to reduce the effects of short-term volatility in actuarial accrued liabilities and the actuarial value of assets, consistent with the long-term perspective of the calculations.

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Notes to Basic Financial Statements

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The actuarial methods and significant assumptions used to determine the annual required contributions for the year ended June 30, 2010 were as follows:

	Health and Life Insurance Benefit Plan	Supplemental Death Benefit Plan
Valuation date	June 30, 2009	June 30, 2009
Actuarial cost method	Entry age	Entry age
Amortization method	Level percent	Level percent
Remaining amortization period for unfunded actuarial accrued liabilities	30 years, open basis	30 years, open basis
Asset valuation method	N/A	4-year smoothed market
Actuarial assumptions:		
Investment rate of return	4.0%	5.0%
Projected salary increases*	4.0%	N/A
Healthcare cost trend rate	9.0% for 2010, grading down to 4.0% in 2019 and beyond	N/A

* Includes inflation rate of 4%.

In the June 30, 2009 actuarial valuation for the Supplemental Death Benefit Plan, the mortality tables used by the City's plan to evaluate death benefits to be paid for Fund retirees was 120% of the RP 2000 Combined Male and 120% of the RP 2000 Combined Female table setback 2 years. The City's plan used an annual rate of retirement of 50%, initially, reduced to an ultimate rate of 20% after age 70 for General City.

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(12) Due to (from) Other Funds

During the course of operations, numerous transactions occur between individual funds and other City funds for goods provided or services rendered. Related receivables and payables are classified as “due from other funds” or “due to other funds” on the statement of fund net assets and are summarized as follows as of June 30, 2010:

Due from other funds (unrestricted):	
General Fund	\$ 3,297,565
Other governmental funds	930,063
General Retirement System Service Corporation	35,991
Sewage Disposal Fund	<u>114,406,441</u>
Total due from other funds	\$ <u><u>118,670,060</u></u>
Due from other funds (restricted):	
Sewage Disposal Fund	\$ 9,393,793
Due to other funds (unrestricted):	
General Fund	\$ 7,312,138
Other governmental funds	189,759
Other enterprise funds	30,723
Fiduciary funds	5,056,959
Sewage Disposal Fund	<u>86,263,172</u>
Total due to other funds	\$ <u><u>98,852,751</u></u>
Due to other funds (restricted):	
Sewage Disposal Fund	\$ 21,419,307

(13) Capital Improvement Programs

The Fund is engaged in a variety of projects that are a part of its five-year Capital Improvement Program (the Program). The total cost of this program is anticipated to be approximately \$1.85 billion through fiscal year 2014. The Program is being primarily financed from revenues of the Fund and proceeds from the issuance of revenue bonds.

The total amount of construction contract commitments outstanding at June 30, 2010 was approximately \$2.0 million.

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(14) Contingencies

The City is subject to various governmental environmental laws and regulations. GASB Statement No. 49, Accounting and Financial Reporting for Pollution Remediation Obligations established accounting and financial reporting standards for pollution (including contamination) remediation obligations, which are obligations to address the current or potential detrimental effects of existing pollution by participating in pollution remediation activities such as site assessments and cleanups. The standard excludes pollution prevention or control obligations with respect to current operations, and future pollution remediation activities that are required upon retirement of an asset, such as landfill closure and postclosure care. The Fund recorded an estimated pollution remediation obligation of \$80,000. The estimated pollution remediation obligation is reflected in the Fund's long-term obligations, which can be seen in note 5.

The Fund's pollution remediation obligation is the result of projects that have been budgeted to improve the City's water system infrastructure. These projects included cleanup of contaminated soil and removal of other environmental pollution (e.g., lead lining) identified at the individual sites. The estimated liability is calculated using the expected cash flow technique. The pollution remediation obligation is an estimate and subject to changes resulting from price increases or reductions, technology, or changes in applicable laws and regulations.

The Fund is also a defendant in numerous alleged claims, lawsuits, billing disputes, and other stated and pending demands. The Fund and the City's Legal Department have estimated a reserve, which is included in the accompanying financial statements, for the potential outcome of such claims or the amount of potential damages in the event of an unfavorable outcome for each of the above contingencies. The Fund's management and the City's Legal Department believe that any differences in reserved amounts and final settlement, after consideration of claims covered by insurance, resulting from such litigation will not materially impact the Fund's financial position or results of operations.

The City holds various commercial insurance policies to cover other potential loss exposures.

(15) Compliance with Finance-Related Legal and Contractual Provisions

The Fund has not fully implemented the necessary procedures to ensure compliance with the arbitrage rebate rules of Section 148(f) of the Internal Revenue Code of 1986 applicable to the Fund's outstanding tax-exempt obligations. The City settled selected bond issues with the Internal Revenue Service (IRS) in August 2010 and is currently engaged in discussions with the IRS to settle the remaining bond issues. The potential impact to the Fund is undeterminable at this time.

APPENDIX C
BOND ORDINANCE

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ORDINANCE NO. ____

An Ordinance to Amend and Restate Ordinance No. 30-02 of the City of Detroit to Provide for the Issuance of SRF Junior Lien Bonds to Evidence Loans from the State Drinking Water Revolving Fund.

Whereas, Ordinance No. 30-02 provides for the financing and refinancing of capital improvements to the Water Supply System (the “System”) of the City of Detroit, Michigan (the “City”), by the issuance from time to time of Water Supply System Revenue Bonds and Revenue Refunding Bonds;

Whereas, the City Council of the City desires to amend and restate Ordinance No. 30-02 to provide for the issuance of SRF Junior Lien Bonds to enable the City to finance eligible improvements to the System with low-cost loans from the State Drinking Water Revolving Fund established pursuant to the federal Safe Drinking Water Act of 1974, as amended;

The City of Detroit Ordains:

Amendment to Amend and Restate Ordinance No. 30-02

Ordinance No. 30-02, as amended to the date hereof is hereby amended and restated in its entirety to read as set forth below. Such amendment and restatement to take effect as provided in Section 25 hereof.

SECTION 1. DEFINITIONS - GENERAL.

Whenever used in this Ordinance, except when otherwise indicated by the context, capitalized terms not defined herein and defined in the preamble hereto are used herein as defined in the preamble, and the following terms shall have the following meanings:

“Act 34” means Act 34, Public Acts of Michigan, 2001, as amended.

“Act 94” means Act 94, Public Acts of Michigan, 1933, as amended.

“Act of Council” means a resolution or ordinance of the Council, as required or permitted by law to authorize or otherwise give effect to the subject matter thereof.

“Additional Securities” has the meaning given that term in Section 20(C)(1).

“Ancillary Obligation” means any Reimbursement Obligation and any Hedge Obligation.

“Ancillary Obligation Fees and Expenses” means any fees and expenses in connection with any Hedge or Financial Facility in the ordinary course of the transaction.

“BMA Municipal Index” means the index based upon the weekly interest rates of tax-exempt variable rate issues included in a database maintained by Municipal Market Data, Boston,

Massachusetts, a Thompson Financial Services Company (or its successor), which meet specific criteria established by The Bond Market Association.

“Bond Counsel’s Opinion” means an opinion signed by an attorney or firm of attorneys of nationally recognized standing in the field of law relating to municipal, state and public agency financing, selected by the City.

“Bond Insurance” means any policy of insurance, contract of suretyship, guaranty or other agreement intended to protect Holders of particular Securities from loss arising from a failure of the City to timely pay principal (and premium, if any) of and interest on such Securities and pursuant to which the provider thereof is repaid solely as subrogee without creating any additional payment obligations (other than the payment of a premium or annual fee).

“Capital Appreciation Securities” means Securities that pay interest only at maturity.

“City” means the City of Detroit, County of Wayne, State of Michigan.

“Code” means the Internal Revenue Code of 1986, as it may be amended and the rules and regulations promulgated thereunder or applicable thereto.

“Commissioners” means the Board of Water Commissioners of the City created by Article 7, Section 7-1501, of the Charter of the City or any successor body.

“Construction Fund” means the fund established pursuant to Section 14.

“Council” means the City Council of the City.

“Counterpart Securities” means Securities that bear interest at rates which vary inversely to each other and that were issued contemporaneously with each other in order to produce a single fixed rate. In order to constitute “Counterpart Securities” both counterparts must be Outstanding at the same time and in such amounts and with such amortizations schedules as to maintain the fixed rate so utilized.

“Coverage Determination” means a determination of the ratio of Net Revenues to Indebtedness with respect to Securities for purposes of fixing or revising rates or issuing Additional Securities or incurring additional Secured Obligations.

“Credit Enhancement” means any Credit Facility and any Bond Insurance.

“Credit Facility” means any letter of credit, line of credit, purchase agreement, surety bond or other financial arrangement, other than Bond Insurance, intended to protect Holders of particular Securities from loss arising from a failure of the City to timely pay principal of and interest on such Securities or intended to secure an obligation to fund an account or fund, such as a Reserve Account.

“Debt Service Installment Requirement” means, as of the first day of each month with respect to a Priority of Outstanding Securities and Ancillary Obligations, if any, the total for such month of the (i) Interest Installment Requirement, (ii) Principal Installment Requirement and (iii) Sinking Fund Installment Requirement, if any.

“Excluded Tender Securities” means:

(i) Tender Securities that the City is not obligated to purchase under any circumstances upon the failure of the remarketing thereof and for which the City has not provided a Liquidity Facility; and

(ii) Tender Securities for which the City has provided a Liquidity Facility.

“Extraordinary Repair and Replacement Maximum Requirement” means, for any Fiscal Year, 15% of the budgeted operation and maintenance expense of the System for such Fiscal Year less in the Fiscal Year any amount that is withdrawn from the Extraordinary Repair and Replacement Reserve Fund for paying a major unanticipated repair or replacement to the System pursuant to Section 13D, but only in the Fiscal Year that such amount is withdrawn.

“Extraordinary Repair and Replacement Minimum Requirement” means, for any Fiscal Year, 1/12 of 3% of the budgeted operation and maintenance expense of the System for such Fiscal Year plus such amount as is necessary to restore to the Extraordinary Repair and Replacement Reserve Fund any amount credited to the Improvement and Extension Fund.

“Finance Director” means the Finance Director of the City or any successor officer of the City responsible for performing the duties of the Finance Director pursuant to the Charter of the City.

“Financial Facility” means any Credit Enhancement, Liquidity Facility or combined Credit and Liquidity Facility.

“Fiscal Year” means the fiscal year and operation year of the City which begins on July 1 and ends on the following June 30 as it may be modified.

“Fixed Rate Security” means a Security that bears interest at a rate that has been fixed for at least a five-year period that includes all of the Fiscal Year for which a calculation of Annual Debt Service is made or to its scheduled maturity, whichever is shorter; provided, however that:

(i) If the Fiscal Year for which a calculation of Annual Debt Service is made includes only a portion of such five year period, a Security is also a “Fixed Rate Security” but only for such portion;

(ii) A rate is fixed for purposes of determining whether a Security is a “Fixed Rate Security” if the economic effect of a Security bearing interest at a fixed rate is produced by a Qualified Hedge or by Counterpart Securities; and

(iii) A rate is variable for purposes of determining whether a Security is a “Fixed Rate Security” if the economic effect of a Security bearing interest at a variable rate is produced by a Qualified Hedge.

“Government Obligations” means direct obligations of the United States of America or obligations the principal of and interest on which is fully guaranteed by the United States of America, including U.S. Treasury Trust Receipts.

“Hedge” means any agreement by which the City is authorized or permitted by law to manage its debt service, either in connection with the proposed issuance or issuance of Securities or in connection with its then Outstanding Securities, including, but not limited to, interest rate exchanges or swaps, hedges and similar agreements.

“Hedge Obligations” means the City’s payment obligations under a Hedge other than the obligation to pay fees and expenses in the ordinary course of the transaction.

“Hedge Termination Payment” means an amount payable by the City under a Hedge by reason of the early termination thereof.

“Hedge Receivable” means any amount receivable by the City under a Hedge including any amount by reason of the early termination thereof.

“Holder” or “Securityholder” means the Person in whose name a Security is registered in the Registry.

“Indebtedness” has the meaning given that term in Section 2.

“Interest and Redemption Fund” means any Interest and Redemption Fund established for a Priority of Securities.

“Interest Installment Requirement” means, as of the first day of each month in a Fiscal Year, with respect to Securities and Ancillary Obligations of the same Priority of Lien, the amount of interest accrued and unpaid and to accrue to and including the last day of such month, on Outstanding Securities of such Priority of Lien and Parity Ancillary Obligations that constitute interest, if any, next coming due in such Fiscal Year.

“Junior Lien Bonds” means all Securities issued pursuant to this Ordinance other than Senior Lien Bonds.

“Junior Obligations” means all Junior Lien Bonds and all Ancillary Obligations that are not Senior Obligations.

“Legal Investment” means, with respect to any particular amounts, an investment that is authorized or permitted by law as an investment of such amounts, including Government Obligations.

“Liquidity Facility” means any letter of credit, line of credit, purchase agreement, or other financial arrangement intended to provide funds for the purchase of certain Securities in the event of a failure of the remarketing thereof but does not include any protection provided by a Credit Facility.

“Mandatory Redemption Date” means a date on which Term Securities in the principal amount of the applicable Mandatory Redemption Requirement are required to be redeemed under the Supplemental Action authorizing the sale of such Securities.

“Mandatory Redemption Requirements” means, with respect to any Term Securities, the principal amount of such Securities required to be called for redemption prior to their stated maturity as provided in the Supplemental Action authorizing the sale of such Term Securities.

“Net Revenues” means, for any period of time, all Revenues received during such period of time, except for those Revenues transferred to the Operation and Maintenance Fund.

“Operation and Maintenance Fund” means the fund established pursuant to Section 12(A)(1).

“Outstanding”, unless otherwise provided in a Supplemental Action for particular Securities, means, as of any date and with respect to Securities of a particular Priority of Lien,

all Securities of such Priority of Lien delivered under this Ordinance except:

(i) Securities of such Priority of Lien theretofore paid or redeemed or acquired by the City and surrendered to the Transfer Agent for cancellation;

(ii) Securities of such Priority of Lien that have matured or have been duly called for redemption and for the payment or redemption of which amounts, together with any unpaid interest, are held by the Trustee or the Paying Agent for the payment thereof;

(iii) Securities of such Priority of Lien that have been defeased in accordance with this Ordinance or a Supplemental Action; and

(iv) Securities of such Priority of Lien in exchange for or replacement of which other Securities of such Priority of Lien have been authenticated and delivered pursuant to this Ordinance or a Supplemental Action.

“Parity Ancillary Obligations” means, as to Securities, those Ancillary Obligations which have the same Priority of Lien, regardless of whether the Ancillary Obligations were entered into with respect to those Securities or Securities with a different Priority of Lien.

“Permitted Investment” means, with respect to any particular amounts, a Legal Investment subject to such limitations as may be imposed by this Ordinance or a Supplemental Action for the investment of such amounts.

“Person” means any natural person, firm, association, corporation, trust, partnership, joint venture, joint-stock company, municipal corporation, public body or other entity, however organized.

“Pledged Assets” means:

(i) Net Revenues;

(ii) the funds and accounts established by or pursuant to this Ordinance except for the Operation and Maintenance Fund and the Construction Fund and any account thereof;

(iii) investments of amounts credited to any fund, account or subaccount that is a Pledged Asset; and

(iv) any income or gain realized from investments that are Pledged Assets to the extent that such income or gain is not a Net Revenue.

“Principal Installment” means, with respect to Securities of the same Priority of Lien and related Ancillary Obligations, if any, the principal amount of such Securities that are not Term Securities and such of the Ancillary Obligations related to such Securities, if any, that constitute principal or other return of capital.

“Principal Installment Requirement” means, as of the first day of each month in a Fiscal Year, with respect to a Priority of Obligations, the amount of Principal Installments accrued and unpaid and to accrue to, and including, the last day of such month (assuming that principal accrues on the basis of 30-day months in a year of 360 days) on Outstanding Securities of such Priority of Lien and related Ancillary Obligations, if any, next coming due in such Fiscal Year.

“Priority of Lien” means, with respect to any particular Secured Obligation, all other Secured Obligations having a lien on Pledged Assets on a parity with such Obligation.

“Qualified Hedge” means a Hedge with a counterparty that is rated directly or indirectly by a Rating Agency in a rating category at least equal to the category in which the subject Securities are rated without benefit of Credit Enhancement and without reference to qualifications such as “plus” or “minus”. If the subject Securities are not rated without the benefit of Credit Enhancement, then the rating category of such Securities shall be the rating category with the benefit of Credit Enhancement.

“Rate Stabilization Fund” means the fund created under Section 13(G)(2).

“Rating Agency” means any nationally recognized statistical rating organization as defined in Rule 15c3-1 of the United States Securities and Exchange Commission.

“Receiving Fund” means the Water Supply Receiving Fund established under Section 12(A)(1).

“Refunding Securities” means Additional Securities issued for the purpose of refunding Outstanding Securities.

“Reimbursement Obligation” means the City’s repayment obligations under a Financial Facility, and does not include the obligation to pay fees and expenses in the ordinary course of the transaction.

“Registry” means the books for the registration and transfer of registration of securities as provided in Section 3G(1).

“Required Combined Coverage” means, for two or more Securities of a different Priority of Lien for which a Coverage Determination is to be made, the result produced by dividing the Net Revenues projected for the Fiscal Year of calculation by the prescribed related Indebtedness coming due during such Fiscal Year.

“Reserve Account” means a Reserve Account established in an Interest and Redemption Fund and may be restricted in meaning by referring to Securities of the same Priority of Lien for which such Reserve Account was established.

“Reserved Amount” means any amount on deposit in the Rate Stabilization Fund which is taken into account in connection with any Coverage Determination.

“Reserve Requirement” means, for Securities of the same Priority of Lien for which a Reserve Account has been established, the lesser of the amount of Annual Debt Service on all Securities of the same Priority of Lien then Outstanding for the current or any future Fiscal Year or the maximum amount permitted by the Code as provided below:

(i) for Senior Lien Bonds, the “amount of Annual Debt Service” shall be maximum Annual Debt Service;

(ii) for Second Lien Bonds, the “amount of Annual Debt Service” shall be maximum Annual Debt Service; and

(iii) for all other Junior Lien Bonds for which a Reserve Account is established, the “amount of Annual Debt Service” shall be the amount set forth in the Supplemental Action establishing such Reserve Account, and if no amount is set forth, the “amount of Annual Debt Service” shall be average Annual Debt Service.

“Revenues” means the revenues of the City from the System, which shall be construed as defined in Section 3 of Act 94, and shall also include:

(i) Hedge Receivables; and

(ii) income earned and gain realized from the investment of amounts in the various funds, accounts and subaccounts established by this Ordinance other than the Construction Fund for any

Fiscal Year earnings on the Construction Fund are not credited to the Receiving Fund.

“Second Lien Bonds” means the City’s outstanding Water Supply System Revenue Second Lien Bonds, Series 1995-A and any Additional Securities of equal Priority of Lien.

“Secured Obligations” means all Securities, Ancillary Obligations and Ancillary Obligation Fees and Expenses.

“Securities” means all Senior Lien Bonds and all Junior Lien Bonds.

“Securities to be Refunded” means the Particular Outstanding Securities to be refunded by Refunding Securities issued for such purpose.

“Senior Lien Bonds” means all Securities issued under this Ordinance that have a senior lien on Pledged Assets.

“Senior Obligations” means all Senior Lien Bonds and Ancillary Obligations in respect of Senior Lien Bonds and secured on parity therewith, and including all Junior Lien Bonds that have acceded to a parity status with Senior Lien Bonds pursuant to Section 5(F) hereof and Ancillary Obligations in respect thereof, secured on a parity therewith, if any.

“Sinking Fund Installment Requirement” means, with respect to Term Securities of the same Priority of Lien and as of the first day of each month in a Fiscal Year, the amount of any Mandatory Redemption Requirements next coming due in such Fiscal Year, including any Mandatory Redemption Requirement due at the maturity of such Term Security less the amounts credited to such Mandatory Redemption Requirements as the result of partial redemptions or purchase of such Term Securities, if any.

“State” means the State of Michigan.

“SRF Junior Lien Bonds” means all Junior Lien Bonds issued for the purpose of providing improvements to the System under the State’s Revolving Fund.

“Supplemental Action” means an Act of Council or a sale order or other document signed by the Finance Director pursuant to an Act of Council, which shall be this Ordinance if the action of the Finance Director is herein authorized.

“System” means the Water Supply System of the City including all plants, works, instrumentalities and properties, used or useful, in connection with obtaining a water supply, the treatment of water or the distribution of water, as the same now

exists, together with all additions, extensions, repairs and improvements thereto hereafter acquired.

“Tender Securities” means Securities that are subject to optional or mandatory tender for purchase.

“Term Securities” means, with respect to Securities of the same Priority of Lien, any maturity of such Securities that has Mandatory Redemption Requirements.

“Transfer Agent” means, as to any particular Securities, the bank or banks selected by the Finance Director to perform the duties provided for the Transfer Agent with respect to such Securities.

“Trustee” means U.S. Bank National Association or any successor Trustee selected by the Finance Director to perform the duties of trustee under Section 19 hereof.

“Variable Rate Security” means any Security that is not a Capital Appreciation Security or a Fixed Rate Security.

SECTION 2. DEFINITION OF ANNUAL DEBT SERVICE.

(A) *Definitions.*

(1) “Annual Debt Service” means, for any Fiscal Year and with respect to Indebtedness of any particular Priority, the amount of such Indebtedness due in such Fiscal Year in accordance with their respective terms.

(2) Unless limited by another Section of this Ordinance, “Indebtedness” means (without duplication):

- (i) Principal of and interest on Securities Outstanding in any Fiscal Year for which the calculation is made;
- (ii) Reimbursement Obligations; and
- (iii) Hedge Termination Payments.

(B) *Rules for Calculating Principal and Interest.*

(1) First Day of Fiscal Year. Principal of and interest on Securities coming due on the first day of a Fiscal Year shall be calculated as being due on the last day of the immediately preceding Fiscal Year.

(2) Assumed Paid. Principal of and interest on any Securities due in a Fiscal Year prior to the Fiscal Year for which the calculation is made shall be assumed to have been paid when due.

(3) Due Dates. The due dates for any principal, interest or Redemption Requirements are the stated dates for the payment thereof and not in advance of such stated dates by reason of acceleration.

(4) Term Securities.

- (i) Mandatory Redemption Requirements shall be treated as principal maturing on the respective dates that such Mandatory Redemption Requirements are due.
- (ii) The principal amount of a Term Security maturing in a Fiscal Year shall be reduced by the total of the Mandatory Redemption Requirements due in each Fiscal Year before the Fiscal Year of such maturity.

(5) Tender Securities. Except for Excluded Tender Securities, each date on which Holders of such Tender Securities may tender or may be mandated to tender such Tender Securities shall constitute a maturity of the principal amount of such Tender Securities that could be tendered on such date with the giving of notice or the passage of time, or both.

(6) Interest.

- (i) Interest due in any Fiscal Year shall be offset by the amount of capitalized interest or interest received by the City as “accrued interest” available for the payment thereof.
- (ii) Separate provision is made in this Section for determining the interest rate on:
 - (a) Variable Rate Securities as provided in subsection (C) below;
and
 - (b) Fixed Rate Securities converting to Variable Rate Securities as provided in subsection (D) below.

(C) ***Variable Rate Securities.***

(1) If Variable Rate Securities have been Outstanding for less than a full Fiscal Year on the date of calculation, then the interest rate on such Variable Rate Securities shall be calculated as 125% of the average of the BMA Municipal Index (as hereinafter defined) for the five year period ending not more than one week before the date of such calculation.

(2) If Variable Rate Securities have been Outstanding for one or more full Fiscal Years on the date of calculation, then the interest rate on such Variable Rate Securities shall be calculated as 125% of the annualized average daily rate

borne by such Variable Rate Securities for the 12 calendar month period ending immediately before the month of calculation.

(3) Notwithstanding paragraphs (1) and (2), for the purpose of determining the Reserve Requirement for Securities of the same Priority of Lien, the interest rate on Variable Rate Securities shall be not adjusted after the date of initial issuance.

(D) ***Fixed Rate Securities Convertible to Variable Rate Securities.***

If Securities are issued as Fixed Rate Securities but are intended to convert by their terms to Variable Rate Securities during a future Fiscal Year and a calculation is made for such future Fiscal Year or any Fiscal Year thereafter, then the Fiscal Year of conversion shall be the first Fiscal Year that such Securities are Outstanding for the purpose of calculating interest at a variable rate.

(E) ***Capital Appreciation Securities.***

For the Capital Appreciation Securities, the Accreted Value per \$5,000 due at maturity shall be as determined semiannually to maturity on such dates as specified in a Supplemental Action. For purposes of the rate covenants in Section 9, the Additional Securities requirements of Section 20, and for all other purposes of this Ordinance, the Accreted Value of Capital Appreciation Securities shall be deemed to be due and payable in the Fiscal Years in which such Accreted Value shall actually be due and payable by the City into the Senior Lien Bond and Interest Redemption Fund or the Second Lien Bond Interest and Redemption Fund, as applicable, or assumed paid under (B)(2) above, as applicable.

SECTION 3. AUTHORIZATION AND ISSUANCE OF SECURITIES; RELATED MATTERS.

(A) ***Authorization of Securities.*** Securities shall be authorized from time to time by Acts of Council and Supplemental Actions.

(B) ***Issuing Securities.*** The Finance Director may, by Supplemental Action, take such actions as are necessary or appropriate to give effect to the transactions contemplated by an Act of Council authorizing the issuance of Securities or as are incidental thereto.

(C) ***Liability Limited.*** All covenants, agreements and obligations of the City contained in this Ordinance or in any Secured Obligations are those of the City and not of any member, officer or employee of the City in his or her individual capacity, and no recourse shall be had for the payment of any Secured Obligations or for any claims based thereon or hereunder against any member, officer or employee of the City or any natural Person executing or attesting any Secured Obligations.

(D) ***Execution, Authentication and Delivery of Securities.***

(1) Securities shall be executed in the name of the City by the facsimile signatures of the Mayor and the Finance Director and shall have a facsimile of the City's seal impressed, imprinted or otherwise reproduced thereon.

(2) No Security shall be valid until authenticated by an authorized representative of the Transfer Agent. Securities shall be delivered by the City to the Transfer Agent for authentication and be delivered to the Transfer Agent by the Finance Director or designee for delivery to the purchaser(s) in accordance with instructions from the Finance Director upon payment of the purchase price therefor in accordance with the bid or purchase contract. Executed blank Securities for registration and issuance to transferees shall, from time to time as necessary, be delivered to the Transfer Agent for safekeeping.

(E) ***Reserve Account Requirement.*** Concurrently with the issuance of Securities of a Priority for which a Reserve Account has been or is being established, there shall be credited to such Reserve Account the amount that, added to the amount on deposit therein or credited thereto, equals the Reserve Requirement for Securities then to be issued and all Securities of such Priority then Outstanding. Such amount may be provided from any source or may be provided by a Financial Facility meeting the requirements of Section 4.

(F) ***Disposition of Proceeds.*** The proceeds of the sale of an issue of Securities shall be applied as follows:

(1) An amount equal to the accrued interest shall be credited to the Interest and Redemption Fund for such Securities to be applied to next maturing interest thereon.

(2) If a Reserve Account has been or is being established for Securities of the same Priority of Lien as such Securities, the amount necessary to comply with subsection (E), above, unless such compliance will be obtained with amounts from a different source, or by the deposit of a Financial Facility meeting the requirements of Section 4.

(3) The balance of the proceeds, including premium, if any, shall be applied as provided in the Supplemental Action providing for the issuance of such Securities.

(G) ***Transfer of Registration of Securities.***

(1) Maintenance of Books. Each Transfer Agent shall keep or cause to be kept, at its principal office, sufficient books for the registration and transfer of registration of Securities for which it is Transfer Agent, which shall at all times be open to inspection by the City.

(2) Privilege of Transfer. Under such reasonable regulations as the Transfer Agent may prescribe, the registration of Securities for which it is the Transfer Agent may be transferred upon its Registry by the Person in whose name such Securities are registered, in person or by his or her duly authorized attorney, upon surrender of such Securities for cancellation, accompanied by delivery of a

duly executed written instrument of transfer in a form approved by the Transfer Agent for such Securities.

(3) Surrender for Transfer; Receipt of New Securities. Whenever any Security is surrendered for transfer, the City shall execute and the Transfer Agent for such Security shall authenticate and deliver a new Security or Securities, in the same aggregate principal amount, of the same maturity, and bearing the same rate or rates of interest and otherwise of the same tenor as the Security surrendered for transfer.

(4) Transfer Taxes and Governmental Charges. The Transfer Agent shall require payment by the Holder requesting the transfer of any Security for which it is the Transfer Agent, any tax or other governmental charge required to be paid with respect to such transfer.

(5) Limitations. Except as otherwise provided by Supplemental Action, a Transfer Agent shall not be required (i) to issue, register the transfer of or exchange Securities for which it is the Transfer Agent during a period beginning at the opening of business fifteen (15) days before the day of the giving of a notice of redemption or mandatory tender of such Securities selected for redemption or mandatory tender and ending at the close of business on the day of giving of that notice, or (ii) to register the transfer of or exchange of any such Security so selected for redemption or tender in whole or in part, except the unredeemed or untendered portion of such Security being redeemed or tendered in part.

(H) *Mutilated, Lost or Stolen Securities.*

(1) If any Security is mutilated, the City, at the expense of the Holder of the Security, shall execute, and the Transfer Agent for such Security shall authenticate and deliver, a new Security of like tenor in exchange and substitution for the mutilated Security, upon surrender to such Transfer Agent of the mutilated Security.

(2) If any Security is lost, destroyed or stolen, evidence of ownership of the Security and of the loss, destruction or theft may be submitted to the Transfer Agent for such Security and, if this evidence is satisfactory to the City and the Transfer Agent, and, indemnity satisfactory to such Transfer Agent and the City shall be given, and if all requirements of any applicable law, including Act 354, Public Acts of Michigan, 1972, as amended, have been met, then, at the expense of the Holder requesting the substitute Security, the City shall execute, and such Transfer Agent shall thereupon authenticate and deliver, a new Security of like tenor and bearing the statement required by Act 354, or any applicable law hereafter enacted, in lieu of and in substitution for the Security so lost, destroyed or stolen. If any such Security shall have matured or shall be about to mature, the Transfer Agent may pay the same without surrender thereof as authorized by Act 354 instead of issuing a substitute Security.

SECTION 4. FINANCIAL FACILITIES; HEDGES.

(A) The Finance Director may, from time to time and at any time, obtain a Financial Facility in respect of all or some Securities if the Finance Director determines such to be in the best financial interests of the City.

(B) The Finance Director may at any time acquire a Credit Enhancement to fulfill the City's obligation to fund any Reserve Account or substitute a Credit Enhancement for amounts in a Reserve Account. The Credit Enhancement shall be deposited with and payable to the Transfer Agent in its capacity as paying agent for the related Securities. Before or concurrently with the acquisition of such Credit Enhancement, the Finance Director shall receive:

- (1) an opinion of nationally recognized bond counsel to the effect that such substitution will not adversely affect the tax-exempt status of interest on any Securities;
- (2) evidence that such Credit Enhancement is provided by a provider rated in the highest rating category of each Rating Agency then rating the Securities having the benefit of such Reserve Account;
- (3) a copy of the Credit Enhancement; and
- (4) an opinion of counsel satisfactory to said nationally recognized bond counsel to the effect that the Credit Enhancement is valid and enforceable in accordance with its terms.

(C) The Finance Director may, subject to the requirements of Act 34 or in accordance with any other applicable law, from time to time enter into such Hedges as the Finance Director determines to be in the best financial interests of the City.

(D) The Finance Director may grant to the provider of any Financial Facility, or to any counterparty to any Hedge authorized by this Section, such rights as may be necessary or appropriate that are not inconsistent with this Ordinance, Act 34 or any other applicable law.

SECTION 5. SECURITY FOR PAYMENT.

(A) The payment of Secured Obligations is secured by a statutory lien, which is hereby created, upon the whole of the Pledged Assets subject to the use and application thereof in accordance with this Ordinance.

(B) The lien securing Hedge Obligations is valid only to the extent permitted by law.

(C) Except for Bond Insurance, a statement of the Priority of Lien of an Ancillary Obligation shall be contained in the instrument evidencing or providing for such Ancillary Obligation.

(1) An Ancillary Obligation in respect of Securities of the same Priority of Lien:

- (i) may be secured at a lower Priority of Lien, but
- (ii) may not be secured at a higher Priority of Lien.

(2) Ancillary Obligations may have a Priority of Lien lower than that of the Securities in respect of which such Ancillary Obligations have been entered into and may be Parity Ancillary Obligations to Securities to which they are otherwise unrelated; provided, that any lien securing Ancillary Obligations in respect of Senior Lien Bonds shall be subject to the rights of the holders of the City's outstanding Water Supply System Revenue Second Lien Bonds, Series 1995-A, except to the extent that such Ancillary Obligations arise in connection with a Financial Facility acquired to fund any portion of the Reserve Account or to be substituted for cash therein.

(D) The lien securing the payment of a Secured Obligation is subject to the following Priorities:

(1) The lien securing Senior Obligations shall be a first lien, senior to all other liens created hereunder except the lien securing Ancillary Obligations Fees and Expenses which are further subject to the qualification of subsection (C)(2) above.

(2) The lien securing Junior Obligations shall be junior only to the lien securing Senior Obligations whenever issued. Among Junior Obligations:

- (i) the lien securing Second Lien Bonds and Parity Ancillary Obligations thereto shall be senior to the liens securing all other Junior Obligations;
- (ii) the lien of each other Priority of Junior Obligations of the same Priority of Lien shall be senior to the lien of all lower Priorities of Junior Obligations; and
- (iii) the SRF Junior Lien Bonds shall be the lowest Priority of Junior Lien Bonds, and the lien securing SRF Junior Lien Bonds and related Ancillary Secured Obligations shall be junior to the liens securing all other Junior Obligations, whenever issued.

(E) Each lien securing a Secured Obligation shall continue until either payment in full of such Secured Obligation or, in the case of Securities, is defeased as provided in Section 21 of this Ordinance. Ancillary Obligations shall be defeased in the manner provided in the agreement with the obligee of such Ancillary Obligations.

(F) In accordance with this subsection, the City may provide for the accession of Junior Lien Bonds to the status of complete parity with Senior Obligations when there shall have been filed with the Commissioners a certificate satisfying the requirements of Section 20(C) from a national consulting firm or a national firm of certified public accountants, and further reciting the opinion:

(1) that the Reserve Account contains an amount equal to the Reserve Requirement computed on a basis which includes all Securities then outstanding and such Junior Lien Bonds;

(2) that all payments into the various funds and accounts hereinabove required to be held under this Ordinance are current as of the date of accession; and

(3) that the Interest and Redemption Fund contains the amounts which would have been required to be accumulated therein on the date of accession if such Junior Lien Bonds had originally been issued as Senior Lien Bonds; such amounts shall be shown in said certificate.

The accession of such Junior Lien Bonds shall be conclusively evidenced by notice from the City to the Trustee and each Holder of such Junior Lien Bonds.

SECTION 6. PAYMENT OF SECURED OBLIGATION; SUBORDINATION.

(A) ***Generally.*** Secured Obligations are not general obligations of the City and shall be payable solely from Pledged Assets as provided in this Section:

(1) Ancillary Obligation Fees and Expenses are payable from Revenues and, to the extent of any insufficiency, Pledged Assets.

(2) All Securities and Ancillary Obligations are payable from Pledged Assets.

(B) *Subordination.*

(1) Whenever any principal (and premium, if any) of and interest on Securities of the same Priority of Lien or any payment on the Parity Ancillary Obligations thereto is due and is not made when due, then until such payment is made or provision made for the payment thereof to the satisfaction of the Holders of such Securities and the obligees of such Parity Ancillary Obligations, no such payment shall be made directly or indirectly on or in respect of any Securities of a lower Priority of Lien or any Ancillary Obligations which are Parity Ancillary Obligations to such Securities of lower Priorities of Lien (such Securities and Ancillary Obligations collectively, the “Subordinated Obligations” and the Holders and obligees thereof, the “Subordinated Obligees”), except as provided below with respect to defeased Securities.

(2) Subject to the payment in full of all Securities and Ancillary Obligations of every higher Priority of Lien (collectively, the “Superior Obligations” and the Holders and obligees thereof, the “Superior Obligees”), the Subordinated Obligees shall be subrogated to the rights of the Superior Obligees to receive payment in full of the respective Obligations until all amounts owing on the Subordinated Obligations shall be paid in full.

(3) Except as otherwise provided in a Supplemental Action, the City may agree with the Holders of Securities of any Priority of Lien and the obligee of any Parity Ancillary Obligations thereto to extend, renew, modify or amend the terms of such Securities or such Parity Ancillary Obligations thereto or any

security therefor, and any such Holders or obligees may release, sell, exchange such security and otherwise deal freely with the City, and the City with any of them, all without notice to or consent of the Holders of any Securities of any lower Priority or the obligees under any Parity Ancillary Obligations thereto without affecting the liabilities of the City to such Holders or obligees.

(4) Nothing in this subsection shall impair the right of the Holders of any defeased Securities to be paid from the escrow effecting such defeasance.

(C) ***Financial Facilities.*** Except as otherwise provided in a Supplemental Action:

(1) Nothing in this Section shall affect the payment of Securities from any Financial Facility obtained for the benefit of such Securities.

(2) No payment of an amount made by a drawing or disbursement under a Financial Facility to Holders of Securities which would otherwise have been made by the City shall be deemed to be a payment by the City on account of such Securities for the purpose of discharging the City's obligation on such Securities.

SECTION 7. SECURITYHOLDERS' RIGHTS; RECEIVER.

(A) The Holder or Holders of the Securities representing in the aggregate not less than 20% of the entire principal amount thereof then Outstanding, may, by suit, action, mandamus or other proceedings, protect and enforce the statutory lien upon Pledged Assets, and may, by suit, action, mandamus or other proceedings, enforce and compel performance of all duties of the officers of the City, including the fixing of sufficient rates, the collection of Revenues, the proper segregation of the Revenues of the System and the proper application thereof. The statutory lien upon Pledged Assets, however, shall not be construed to give the Holders of the Securities the authority to compel the sale of the System or any part thereof.

(B) If there is a default in the payment of the principal (and premium, if any) of and interest on any Securities, any court having jurisdiction in any proper action may appoint a receiver to administer and operate the System on behalf of the City and, under the direction of the court, perform all of the duties of the officers of the City more particularly set forth herein, in Act 94 and in such orders of the court.

(C) The Holder or Holders of the Securities shall have all other rights and remedies given by Act 94 and by law for the payment and enforcement of the Securities and the security therefor.

SECTION 8. MANAGEMENT.

The operation, repair and management of the System, including all projects financed by the issuance of Securities, shall remain under the supervision and control of the Commissioners in the manner provided in Article 7, Chapter 15 of the Charter of the City subject to the rights, powers and duties in respect thereto which are reserved by law and the City Charter to the Council.

SECTION 9. FIXING AND REVISING RATES; RATE COVENANTS.

(A) The coverage requirements for determining the Required Combined Coverage under this Section are the following percentages:

<u>Priority of Indebtedness</u>	<u>Percentage</u>
Senior Lien Indebtedness	120%
Second Lien Indebtedness.....	110%
SRF Junior Lien Bonds.....	100%

Prior to or concurrently with the issuance of Securities of a Priority of Lien not enumerated above, this subsection shall be amended to provide for the coverage percentage for Indebtedness in respect of such Securities, but in no case shall the coverage percentage be less than 100. Such amendment shall not require the consent of Holders of any Securities.

(B) The rates for water service and the regulations shall be the rates and regulations required to be established by Act 94. Such rates shall be fixed and revised from time to time as may be expected to be necessary to produce the greater of:

- (1) the amounts required:
 - (i) to provide for the payment of the expenses for maintenance of the System as are necessary to preserve the same in good repair and working order; and
 - (ii) to provide for the payment of Indebtedness coming due for the Fiscal Year of calculation; and
 - (iii) to provide for the creation and maintenance of reserves therefor as required by the Ordinance or any ordinance or resolution adopted in accordance with the terms thereof and hereof; and
 - (iv) to provide for such other expenditures and funds for the System as this Ordinance may require; and

(2) The Required Combined Coverage where the numerator is the Net Revenues projected for the Fiscal Year of calculation and the denominator is the Indebtedness coming due for such Fiscal Year.

(C) The City hereby covenants and agrees at all times to maintain such rates for services furnished by the System as shall be sufficient to provide for the foregoing and to repay any transfer from the Extraordinary Repair and Replacement Reserve Fund.

(D) Without taking into account any transfers from the Rate Stabilization Fund, the City shall at all times observe and comply with the covenant contained in subsection (B)(2) above as if the Rate Coverage Percentage were 100%.

(E) The charges for water service which are under the provisions of Section 21 of Act 94 are made a lien on all premises served thereby, unless notice (accompanied by a copy of the lease of the affected premises, if any,) is given to the Council that a tenant is responsible, are hereby recognized to constitute such lien and whenever any such charge against any piece of property shall be delinquent for six months, the City official or officials in charge of the

collection thereof may certify to the tax assessing officer of the City not later than April 1 of each year the fact of such delinquency, whereupon such charge shall be entered upon the next tax roll as a charge against such premises and the lien thereof enforced in the same manner as general City taxes against such premises are collected and the lien thereof enforced; provided, however, where notice is given that a tenant is responsible for such charges and service as provided by said Section 21, no further service shall be rendered to such premises until a cash deposit equal to the estimated amount of the next ensuing bill shall have been made as security for payment of such charges and services.

(F) In addition to other remedies provided, the City shall have the right to shut off and discontinue the supply of water to any premises for the nonpayment of water rates when due.

SECTION 10. NO FREE SERVICE OR USE; METERED SERVICE.

No free service or use of the System, or service or use of the System at less than cost, shall be furnished by the System to any person, firm or corporation, public or private, or to any public agency or instrumentality, including the City and any other municipality. All service provided to customers of the System, with the exception of temporary connections and certain public service uses of the City which are billed on an estimated basis, shall be metered.

SECTION 11. OPERATING AND FISCAL YEAR.

The System shall be operated on the basis of the Fiscal Year.

SECTION 12. FUNDS AND ACCOUNTS; FLOW OF FUNDS.

(A) *Establishment of Funds and Accounts.*

(1) The following funds and accounts are hereby established:

- Water Supply System Receiving Fund
- Operation and Maintenance Fund
- Senior Lien Bond Interest and Redemption Fund
 - Senior Lien Debt Service Account
 - Senior Lien Bond Reserve Account
- Second Lien Bond Interest and Redemption Fund
 - Second Lien Debt Service Account
 - Second Lien Bond Reserve Account
- SRF Junior Lien Bond Interest and Redemption Fund
 - SRF Junior Lien Debt Service Account
 - No SRF Junior Lien Bond Reserve Account is established
- Such Interest and Redemption Funds as are established by Supplemental Action for other Junior Lien Bonds of the same Priority of Lien
- Extraordinary Repair and Replacement Reserve Fund

- Improvement and Extension Fund
- Surplus Fund

(2) Additional funds and accounts may be established for other Securities of the same Priority of Lien by Supplemental Action of the Finance Director.

(B) ***Flow of Funds.***

All Revenues shall be set aside as collected and credited to the Receiving Fund. As received, amounts credited to the Receiving Fund shall be transferred *seriatim* into the following funds and accounts but only within the respective limitations and only if the maximum amount within such limitation has been transferred to the preceding fund or account:

First: to the Operation and Maintenance Fund, a sum sufficient to provide for the payment of the next month's expenses of administration and operation of the System (including Ancillary Obligation Fees and Expenses) and such current expenses for the maintenance thereof as may be necessary to preserve the same in good repair and working order;

Second: to the Senior Lien Debt Service Account, an amount that, when added to all other amounts then on deposit therein, shall equal the Debt Service Installment Requirement for Senior Lien Obligations as of the first day of such month;

Third: to the Senior Lien Bond Reserve Account, an amount that when added to all other amounts then on deposit therein shall equal the Reserve Requirement for Senior Lien Bonds;

Fourth: to the Interest and Redemption Fund established for each Priority of Junior Lien Bonds, beginning with the Second Lien Bonds and continuing in descending order of Priority of Lien to, and including, each Priority of Lien of Junior Lien Bonds:

first: to the Debt Service Account established for such Priority of Lien, an amount that, when added to all other amounts then on deposit therein, shall equal the Debt Service Installment Requirement for Junior Obligations of such Priority of Lien as of the first day of such month;

second: to the Reserve Account, if any, established for such Priority of Lien an amount that when added to all other amounts then on deposit therein shall equal the Reserve Requirement for such Priority of Lien of Junior Lien Bonds;

Fifth: to the Extraordinary Repair and Replacement Reserve Fund, the amount of the Extraordinary Repair and Replacement Minimum Requirement so long as the balance thereof is less than the Extraordinary Repair and Replacement Maximum Requirement except that an amount withdrawn from such Fund pursuant to Section 13D shall be deducted from the Extraordinary Repair and Replacement Maximum Requirement in the Fiscal Year of withdrawal; and

Sixth: to the Improvement and Extension Fund, such amount, if any, that the Commissioners may deem advisable; provided that no amount shall be deposited therein

or credited thereto for so long as a borrowing from the Extraordinary Repair and Replacement Reserve Fund remains unpaid.

SECTION 13. USE AND APPLICATION OF AMOUNTS IN FUNDS.

(A) *Receiving Fund.*

(1) Amounts in the Receiving Fund shall be applied as received as provided in Section 12. Amounts not transferred to any other fund or account shall remain in the Receiving Fund until the last day of each Fiscal Year.

(2) Amounts remaining in the Receiving Fund as of the last day of each Fiscal Year shall be transferred to the Surplus Fund.

(B) *Operation and Maintenance Fund.*

Amounts in the Operation and Maintenance Fund shall be used to pay the expenses of administration and operation of the System (including Ancillary Obligation Fees and Expenses and any rebates to the United States government that may be required by the Code) and such current expenses for the maintenance thereof as may be necessary to preserve the same in good repair and working order.

(C) *Interest and Redemption Funds.*

(1) Generally. Amounts in the Interest and Redemption Fund established for Securities and for Ancillary Obligations of the same Priority of Lien shall be applied to pay principal (and redemption premium, if any) of and interest on such Securities and amounts due on such Ancillary Obligations.

(2) Mandatory Redemption Requirements.

(i) A Mandatory Redemption Requirement for a maturity of Term Securities may be satisfied in whole or in part by the redemption of Term Securities of such maturity or by the purchase and surrender to the Transfer Agent of such Term Securities from amounts credited to the Interest and Redemption Fund established for such Securities of Priority of Lien or purchased with other funds legally available therefor. The Finance Director shall elect the manner in which he/she intends to satisfy all or a portion of a Mandatory Redemption Requirement for particular Term Securities not less than 40 days prior to the due date of such Mandatory Redemption Requirement unless otherwise provided in the Supplemental Action providing for the issuance of such Term Securities.

(ii) Unless otherwise provided in a Supplemental Action providing for the issuance of Term Securities, the City will receive a credit against the Mandatory Redemption Requirement for Term Securities for which such Mandatory Redemption Requirement was established that have been redeemed (other than by application of Mandatory Redemption Requirements) or otherwise acquired by the City prior to the giving of the notice of redemption and that have not been applied as a credit against any other Mandatory Redemption Requirements.

(a) Not less than 40 days prior to any mandatory redemption date for Term Securities, the Finance Director shall give notice to the Transfer Agent that such Term Securities are to be so credited.

(b) Each such Term Security shall be credited by the Transfer Agent at 100% of the principal amount thereof against the Mandatory Redemption Requirement, and the principal amount of Term Securities to be redeemed on such mandatory redemption date shall be reduced accordingly and any excess over such amount shall be credited to future Mandatory Redemption Requirements in such order as the Finance Director shall direct; provided, however, that any excess resulting from the purchase, at less than par, of such Term Securities shall be credited to the Receiving Fund.

(3) Reserve Accounts.

(i) Except as otherwise provided herein, amounts in a Reserve Account shall be used solely for the payment of the principal (and premium, if any) of and interest on Securities and Ancillary Obligations of the same Priority of Lien for which such Reserve Account was established, as to which there would otherwise be default.

(ii) If at any time the amount on deposit in or credited to a Reserve Account exceeds the Reserve Requirement for such Reserve Account, the amount of such excess may be transferred therefrom and credited to the Receiving Fund.

(iii) No further payments need be made into an Interest and Redemption Fund in respect of principal and interest after enough of the Securities for which such Fund was established have been retired so that the amount then held in such Fund, including the Reserve Account therein, if any, is equal to the entire amount of principal and interest which will be payable at the time of maturity of all the then Outstanding Securities of such Priority of Lien.

(iv) A separate Reserve Account may be established for an issue of Securities by the Supplemental Action providing for the issuance of such Securities.

(a) Securities having the benefit of such Reserve Account may be issued but only if such separate Reserve Account is fully equal to the Reserve Requirement for such Securities concurrently with the issuance of such Securities.

(b) The amounts to be paid into any separate Reserve Account to restore it to its Reserve Requirement shall be made on a parity with payments into all other Reserve Accounts established for Securities of the same Priority of Lien and shall not exceed, in any Fiscal Year, its proportionate deficit payment. "Proportionate Deficit Payment" means for a separate Reserve Account the same proportion that the amount available to remedy deficits in each Reserve Account for such Priority bears to the aggregate deficit in all Reserve Accounts for such Priority.

(D) ***Extraordinary Repair and Replacement Reserve Fund.***

(1) Amounts in the Extraordinary Repair and Replacement Reserve Fund may be used to pay the costs of making major unanticipated repairs and

replacements to the System which individually have cost or are reasonably expected to cost in excess of \$1,000,000 as determined by the Commissioners.

(2) On and after the first day of each Fiscal Year, the Finance Director may, by Supplemental Action, transfer to the Improvement and Extension Fund not more than 50% in aggregate of the balance in this Fund on the first day of such Fiscal Year if, but only if (i) in the month of such transfer the full amount of the Extraordinary Repair and Replacement Minimum Requirement for each prior month in the current Fiscal Year has been credited to this Fund and (ii) the amounts of all prior transfers from this Fund to the Improvement and Extension Fund have been restored in full.

(3) The City shall fix rates and charges for the services supplied by the System sufficient to permit it to meet its obligations under Section 13D.

(E) ***Improvement and Extension Fund.***

The Improvement and Extension Fund shall be used for improvements, enlargements, extensions or betterment to the System.

(F) ***Surplus Fund.***

Amounts from time to time on hand in the Surplus Fund may, at the option of the Commissioners, be used and applied for any purposes related to the System for which the funds and accounts were established hereunder or for any other lawful purpose of the System; provided, however, that if and whenever there should be any deficit in the Operation and Maintenance Fund or in any Interest and Redemption Fund (including any Reserve Account therein) then transfers shall be made from the Surplus Fund to such funds in the priority and order named in Section 12 to the extent of any such deficit.

(G) ***Rate Stabilization Fund***

(1) As used in this Section, “Prior Revenue” means any amounts that constitute Revenues or Net Revenues and held under this Ordinance but only to the extent that such amounts may be applied to any lawful purpose of the System. “Prior Revenue” does not include any amounts held under this Ordinance that at the time are restricted in application to a specific purpose, such as, by way of illustration, the application of amounts in the Surplus Fund in the event of a deficit as provided in the proviso to Section 13(F).

(2) The Commissioners may create a fund designated Water Supply System Rate Stabilization Fund (the “Rate Stabilization Fund”). No amounts shall be deposited therein or credited thereto except Prior Revenues and then only if:

(i) such Prior Revenue is credited to the Rate Stabilization Fund in the Fiscal Year in which it was recognized by the City as Net Revenue or within 90 days after the end of such Fiscal Year;

(ii) the amount of such Prior Revenue is deducted from the amount of Net Revenue recognized in such Fiscal Year for all purposes of this Ordinance; and

(iii) the amount of Net Revenue recognized in such Fiscal Year at least meets the minimum applicable coverage requirements of this Ordinance for such Fiscal Year after (i) such deduction and (ii) all prior deductions in respect of such Fiscal Year pursuant to this clause.

(3) Amounts on deposit in the Rate Stabilization Fund may be taken into account with respect to any Coverage Determination.

(4) Whenever any Reserved Amount is taken into account for any Coverage Determination, then such Reserved Amount shall be credited to the Receiving Fund for the Fiscal Year for which such Coverage Determination is made.

(5) Prior to the transfer of any Reserved Amount to the Receiving Fund, such Reserved Amount shall not be used or applied to any purpose except pursuant to Section 16 and then only after all other amounts then in the Rate Stabilization Fund have been applied pursuant to Section 16.

(6) Amounts on deposit in the Rate Stabilization Fund other than Reserved Amounts may be applied to any lawful purpose of the System.

SECTION 14. CONSTRUCTION FUND.

(A) There shall be established and maintained a separate depository fund designated the Construction Fund. The City may designate separate accounts in the Construction Fund for different series of Securities for administrative purposes and to better enable the City to comply with its tax covenants in Supplemental Actions regarding the exclusion from federal income taxation of interest on Securities.

(B) Amounts in the Construction Fund shall be applied solely in payment of the cost of repairs, extensions, enlargements, and improvements to the System and any costs of engineering, legal, bond insurance premiums, if any, and other expenses incident thereto, to the financing thereof.

(1) Payments of the cost of repairs, extensions, enlargements and improvements to the System, either on account or otherwise, shall not be made unless the registered engineer in charge of such work shall file with the Commissioners a signed statement to the effect that the work has been completed in accordance with the plans and specifications therefor; that it was done pursuant to and in accordance with the contract therefor; that such work is satisfactory; and that such work has not been previously paid for.

(2) Payment of the cost of engineering, legal, financial, bond insurance premium, etc., as provided in this Section shall be made under such procedures as established by and upon submission of appropriate documentation to the Finance Director.

(C) Any unexpended balance remaining in the Construction Fund may in the discretion of the Commissioners be used for meeting any Reserve Requirement or for further improvements, enlargements and extensions to the System if, at the time of such expenditure,

such use is approved by the Michigan Department of Treasury, if such permission is then required by law. Any remaining balance after such expenditure shall be paid into the Interest and Redemption Fund established for the Securities of the Priority of Lien giving rise to such balance for the purpose of purchasing Securities of such Priority at not more than the fair market value thereof but not more than the price at which such Securities may next be called for redemption or used for the purpose of calling such Securities for redemption. The City may provide additional or different lawful uses for such unexpended balance or remaining balance by Supplemental Action of the Finance Director which shall, nonetheless, be subject to receipt of a Bond Counsel's Opinion that such use is permitted by applicable law and will not adversely affect the tax exempt status of Outstanding Securities.

SECTION 15. DEPOSITARIES.

(A) Amounts in the several funds, accounts and subaccounts established pursuant to this Ordinance shall be kept in one or more accounts separate and apart from all other accounts of the City, and if kept in only one account shall be allocated on the books and records of the City in the manner and at the times provided in this Ordinance.

(B) Amounts in the Interest and Redemption Fund for Securities of the same Priority of Lien shall be kept on deposit with one of the banks or trust companies where the principal of and interest on such Securities are payable.

(C) The depository of all funds and accounts, except as otherwise specifically provided for herein, shall be those banks or trust companies designated from time to time as such by the Finance Director.

SECTION 16. PRIORITY OF FUNDS.

(A) If amounts in the Receiving Fund are insufficient to provide for the current requirements of the Operation and Maintenance Fund and each Interest and Redemption Fund (including the Reserve Account, if any, therein), then any amounts or securities held in the Surplus Fund, the Improvement and Extension Fund and the Extraordinary Repair and Replacement Reserve Fund shall be credited or transferred, first, to the Operation and Maintenance Fund and second, to the particular Interest and Redemption Fund, to the extent of the insufficiency therein from the aforesaid funds in the order listed.

(B) If any principal (and redemption premium, if any) of or interest on Securities of the same Priority of Lien or any related Ancillary Obligations become due (whether on a stated or scheduled date, by reason of call for redemption or otherwise), and there are insufficient amounts for the payment thereof in the Interest and Redemption Fund established for such Securities and Ancillary Obligations after applying payments in the Reserve Account, if any, established for such Securities, then there shall be applied to such payment amounts in each Interest and Redemption Account established for Securities of each lower Priority of Lien, beginning with the lowest Priority of Lien and proceeding *seriatim* in ascending order of Priority of Lien, until such payments are made in full.

SECTION 17. INVESTMENTS.

(A) ***Permitted Investments.*** The Permitted Investments for amounts held under this Ordinance are the Legal Investments for such amounts subject to the following:

(1) Investment of amounts in any Reserve Account shall be limited to obligations bearing maturity dates or subject to redemption, at the option of the Holder thereof, not later than ten years from the date of the investment.

(2) Except as otherwise herein provided, investments shall mature at such times as it is estimated the funds therefrom will be required, but shall be limited to obligations bearing maturity dates or subject to redemption, at the option of the Holder thereof, not later than five years from the date of investments.

(3) A Supplemental Action may provide for limitations in addition to or in lieu of the above limitations on Legal Investments or may eliminate any of such limitations.

(4) Notwithstanding paragraph (3), no Permitted Investments for the defeasance of particular Securities may be changed without confirmation from each Rating Agency that such change will not reduce the rating of such Securities.

(B) ***Where Held.*** To the extent required by Act 94, securities representing investments made under this Ordinance shall be kept on deposit with the bank or trust company having on deposit the fund or funds or accounts from which the purchase was made.

(C) ***Disposition of Profit and Gain.***

(1) Profit realized or interest income earned on investment of amounts in the Receiving Fund, Operation and Maintenance Fund, any Interest and Redemption Fund (including the Reserve Account, if any, therein), the Extraordinary Repair and Replacement Reserve Fund, and Improvement and Extension Fund shall be credited to the Receiving Fund.

(2) Profit realized or interest earned on investments of funds in the Construction Fund relating to any series of Securities and any Redemption Account (including any Reserve Account or Subaccount established for any Securities) shall be credited as received to the funds from which such investments were made; provided, however, that profit realized or interest earned on the Construction Fund relating to any series of Securities may, if permitted by law, be credited to the Receiving Fund at the option of the Commissioners.

(D) ***Valuation.***

(1) Investments credited to any Reserve Account shall be valued at least annually on each January 1, unless otherwise specified in the Supplemental Action providing for the issuance of such Securities, at the market value thereof, and the City shall withdraw any excess immediately and, in the event of a deficit, budget such

additional deposits at the beginning of the next succeeding Fiscal Year in an amount necessary to maintain each Reserve Account at its Reserve Requirement.

(2) Investments in the Extraordinary Repair and Replacement Reserve Fund shall be valued at least annually on each July 1 at the cost thereof.

SECTION 18. COVENANTS.

The City covenants and represents with the Holders of all Securities from time to time Outstanding that so long as any Securities remain Outstanding, as follows.

(A) ***Ownership and Authority.*** The City is the lawful owner of the System; the System is free from any and all liens and encumbrances; and the City has good right and lawful authority to encumber and pledge the Pledged Assets as herein encumbered and pledged.

(B) ***Maintenance and Operation of System.***

(1) The City will, through its Commissioners, or such successor board or body as may hereafter be legally charged with the duty of the operation of the System, maintain the System in good repair and working order and will operate it efficiently and will faithfully and punctually perform all duties with reference to the System required by the Constitution and laws of the State, including the making and collecting of sufficient rates for services rendered by the System and the segregation and application of the revenues of the System in the manner provided in this Ordinance.

(2) The City will from time to time make all needed and proper repairs, replacements, additions, and betterments to the System so that the System may at all times be operated properly and advantageously, and whenever any portion of the System shall have been worn out, destroyed or become obsolete, inefficient or otherwise unfit for use, the City will procure and install substitutes of at least equal utility and efficiency so that the value and efficiency of the System shall at all times be fully maintained.

(C) ***Books and Records.*** The City will maintain and keep proper books of record and account separate from all other records and accounts in which shall be made full and correct entries of all transactions relating to the System, and the City will also cause an annual audit of such books and records for the preceding Fiscal Year to be made by an accountant who shall comment on the manner in which the City has complied with the requirements of this Ordinance. The City will make such audit available to the Holder of any Security upon request.

(D) ***Disposition of System.*** The City will not sell, lease or dispose of the System or any substantial part thereof until all Outstanding Securities have been paid in full as to both principal and interest.

(1) This covenant shall not be construed to prohibit the disposition or lease of any property comprising part of the System which is no longer necessary, appropriate, required for the use of, or profitable to the System, or which is no longer necessary to the proper operation and maintenance thereof, or which may be sold and leased back to the extent such arrangement is permitted by law.

(2) Paragraph (1) shall not be construed to authorize or permit the sale, lease or disposition of any substantial part of the System.

(3) The City may at all times in its discretion alter, repair or replace any buildings or structures, make any change in the location of its water mains, pipes, water supply tunnels, aqueducts, pumping stations, and appurtenances thereto, and any buildings or structures therefor as the Commissioners determine necessary for the System.

(4) The City will acquire and construct all extensions, enlargements, and improvements to the System promptly in accordance with the plans therefor.

(E) **No Competition.** The City will not, and will not to the extent permitted by law, permit others to operate a water supply system that will compete with the System.

(F) **Tax Exemption of Securities.** The City will take all action and refrain from any action as is necessary, including paying any rebates to the United States government that may be required by the Code so as not to impair the tax exemption of the interest on Securities issued as tax-exempt Securities from general federal and State of Michigan income taxation.

SECTION 19. TRUSTEE.

(A) **Requirement to Maintain.** The City shall at all times maintain a Trustee in order to further assure prompt compliance with all of the requirements, duties and obligations of the City with respect to the System and the Securities and to perform such other duties as may be provided in a Supplemental Action; provided that no such additional duties shall be imposed on an existing Trustee without its consent. U.S. Bank National Association is hereby appointed as Trustee. The Financial Director is authorized to select and appoint any successor bank or trust company to perform the duties of the Trustee.

(B) **Resignation of Trustee.** The Trustee may resign by giving not less than 60 days' written notice to the City specifying the date when such resignation shall take effect, and such resignation shall take effect upon the date specified in such notice provided a successor trustee has been appointed, unless previously a successor shall have been appointed, as provided in subsection (D) below, in which event such resignation shall take effect immediately on the appointment and acceptance of such successor, provided further that if a successor trustee shall not have been appointed the Trustee may petition a court of competent jurisdiction to appoint a successor trustee.

(C) **Removal of Trustee.** The Trustee shall be removed at any time by an instrument or concurrent instruments in writing, filed with the Trustee and the City, and signed by the Holders of a majority in principal amount of the outstanding Securities. In addition, as long as no event of default exists under the Ordinance, the City, upon 60 days notice to the Trustee, shall have the right to remove the Trustee by an instrument in writing filed with the Trustee.

(D) **Appointment of and Transfer to Successor Trustee.** If the Trustee shall resign or shall be removed, or shall become incapable of acting, or shall be adjudged bankrupt or insolvent, or if a receiver, liquidator or conservator of the Trustee, or of its property, shall be appointed, or if any public officer shall take charge or control of the Trustee, or of its property or

affairs, a successor may be appointed by the holders of a majority of aggregate principal amount of Securities then outstanding, in the case of removal by the Holders, or by the City, in the case of removal by the City, by an instrument or concurrent instruments in writing of such Holders; provided, however, that in case of such vacancy the Finance Director shall forthwith appoint a Trustee, provided no event of default exists under the Ordinance, to fill such vacancy unless and until a successor Trustee shall be appointed by the Bondholders. At any time, the Trustee may substitute any affiliate, subsidiary, or successor in interest after a merger or consolidation in any and all capacities to which it is appointed hereunder as long as the entity so substituted is qualified to accept such appointment pursuant to all applicable statutory and regulatory requirements, and any requirements contained in this Ordinance. The rights, duties and substitution of the Trustee shall be governed by and construed in accordance with the laws of the State. If the Trustee substitutes an affiliate or subsidiary as Trustee or consolidates, merges or converts into, or transfers all or substantially all of its corporate trust business to, another corporation or other entity entitled to conduct said trustee business under applicable law, the successor without any further act shall be the successor of the Trustee hereunder, without the execution or filing of any paper or any further act on the part of any of the parties hereto, anything to the contrary contained herein notwithstanding.

Any successor Trustee shall be a trust company or bank in good standing, within the State, acceptable to the Finance Director, provided no event of default exists, and having total reported capital funds of not less than \$40,000,000 if there be such an institution willing, qualified and able to accept the trust upon reasonable and customary terms.

Any successor Trustee appointed hereunder shall execute and deliver to its predecessor and the City an instrument in writing accepting such appointment and thereupon shall become fully vested with all the powers and duties under this Ordinance. The Trustee, if it ceases to act as Trustee, shall execute, acknowledge and deliver such instruments of conveyance and further assurance and do such other things as may reasonably be required for more fully and certainly vesting and confirming in such successor Trustee all the trusts, powers and duties under this Ordinance and any property held by it under this Ordinance, and shall, after all amounts owing to the Trustee have been paid in full, pay over, assign and deliver to the successor Trustee any money or other property subject to the trusts and conditions herein set forth.

(E) ***Fees, Costs and Expenses.*** All fees, costs, and expenses of any legal proceedings that may be brought by the Trustee to enforce the duties and obligations of the City hereunder or under any Securities and any amounts advanced by Securityholders to the Trustee for such costs and expenses shall be paid by the City to the Trustee or such Securityholders, or both, as the case may be, in the first instance from the Net Revenues remaining, in the month of payment, after making the transfers and deposits required by Section 12 to all Interest and Redemption Funds (including the Reserve Account, if any, therein), and, to the extent that sufficient amounts are not available from the Revenues therefor, from general funds of the City.

(F) ***Advancement of Costs and Expenses.*** In the event that general funds of the City are used to pay any such costs and expense, the City shall be reimbursed therefor with interest at the rate of 7% per annum from the first Net Revenues remaining, in the month of reimbursement, after (i) making the transfers and deposits required by Section 12 to all Interest

and Redemption Funds (including the Reserve Account, if any, therein) and (ii) paying the Trustee or Securityholders as provided in subsection (b).

(G) ***Reliance of Trustee; Standard of Care.*** The Trustee is authorized to act in reliance upon the sufficiencies, correctness, genuineness or validity of any instrument or document or other writing submitted to it hereunder and shall have no liability with respect to said matters. The Trustee shall not be liable for any error in judgment or any act done or omitted by it in good faith. In the event of any dispute or question arising hereunder the Trustee shall not be liable if it acts or takes no action in accordance with the opinion of its legal counsel.

(H) ***Indemnification of Trustee.*** In the event the required percentage of Securityholders shall direct the Trustee in writing to exercise one or more of the remedies specified in this Ordinance or in Act 94, the Trustee shall be under no obligation to proceed to enforce or compel the performance of the duties and obligations of the City under this Ordinance unless and until the Holders shall have reasonably indemnified the Trustee for all estimated costs and expenses in the exercise of said remedies, including necessary attorneys' fees.

SECTION 20. ADDITIONAL SECURITIES.

(A) *Limitations on Indebtedness.*

The City shall not incur any obligations payable from Pledged Assets except for Secured Obligations, and no obligations of the City shall be secured by a lien on Pledged Assets except as provided in this Ordinance.

(B) *Issuance of Securities.*

(1) Limitations on Issuance.

(a) The City shall not issue any Securities except in accordance with Section 20. Ancillary Obligations and related Ancillary Obligation Fees and Expenses may be incurred in respect of such Securities and shall be secured and payable as elsewhere provided in this Ordinance.

(b) Other limitations on the issuance of Securities may be added by Supplemental Action.

(2) ***Coverage Requirements.*** The coverage requirements for determining the Required Combined Coverage under this Section are the following percentages:

<u>Priority of Securities</u>	<u>Percentage</u>
Senior Lien Bonds.....	120%
Second Lien Bonds.....	110%
SRF Junior Lien Bonds.....	100%

Prior to or concurrently with the issuance of a Priority of Securities not enumerated above, this subsection shall be amended to provide for the coverage percentage for such Priority of Securities, but in no case shall such coverage percentage be less than 100. Such amendment shall not require the consent of Holders of any Securities.

(3) ***Refunding Securities.*** If any Refunding Securities are to be issued to refund Securities to be Refunded, the Annual Debt Service to be used for determining the Required Combined Coverage shall be the Annual Debt Service on the Refunding Securities and not the Annual Debt Service on the Securities to be Refunded.

(C) ***“New Money” and Refunding.***

(1) General Authority. The City may issue Additional Securities of any Priority of Lien for repairs, extensions, enlargements, and improvements to the System (including repaying amounts withdrawn from the Extraordinary Repair and Replacement Reserve Fund), refunding all or a part of any Outstanding Securities and paying the costs of issuing such Additional Securities, including deposits, if any, to be made to any Reserve Account established or to be established for such Additional Securities or any other Securities, if, but only if, there is Required Combined Coverage under either the Projected Net Revenues Test contained in subsection C(2) below or the Historical Net Revenues Test contained in subsection C(3) below. The determination in a Supplemental Action that there will be Required Combined Coverage upon the issuance of such Additional Securities shall be conclusive.

(2) Projected Net Revenues Test. For purposes of determining the Required Coverage Requirement, the numerator is the projected Net Revenues of the System for the then current or the next succeeding Fiscal Year and the denominator is the maximum composite Annual Debt Service in any Fiscal Year on Outstanding Securities and the Additional Securities to be issued.

(i) Projected Net Revenues may include 100% of the estimated increase in Net Revenues to accrue as a result of the acquisition of the repairs, extensions, enlargements and improvements to the System to be paid for in whole or in part from the proceeds of the Additional Securities.

(ii) In projecting Net Revenues, the City shall engage the services of and be guided by a consultant of national reputation for advising municipalities with respect to setting rates and charging for the use of water supply systems.

(3) Historical Net Revenues Test. For purposes of determining the Required Coverage Requirement, the numerator is the actual Net Revenues of the System for the immediately preceding audited Fiscal Year and the denominator is the maximum composite Annual Debt Service in any future Fiscal Year on Outstanding Securities and the Additional Securities to be issued.

(i) Instead of the immediately preceding audited Fiscal Year, the City may use any audited Fiscal Year ending not more than sixteen months prior to the date of delivery of such Additional Securities.

(ii) If any change in the rates, fees and charges of the System has been authorized at or prior to the date of sale of such Additional Securities, the Net Revenues for the particular preceding Fiscal Year shall be augmented by an amount reflecting the effect of such change had the System's billings during such Fiscal Year been at the increased rates.

(iii) Net Revenues for the particular preceding audited Fiscal Year also may be augmented by 100% of the estimated increase in Net Revenues to accrue as a result of the acquisition of the repairs, extensions, enlargements and improvements to the System to be paid for in whole or in part from the proceeds of such Additional Securities and 100% of any acquisition, extension or connection which was made subsequent to the end of the particular preceding audited Fiscal Year.

(iv) With respect to augmentation of Net Revenues, the City shall engage the services of and receive the certificate of a consultant of national reputation for advising municipalities with respect to setting rates and charges for the use of water supply systems regarding the existence of such conditions.

(v) Audited financial statements may be relied upon if no augmentation of Net Revenues is required.

(D) *Debt Service Reduction – An Additional Means of Refunding.*

The City may issue Additional Securities of any Priority of Lien without regard to Section 20C for refunding all or part of Securities then Outstanding and paying costs of issuing the Refunding Securities, including deposits which may be made to any Reserve Account established or to be established for such Additional Securities or any other Securities if, but only if:

(1) the combined Annual Debt Service coming due in the current Fiscal Year and each Fiscal Year thereafter until maturity on (A) the Additional Securities and (B) giving effect to the refunding, all Outstanding unrefunded Securities of equal and higher Priority of Lien is less than

(2) the combined Annual Debt Service coming due in the current Fiscal Year and each Fiscal Year thereafter until maturity on all securities of an equal and higher Priority of Lien, without giving effect to the refunding.

SECTION 21. DEFEASANCE.

(A) A Security is "defeased" for purposes of this Ordinance if:

(1) there has been deposited in trust sufficient cash and Permitted Investments constituting Government Obligations, not callable by the issuer, the principal of and interest on which mature at the times and in the amounts, without the reinvestment thereof, necessary to pay principal of and interest on such

Security to its maturity, or, if called for redemption, to the date fixed for redemption, together with the amount of the redemption premium, if any; provided, however, that the sufficiency of the deposit to effectuate the defeasance of a Security shall have been verified by a nationally recognized accounting firm.

(2) if such Security is to be redeemed prior to maturity, irrevocable instructions have been given to the Transfer Agent to call such Security for redemption; and

(3) Nothing in this subsection (A) shall affect any lien securing Ancillary Obligations except as provided in the agreement with the obligee of such Ancillary Obligations.

(B) A Supplemental Action providing for the issuance of Securities may:

(1) provide different means of defeasing such Securities, and such means may be in addition to or in lieu of the means set forth in subsection (A);

(2) provide for the Legal Investments that are Permitted Investments for the defeasance of such Securities, but no such Permitted Investments may thereafter be changed except as provided in Section 18; and

(3) provide for the consequences of such Securities being defeased.

(C) Except as otherwise provided in a Supplemental Action:

(1) the Legal Investments for the defeasance of such Securities are the Permitted Investments therefor; and

(2) the statutory lien herein referred to in Section 5 shall be terminated with respect to defeased Securities, the Holders of such defeased Securities shall have no further rights under this Ordinance except for payment from the deposited funds and registration and replacement of such Securities, and such Securities shall no longer be considered to be Outstanding under this Ordinance.

SECTION 22. AMENDMENTS; CONSENT OF SECURITYHOLDERS.

(A) *Amendment without Consent.*

(1) This Ordinance may be amended or supplemented from time to time by Act of Council or Supplemental Action without consent of the Holders of Securities:

(a) To issue Securities of any Priority;

(b) To add to the covenants and agreements of the City in this Ordinance contained, other covenants and agreements thereafter to be observed or to surrender, restrict or limit any right or power reserved to or conferred upon the City (including but not limited to the right to issue Securities or incur other Secured Obligations of, in either case, any Priority);

(c) To make such provisions for the purpose of curing any ambiguity, or curing, correcting or supplementing any defective

provisions contained in this Ordinance, or in regard to matters or questions arising under this Ordinance, as the City may deem necessary or desirable;

(d) To increase the size or scope of the System; and

(e) To amend or supplement this Ordinance in any respect with regard to Securities of one or more Priorities of Lien so long as such amendment does not materially adversely affect the Holders of Outstanding Securities.

(2) No Holders of Securities of a Priority of Lien shall be “materially adversely affected” for the purposes of this Ordinance by the change of any coverage percentage established for Securities of any other Priority of Lien, and no amendment of or supplement to this Ordinance that provides for or facilitates the issuance of Securities or incurs other Secured Obligations of, in either case, of any Priority of Lien shall “materially adversely affect” the Holders of Securities of any other Priority of Lien for the purposes of this Ordinance so long as such amendment does not change any coverage percentage established for such Priority of Lien or is not an amendment that requires the consent of the Holder of such Security under Section 22B(i) or (ii).

(B) *Amendments With Consent.*

(1) With the consent of the Holders of not less than 51% in principal amount of Securities then Outstanding affected thereby, the City may from time to time and at any time amend this Ordinance in any manner by Act of Council; provided, that no such amendment shall:

(i) reduce the aforesaid percentage of Holders of Securities required to consent to an amendment to this Ordinance without the consent of the Holders of all Securities then Outstanding, or

(ii) without the consent of the Holder of each Security affected thereby:

(a) extend the fixed maturity of such Security or reduce the rate of interest thereon or extend the time of payment of interest, or reduce the amount of the principal or redemption premium thereof, or reduce or extend the time for payment of any premium payable on the redemption thereof, or

(b) change the Priority of Lien of such Security or deprive such Holder of the right to payment of such Security from Pledged Assets.

(2) It shall not be necessary for the consent of the Securityholders under this Section to approve the particular form of any proposed Act of Council but it shall be sufficient if such consent shall approve the substance thereof. The consent of the Holder of a Security shall bind all Holders of any Security for which such Security was the predecessor.

(3) For the purpose of acquiring consent for the purposes of this Section, the consent of a Securityholder acquiring a Security in an offering remarketing in which the offering or remarketing circular or other disclosure document fully disclosed the terms of such amendment or supplement shall be considered obtained as if such consents were being solicited under this Section, but no actual consent shall be required, and no more than one such disclosure shall be required.

(4) Promptly after an Act of Council amending this Ordinance pursuant to this Section has obtained the requisite consent, the Finance Director shall cause the Transfer Agent to notify, by mail at their addresses shown in the Registry, or by publication, Holders of all Outstanding Securities affected by such amendment, of the general terms of the substance of such Act of Council. Filing notice pursuant to the continuing disclosure agreement in respect of such Securities shall constitute sufficient notice for the purposes of this subsection.

(5) No amendment may be made under this Section 22(B) which affects the rights of the insurer or obligee of a Financial Facility or counterparty to a Hedge without its consent.

SECTION 23. SEVERABILITY AND CAPTIONS.

(A) If any section, paragraph, clause or provision of this Ordinance shall be held invalid, the invalidity of such section, paragraph, clause or provision shall not affect any other provision of this Ordinance.

(B) Captions of sections and paragraphs of this Ordinance are furnished for the convenience of reference only and are not part of this Ordinance.

SECTION 24. PUBLICATION AND RECORDATION.

This Ordinance shall be published in full in the “Detroit Legal News”, a newspaper of general circulation in the City qualified under State law to publish legal notices, promptly after its adoption.

SECTION 25. EFFECTIVE DATE.

This Ordinance shall be effective immediately.

Approved as to Form

Corporation Counsel

APPENDIX D

CHARACTERISTICS OF THE WATER SUPPLY SYSTEM SERVICE AREA

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CHARACTERISTICS OF THE WATER SYSTEM SERVICE AREA

The Department operates a regional Water System that serves an estimated population of 3.8 million people living in the City and 124 surrounding communities. Water System customers may be classified into three categories: the City, surrounding communities and local water authorities. Although the City is the single largest entity served by the Department, its relative importance has declined as nearby communities have increased in population and joined the Water System. As a percentage of total population served by the Department, the City has declined from 73% in 1950 to under 20% in 2010.

The following sections provide summary information about the major components of the Water System service area: the City, the eight largest municipal entities (listed by population served) and various statistics relating to Detroit and the Detroit-Warren-Livonia MSA.

DETROIT

The City of Detroit is located in southeastern Michigan in Wayne County and has a land area of approximately 138 square miles. According to the U.S. Census Bureau's 2012 Statistical Abstract, the City is the nation's center of the nation's 12th largest MSA. The City is the 19th largest city, with a 2010 census population of 713,777. The City is internationally known for its automobile manufacturing and trade. The southeastern border of the City lies on the Detroit River, an international waterway, which is linked by the St. Lawrence Seaway to seaports around the world. The City is the commercial capital of Michigan and a major economic and industrial center of the nation. There are eight diverse industrial parks, and three fortune 500 companies have world headquarters within the confines of the City.

The City is a home rule city with significant independent powers under the City Charter. The City provides the following services: public protection, public works, cultural and recreational, civic center, health, physical and economic development, public lighting, transportation, water supply and sewage disposal, human services (including housing), airport and parking. In accordance with the Charter, the governance of the City is organized into two branches: an Executive Branch, which is headed by the Mayor, and the legislative branch, which is comprised of the City Council and its agencies. The Mayor and the members of the City Council are elected every four years. In January 2010, the Mayor and the newly constituted City Council commenced their new terms. There are no limits as to the number of terms that may be served by City elected officials. In addition, the City is the District Control Unit responsible for certain duties relating to the judicial branch of State government.

The Charter provides that the voters of the City reserve the power to enact City ordinances by initiative and to nullify ordinances enacted by the City by referendum, however, these powers do not extend to the budget or any ordinance for the appropriation of money, and the referendum power does not extend to emergency ordinances.

In September 2011 the City's estimated employed civilian labor force was 354,660 and its unemployment rate was 20.6% compared to 10.1% state-wide average and a 8.8% national unemployment rate (all rates are not seasonably adjusted).

Historically, the City's economy has been closely tied to the manufacturing sector, especially the automotive industry. The two major U.S. automobile companies and DaimlerChrysler AG are principal employers and taxpayers in the Detroit metropolitan area. While the City's economy is linked to automobile and automobile related manufacturing, recent developments are allowing the City to be more diversified by increasing its activities in other manufacturing sectors, trade, commerce and tourism.

In the November 1996 election, the qualified electors of the State passed a statewide gaming initiative allowing three casino gaming establishments to be licensed in the City. The Michigan legislature amended the gaming initiative in July 1997 by the passage of Act 69 Public Acts of Michigan, 1997 ("Act 69"), which requires, among other things, that an applicant for licensure submit along with its application to the Michigan Gaming Control Board, a certified development agreement between itself and the City. There are currently three casino licensees operating in the City. MGM Grand Detroit casino opened its permanent casino in October 2007 and received its certification in December 2007. Motor City Casino opened up its permanent casino in November 2007 and received its certification in January 2008. Greektown Casino opened its permanent casino in February 2009 and received its certification in March 2010.

The City's educational and medical institutions continue to grow in size and recognition, Wayne State University, one of the nation's largest urban educational institutions, as well as the University of Detroit-Mercy, the largest independent university in the State, are located in the City.

The City has seen some positive movement of businesses to the downtown area. Quicken Loans has moved 1,700 employees downtown and has announced it will move another 2,000 bringing their work force in downtown to nearly 4,000. Blue Cross Blue Shield has moved 3,000 employees downtown. In addition, the City has had \$120 million in investments and 7,000 jobs come into Detroit since 2010.

LARGEST MUNICIPAL ENTITIES SERVED BY THE DEPARTMENT

Set forth below are descriptions of the eight largest municipal entities receiving water supply service from the Department based on 2010 Census figures.

Southeastern Oakland County Water Authority

The Authority is a municipal corporation created to distribute water to its ten constituent members which include the following municipalities: City of Berkley, Village of Beverly Hills, City of Birmingham, City of Clawson, City of Huntington Woods, City of Lathrup Village, City of Pleasant Ridge, City of Royal Oak, City of Southfield, and the Village of Bingham Farms. The Authority was established in 1953, and in terms of population is the largest wholesale customer served by the Department. The area comprising the Authority covers approximately 56 square miles and is located north of and adjacent to Detroit serving an estimated population of 210,386. Two cities account for roughly two-thirds of the land area and population served by the Authority: Royal Oak and Southfield. The City of Royal Oak encompasses approximately 11.8 square miles and had a 2010 population of 57,236. It is primarily a residential and commercial community. The City of Southfield covers approximately 26.2 square miles and had a 2010

population of 71,739. Southfield is a residential community with substantial commercial development. The Authority recently added Bloomfield Hills and Bloomfield Township as non-member customer communities. These communities were formerly direct customers of the Department.

Warren

The City of Warren became an incorporated city in 1957 and was one of the first large suburban communities to develop in the Detroit metropolitan area. The City of Warren encompasses approximately 34.3 miles of the southwestern section of Macomb County and it is adjacent to Detroit. The 2010 population of Warren was 134,056. Warren's economy is closely linked with the automobile industry, much of it being research and development rather than manufacturing. General Motors Corporation and DaimlerChrysler AG have major facilities in Warren.

Sterling Heights

The City of Sterling Heights is located in southwestern Macomb County, about six miles north of Detroit's city limits. Sterling Heights was incorporated in 1968 and has an area of approximately 36.7 square miles. The 2010 population was 129,699. Industrial development in Sterling Heights is a continuation of that which has taken place in the City of Warren, immediately to the south. The first major industry to locate in Sterling Heights was Ford Motor Company in 1956, followed later by Daimler Chrysler AG. General Dynamics Land System, another major employer, has located its headquarters in Sterling Heights for the engineering and design of all its products except tanks. The Detroit News Paper Agency maintains its principal printing plant in Sterling Heights. Lakeside Mall Property, LLC, owners of the area's largest shopping mall, is one of the ten largest taxpayers.

Flint

The City of Flint is the county seat of Genesee County and the principal city of the Flint MSA. Incorporated in 1855, the City now covers approximately 34.1 square miles and had a 2010 population of 102,434. Flint is located about 60 miles northwest of Detroit. It is one of the principal automotive manufacturing centers in the country. The General Motors Corporation represents a significant portion of Flint's tax base.

Livonia

The City of Livonia is located in Wayne County, about 13 miles northwest of downtown Detroit. Incorporated in 1950, Livonia is a residential, commercial and industrial city that encompasses some 36 square miles. Livonia's major population growth occurred in the 1950s and 1960s. The 2010 population was 96,942. Livonia's tax base is well diversified. General Motors Corporation and Ford Motor Company comprise approximately 5.3% of its tax base. Three large shopping centers attract shoppers from surrounding communities.

Clinton Township

Clinton Township is located in the central portion of Macomb County, approximately 20 miles northeast of downtown Detroit. It is primarily a residential community with a land area of 28.1 square miles. Population has grown from 48,865 in 1970 to 96,796 in 2010.

Dearborn

The City of Dearborn adjoins Detroit on the southwest; its eastern boundary is approximately eight miles from the center of Detroit. Dearborn was incorporated in 1928 and today covers some 24.5 square miles. The location of Ford Motor Company's headquarters in Dearborn in the early 1930s shaped the economy and growth of Dearborn. The 2010 population was 98,153. Ford Motor Company is by far the largest employer and taxpayer in Dearborn.

Westland

The City of Westland, with an area of 20.5 square miles, is located 16 miles west of downtown Detroit. Land use is primarily residential and commercial in character. Conveniently located near an interstate freeway, industrial development continues with auto suppliers, injection molders and tool and die shops. The 2010 population was 84,094.

DETROIT-WARREN-LIVONIA MSA

The Detroit-Warren-Livonia MSA is comprised of six counties: Wayne, Oakland, Macomb, Livingston, Lapeer and St. Clair. Except for Flint, which is located outside the Detroit-Warren-Livonia MSA, all of the Water Supply System service area is located in the Detroit-Warren-Livonia MSA. In terms of population, the Detroit-Warren-Livonia MSA is ranked the 12th largest MSA in the country.

Population

The Detroit-Warren-Livonia MSA experienced a growth in population from 3,169,649 in 1950 to 4,296,250 in 2010. The following table presents population trends of the Detroit-Warren-Livonia MSA and the United States since 1950.

Table 1
Population Trends

<u>Year</u>	Detroit-Warren-Livonia MSA		U.S.
	<u>Population</u>	<u>% Change</u>	<u>% Change</u>
1990.....	4,248,699	(5.3%)	9.8%
2000.....	4,452,557	4.8%	13.2%
2010.....	4,296,250	(3.5%)	9.7%

SOURCE: US. Department of Commerce, Bureau of the Census.

Employment

The Detroit-Warren-Livonia MSA is located in a regional economy that is highly susceptible to swings in the national economy due to its high concentration of employment in the durable goods industries, particularly the automotive industry.

Table 2
Annual Average Wage and Salary Employment by Place of Work (Non-Agricultural)

Detroit-Warren-Livonia MSA								
Industry Group:	2007		2008		2009		2010	
	(000's)	%	(000's)	%	(000's)	%	(000's)	%
Natural Resources & Mining.....	71	3.6%	64	3.4%	52	3.0%	51	2.9%
Construction.....	0	0.0%	0	0.0%	0	0.0%	0	0.0%
Manufacturing.....	258	13.1%	235	12.4%	184	10.6%	188	10.8%
Trade, Transportation & Utilities....	366	18.7%	358	18.9%	328	18.8%	325	18.8%
Information.....	30	1.5%	29	1.5%	28	1.6%	27	1.6%
Financial Activities.....	110	5.6%	105	5.5%	98	5.6%	95	5.5%
Professional and Business Services	354	18.0%	340	17.9%	298	17.1%	304	17.5%
Education and Health Services.....	277	14.1%	281	14.8%	283	16.2%	285	16.4%
Leisure & Hospitality.....	183	9.3%	180	9.5%	172	9.9%	169	9.8%
Other Services.....	88	4.5%	87	4.6%	84	4.8%	82	4.7%
Government.....	<u>225</u>	<u>11.5%</u>	<u>219</u>	<u>11.5%</u>	<u>215</u>	<u>12.3%</u>	<u>207</u>	<u>11.9%</u>
Total.....	<u>1,962</u>	<u>100.0%</u>	<u>1,898</u>	<u>100.0%</u>	<u>1,742</u>	<u>100.0%</u>	<u>1,733</u>	<u>100.0%</u>

U.S.								
Industry Group:	2007		2008		2009		2010	
	(000's)	%	(000's)	%	(000's)	%	(000's)	%
Natural Resources & Mining.....	736	0.5%	819	0.6%	707	0.5%	731	0.5%
Construction.....	11,856	8.2%	10,974	7.7%	9,702	7.0%	9,077	6.6%
Manufacturing.....	16,302	11.3%	15,904	11.1%	14,202	10.3%	14,081	10.3%
Trade, Transportation & Utilities....	28,587	19.9%	28,312	19.8%	26,929	19.5%	26,873	19.6%
Information.....	3,566	2.5%	3,481	2.4%	3,239	2.4%	3,149	2.3%
Financial Activities.....	10,488	7.3%	10,228	7.1%	9,622	7.0%	9,350	6.8%
Professional and Business Services	15,621	10.9%	15,540	10.9%	15,008	10.9%	15,253	11.1%
Education and Health Services.....	30,662	21.3%	31,402	21.9%	31,819	23.1%	32,062	23.4%
Leisure & Hospitality.....	12,415	8.6%	12,767	8.9%	12,736	9.2%	12,530	9.2%
Other Services.....	6,972	4.8%	7,005	4.9%	6,935	5.0%	6,769	4.9%
Government.....	<u>6,746</u>	<u>4.7%</u>	<u>6,763</u>	<u>4.7%</u>	<u>6,875</u>	<u>5.0%</u>	<u>6,983</u>	<u>5.1%</u>
Total.....	<u>143,951</u>	<u>100.0%</u>	<u>143,195</u>	<u>100.0%</u>	<u>137,774</u>	<u>100.0%</u>	<u>136,858</u>	<u>100.0%</u>

NOTE: Totals may not add due to rounding.

SOURCE: Michigan Department of Technology, Management and Budget, Labor Market Information; U.S. Department of Labor, Bureau of Labor Statistics for U.S.

Unemployment in the Detroit-Warren-Livonia MSA in comparison to the City of Detroit, the State and the United States is illustrated in the following table:

Table 3
Civilian Unemployment Rates

	<u>Detroit</u>	<u>Detroit-Warren-Livonia MSA</u>	<u>State of Michigan</u>	<u>U.S.</u>
2006	13.6%	7.2%	6.9%	4.6%
2007	14.1%	7.5%	7.1%	4.6%
2008	16.0%	8.7%	8.3%	5.8%
2009	24.8%	14.9%	13.3%	9.3%
2010	22.7%	13.5%	12.5%	9.6%

SOURCE: Michigan Department of Technology, Management and Budget, Labor Market Information.

Housing Characteristics

Table 4
City of Detroit Housing Inventory
(in thousands)

<u>Occupancy Status</u>	<u>2000</u>	<u>2010</u>
Owner-occupied.....	184.6	135.9
Renter-occupied.....	151.6	119.3
Vacant.....	<u>38.7</u>	<u>105.5</u>
Total Housing Units...	375.1	360.7

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

NOTE: Data may not add due to independent recording. Excludes seasonal housing.

Table 5
Housing Characteristics-2010

	<u>City of Detroit</u>	<u>Detroit MSA</u>	<u>United States</u>
Percent owner-occupied	53.2%	62.5%	65.3%
Rental vacancy	13.7%	10.2%	8.2%
Median Value of owner-occupied units	\$53,900	\$124,400	\$179,900
Median contract rent.....	\$733	\$793	\$855
Persons per owner-occupied household	2.7	2.6	2.7

SOURCE: U.S. Department of Commerce, Bureau of Census.

NOTE: Value of Owner-Occupied Units is a self-reported estimate of the then-current market value, and therefore is not directly comparable to the State Equalized Value.

Manufacturing

The following table shows a breakdown of manufacturing wage and salary employment by type for the Detroit-Warren-Livonia MSA from 2006 through 2010.

Table 6
Manufacturing Wage and Salary Employment

Industry Group:	<u>2006</u>	<u>2007</u>	<u>2008</u>	<u>2009</u>	<u>2010</u>
	(In Thousands)				
Total durable goods industries	228.5	216.4	195.1	151.1	154.0
Total nondurable goods industries	<u>43.1</u>	<u>41.2</u>	<u>39.8</u>	<u>32.8</u>	<u>33.8</u>
Total manufacturing employment	271.6	257.6	234.9	183.9	187.8

SOURCE: Michigan Department of Labor and Economic Growth, Office of Labor Market Information.

Family Income

The following table sets forth certain information concerning personal income in the Detroit-Warren-Livonia CBSA, the State of Michigan and the United States.

Table 7
Effective Household Buying Income – 2009

	<u>Detroit-Warren- Livonia CBSA</u>	<u>State of Michigan</u>	<u>U.S.</u>
Under \$20,000	19.5%	20.8%	19.3%
\$20,000-34,999	19.9%	22.1%	20.0%
\$35,000-49,000	18.3%	19.5%	18.1%
\$50,000 and over	<u>42.3%</u>	<u>37.6%</u>	<u>42.6%</u>
	<u>100.0%</u>	<u>100.0%</u>	<u>100.0%</u>
Median Household effective buying income.....	\$43,706	\$40,132	\$42,303

SOURCE: Sales & Marketing Management, 2009 Survey of Buying Power and Media Markets.

Of the 15 largest CBSA's, Detroit ranks twelve in terms of Effective Buying Income (EBI) in 2009 as shown in the following table:

Table 8
Ranking of 20 Largest CBSA's by
Total Effective Buying Income – 2009

Rank		<u>EBI (Billions)</u>	<u>Population (000)</u>
1	New York, NY-NJ-PA Metro	473.1	18,870.0
2	Los Angeles-Long Beach-Santa Ana, CA Metro	284.5	13,223.4
3	Chicago-Naperville-Joliet, IL-IN-WI Metro	216.3	9,602.2
4	Washington-Arlington-Alexandria, DC-VA-MD-WV Metro	168.4	5,389.1
5	Dallas-Fort Worth-Arlington, TX Metro	143.2	6,348.8
6	Philadelphia-Camden-Wilmington, PA-NJ-DE-MD Metro	139.3	5,852.7
7	San Francisco-Oakland-Fremont, CA Metro	131.2	4,302.3
8	Houston-Sugar Land-Baytown, TX Metro	124.7	5,819.1
9	Miami-Fort Lauderdale-Pompano Beach, FL Metro	123.5	5,526.8
10	Boston-Cambridge-Quincy, MA-NH Metro	123.0	4,495.8
11	Atlanta-Sandy Springs-Marietta, GA Metro	120.8	5,494.3
12	Detroit-Warren-Livonia, MI Metro	95.3	4,451.1
13	Phoenix-Mesa-Scottsdale, AZ Metro	94.3	4,351.3
14	Seattle-Tacoma-Bellevue, WA Metro	89.9	3,381.6
15	Minneapolis-St. Paul-Bloomington, MN-WI Metro	81.0	3,258.2

SOURCE: Sales & Marketing Management, 2009 Survey of Buying Power and Media Markets.

Largest Employers

Below is a listing of the largest employers by company and by number of employees actually or estimated to be employed within Detroit and Michigan at the end of 2010.

Table 9
Largest Employers

<u>Company</u>	<u>Detroit</u> <u>Employment</u>	<u>Michigan</u> <u>Employment</u>
Detroit Public Schools.....	13,039	13,039
City of Detroit.....	12,472	12,472
Detroit Medical Center	10,502	11,882
Henry Ford Health System	8,289	18,473
U.S. Government	6,840	27,696
Wayne State University	6,183	6,183
State of Michigan.....	4,740	48,029
Chrysler L.L.C.	4,150	19,423
U.S. Postal Service	3,987	-
St. John Health.....	3,884	12,995
General Motors Corp.	3,740	41,828
DTE Energy	3,668	9,577
Wayne County Government	3,409	4,147
MGM Grand Detroit Casino	3,000	3,000
Blue Cross Blue Shield of Michigan	2,457	6,992

SOURCE: Crain's *Book of Lists*, 2010 Edition.

Construction

The following table shows residential construction (public and private) by number of units for the Detroit-Warren-Livonia MSA and the U.S.

Table 10
Residential Construction
(Number of Units)

<u>YEAR</u>	<u>DETROIT- WARREN- LIVONIA MSA</u>	<u>U.S.</u>
2006.....	8,920	1,838,900
2007.....	4,325	1,398,400
2008.....	2,590	905,400
2009.....	1,333	583,000
2010.....	3,210	604,600

SOURCE: US. Department of Commerce, Bureau of the Census.

Port of Detroit

The Detroit/Wayne County Port Authority is a public agency responsible for promoting trade and freight transportation through the Port of Detroit, (the “Port”) which provides direct water service to world markets via the Great Lakes/St. Lawrence Seaway. The Port has five privately-owned and operated full-service terminals, a liquid bulk terminal and bulk facility, and a single dock facility with capacity for 14 oceangoing vessels. In addition, more than 30 industries located on the Detroit and Rouge Rivers have their own port facilities. A variety of ship repair services are available. The Detroit area, which is the largest foreign trade zone in the United States, provides financial advantages related to federal taxes and customs duties at subzones throughout the City and region. The Port is a principal port of entry for trade with Canada by means of bridge, vehicular tunnel, rail tunnel and barge service. Steel and scrap steel are the principal export products of the Port, handled for the three local steel mills. General cargo constitutes a minor portion of total tonnage due to the lack of regularly scheduled shipping service.

Transportation Network

Five major rail lines provide direct service to the Detroit area by such railroad companies as Conrail, Norfolk Southern, Grand Trunk Western, Canadian Pacific and CSX Transportation. Major cargoes handled by the rail lines in the Detroit area include automobiles, auto parts, steel, chemicals and food products.

Air transportation service is provided to the City at the Detroit City Airport, with general aviation, cargo and scheduled passenger services, and at the Detroit Metropolitan Wayne County Airport, the nation’s 11th largest airport (by number of aircraft operations) and the second largest hub and primary Asian gateway for Delta, the world’s largest airline. Thirteen scheduled passenger airlines provide domestic and international service with more than 32 million annual passenger deplanements and enplanements, and an annual economic impact of over \$7.6 billion.

This area's extensive toll-free highway system, which includes the 1-94, 1-75, 1-96 and 1-696 interstate highways and Canadian Highway 401, provides one-day access, based on a 500-mile day, to 48% (by population) of the U.S. market and to the Province of Ontario, Canada.

LAW OFFICES
LEWIS & MUNDAY
A PROFESSIONAL CORPORATION
2490 FIRST NATIONAL BUILDING
660 WOODWARD AVENUE
DETROIT, MICHIGAN 48226

APPENDIX E

TELEPHONE (313) 961-2550

TELECOPIER (313) 961-1270

_____, 2011

City of Detroit
County of Wayne
State of Michigan

Ladies and Gentlemen:

We acted as bond counsel in connection with the issuance by the City of Detroit, State of Michigan (the *City*), of \$379,590,000 aggregate principal amount of its Water Supply System Revenue Senior Lien Bonds, Series 2011-A (the *2011-A Bonds*), \$17,195,000 aggregate principal amount of its Water Supply System Revenue Senior Lien Bonds, Series 2011-B (the *2011-B Bonds*) and \$103,890,000 aggregate principal amount of its Water Supply System Revenue Refunding Senior Lien Bonds, Series 2011-C (the *2011-C Bonds* and, collectively with the 2011-A Bonds and the 2011-B Bonds, the *Bonds*). We examined the law and such certified proceedings and other papers as we deem necessary to render this opinion, including Ordinance No. 01-05 (the *Bond Ordinance*), a Resolution adopted by the City Council on April 5, 2011 (the *Resolution*), the Sale Order issued by the Finance Director of the City with respect to Bonds, dated December 15, 2011 (collectively with the Resolution, the *Bond Resolutions*).

The Bonds are issued under the provisions of Act No. 94, Public Acts of Michigan, 1933, as amended (the *Act*), and pursuant to the Bond Ordinance and the Bond Resolutions. The Bonds are payable solely from the Pledged Assets (as defined in the Bond Ordinance) and are secured by a statutory lien on, the Net Revenues (as defined in the Bond Ordinance) of the City's water supply system (the *System*). The rights of the Bonds to the Pledged Assets are senior to the rights of the owners of all Junior Lien Bonds and any Ancillary Obligations secured on a parity basis therewith (both as defined in the Bond Ordinance). The proceeds of the Bonds are to be used for the purposes set forth in the Bond Resolutions.

As to questions of fact material to our opinion, we have relied upon representations of the City contained in the Bond Ordinance, in the Bond Resolutions, and in the certified proceedings and other certifications of public officials furnished to us. We have not, however, undertaken to verify the same by independent investigation. We have assumed, but have not independently verified, that the signatures on all documents and certificates we have examined are genuine, and that the Bonds conform to the specimen Bonds that we have examined.

Based on the foregoing, we are of the opinion, as of the date hereof and under existing law as presently interpreted, as follows:

1. The Bonds have been duly authorized and executed and, when authenticated and delivered, will be valid and binding obligations of the City, payable solely from the Net Revenues as provided in the Act, the Bond Ordinance and the Bond Resolutions.

2. The Bond Ordinance and the Bond Resolutions have been duly adopted or authorized by the City Council, and constitute valid and legally binding obligations of the City, enforceable against the City in accordance with their respective terms.

3. Under the Act, the Bond Ordinance and the Bond Resolutions create a valid statutory lien on the Net Revenues as security for the Bonds, on a parity with any other Senior Lien Bonds (as defined in the Bond Ordinance) previously issued and outstanding and any Senior Lien Bonds issued hereafter pursuant to the Bond Ordinance, and any Ancillary Obligations (as defined in the Bond Ordinance) on a parity therewith.

4. The owners of the Bonds are entitled to the rights afforded by the Act, the Bond Ordinance, and the Bond Resolutions in accordance with their respective terms; and the City is obligated to charge and collect rates for services furnished by the System sufficient to provide for the payment of the expenses of administration, operation, and maintenance of the System, to provide for the payment of the principal of and interest on the Bonds and all other bonds payable from the Net Revenues of the System and to provide for other requirements, expenditures and funds, all as required by the Act and the Bond Ordinance.

5. The interest on the 2011-A Bonds and the 2011-C Bonds (a) is excluded from gross income for federal income tax purposes and (b) is not an item of tax preference for purposes of the alternative minimum tax imposed upon individuals and corporations under the Internal Revenue Code of 1986, as amended (the **Code**). It should be noted, however, that with respect to certain corporations (as defined for federal income tax purposes), such interest is taken into account in determining adjusted current earnings for the purpose of computing income subject to the alternative minimum tax imposed on such corporations. The opinion set forth in clause (a) above is subject to the condition that the City comply with all requirements of the Code that must be satisfied subsequent to the issuance of the 2011-A Bonds and the 2011-C Bonds in order that interest thereon be (or continue to be) excluded from gross income for federal income tax purposes. These requirements include rebating certain earnings to the United States. Failure to comply with certain of these requirements could cause interest on the 2011-A Bonds and the 2011-C Bonds to be included in gross income retroactive to the date of issuance of the 2011-A Bonds and the 2011-C Bonds. The City has covenanted to comply with all such requirements. We express no opinion regarding any other federal tax consequences arising with respect to the 2011-A Bonds and the 2011-C Bonds.

6. The interest on the 2011-B Bonds is included in the gross income for federal income tax purposes pursuant to the Code. We express no opinion regarding any other federal tax consequences arising with respect to the 2011-B Bonds. This opinion is provided in connection with the promotion or marketing of the 2011-B Bonds and is not intended or provided to be used and cannot be used, by an owner of the 2011-B Bonds for the purposes of avoiding penalties that may be imposed under the Code.

7. The Bonds and the interest thereon are exempt from all taxation imposed by the laws of the State of Michigan, except inheritance, gift and estate taxes and taxes on gains realized from the sale, payment or other disposition thereof.

The rights of the owners of the Bonds and the enforceability thereof may be subject to bankruptcy, insolvency, reorganization, moratorium, fraudulent conveyance and other similar laws affecting creditors' rights generally, now existing or hereinafter enacted, and that their enforcement may also be subject to general principles of equity and the exercise of judicial discretion in appropriate cases.

Very truly yours,

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APPENDIX F

FORM OF CONTINUING DISCLOSURE UNDERTAKING

\$379,590,000
Water Supply System Revenue
Senior Lien Bonds, Series 2011-A

\$17,195,000
Water Supply System Revenue
Senior Lien Bonds, Series 2011-B
(Federally Taxable)

\$103,890,000
Water Supply System Revenue Refunding
Senior Lien Bonds, Series 2011-C

This Continuing Disclosure Undertaking (the “Undertaking”) is executed and delivered by the City of Detroit, County of Wayne, State of Michigan (the “City”) in connection with the issuance of the above-referenced bonds (the “Bonds”), and the City covenants and agrees for the benefit of Bondholders, as hereinafter defined, as follows:

(a) *Definitions.* The following terms used herein shall have the following meanings:

“Audited Financial Statements” means the Department’s audited financial statements for the Water Supply System prepared by an individual or firm of independent certified public accountants as required by law, which presently requires preparation in accordance with generally accepted accounting principles.

“City” means the City of Detroit, County of Wayne, State of Michigan.

“Department” means the Water and Sewerage Department of the City.

“Disclosure Representative” means the Finance Director of the City or her/his designee, or such other officer, employee, or agent as the City shall designate from time to time in writing.

“EMMA” shall mean the MSRB’s Electronic Municipal Market Access System.

“MSRB” means the Municipal Securities Rulemaking Board.

“Bondholders” shall mean the registered owner of any Bond or any person (a) with the power, directly or indirectly, to vote or consent with respect to, or to dispose of ownership of, any Bond (including any person holding a Bond through a nominee, depository or other intermediary) or (b) treated as the owner of any Bond for federal income tax purposes.

“Rule” means Rule 15c2-12 promulgated by the SEC pursuant to the Securities Exchange Act of 1934, as amended.

“SEC” means the United States Securities and Exchange Commission.

“Unaudited Financial Statements” means the same as Audited Financial Statements, except that they shall not have been audited by an individual or firm of independent certified public accountants.

(b) *Continuing Disclosure.* The City hereby agrees, in accordance with the provisions of the Rule, to provide or cause to be provided to the MSRB through EMMA, no later than 360 days after the end of each fiscal year of the City, commencing with the fiscal year ending June 30, 2011, the Audited Financial Statements, and updates of certain financial and operating data of the Department appearing under the headings in the Official Statement dated December __, 2011, for the Bonds, as follows: (i) in the sections entitled “THE WATER SUPPLY SYSTEM,” “FINANCIAL PROCEDURES,” (excluding the rate comparison information) and “FINANCIAL OPERATIONS” (excluding any projections included therein), (ii) actual data comparable to the projections contained in the section entitled “THE CAPITAL IMPROVEMENT PROGRAM,” and (iii) actual data comparable to the projections contained in APPENDIX A – FEASIBILITY REPORT in the sections entitled “Projections of Revenues” and “Operation and Maintenance Expense Projections” (collectively, the “Annual Financial Information”).

Such Annual Financial Information is expected to be provided directly by the City by specific reference to documents available to the public through EMMA or filed with the SEC.

If the fiscal year of the City is changed, the City shall send notice of such change to the MSRB through EMMA prior to the earlier of the ending date of the fiscal year prior to such change or the ending date of the fiscal year as changed.

In the event that the Audited Financial Statements are not available by the date specified above, they will be provided when available and Unaudited Financial Statements in a format similar to the financial statements contained in the Official Statement will be filed by such date and the Audited Financial Statements will be filed as soon as available.

(c) *Notice of Failure to Disclose.* The City agrees to provide or cause to be provided, in a timely manner, to the MSRB through EMMA, notice of a failure by the City to provide the Annual Financial Information with respect to the City described in subsection (b) above on or prior to the dates set forth in subsection (b) above.

Occurrence of Events. The City agrees to provide, or cause to be provided, notice of any of the following events in a timely manner not in excess of ten (10) business days after the occurrence of the event and in accordance with the Rule with respect to the Bonds to (i) the MSRB through EMMA, and (ii) the MFA:

- (1) Principal and interest payment delinquencies;
- (2) Non-payment related defaults, if material;
- (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) Adverse tax opinions, the issuance by the Internal Revenue Service of proposed or final determinations of taxability, Notices of Proposed Issue (IRS Form 5701-TEB) or other material notices or determinations with respect to the tax status of the security, or other material events affecting the tax status of the security;
- (7) Modifications to rights of security holders, if material;
- (8) Bond calls, if material;
- (9) Defeasances;
- (10) Release, substitution, or sale of property securing repayment of the securities, if material;
- (11) Rating changes;
- (12) Tender offers;
- (13) Bankruptcy, insolvency, receivership or similar event of the obligated person;
- (14) The consummation of a merger, consolidation, or acquisition involving an obligated person or the sale of all or substantially all of the assets of the obligated person, other than in the ordinary course of business, the entry into a definitive agreement to undertake such an action or the termination of a definitive agreement relating to any such actions, other than pursuant to its terms, if material; and
- (15) Appointment of a successor or additional trustee or the change of name of a trustee, if material.

(d) *Materiality Determined Under Federal Securities Laws.* The City agrees that its determination of whether any event listed in subsection (d)(2), (7), (8), (14), or (15) is material shall be made in accordance with federal securities laws.

(e) *Termination of Reporting Obligation.* The obligation of the City to provide Annual Financial Information and notices of Material Events, as set forth above, shall be terminated if and when the City no longer remains an “obligated person” with respect to the Bonds within the meaning of the Rule, including upon legal defeasance of all Bonds.

(f) *Benefit of Bondholders.* The City agrees that its undertaking pursuant to the Rule set forth in this Section is intended to be for the benefit of the Bondholders and shall be enforceable by any Bondholder; provided that, the right to enforce the provisions of this Undertaking shall be limited to a right to obtain specific enforcement of the City’s obligations

hereunder and any failure by the City to comply with the provisions of this Undertaking shall not constitute a default or an event of default with respect to the Bonds or under the Resolution.

(g) *Amendments to the Undertaking.* Amendments may be made in the specific types of information provided or the format of the presentation of such information to the extent deemed necessary or appropriate in the judgment of the Disclosure Representative on behalf of the City, provided that the City agrees that any such amendment will be adopted procedurally and substantively in a manner consistent with the Rule, including, any interpretations thereof by the SEC, which, to the extent applicable, are incorporated herein by reference. Such interpretations currently include the requirements that (a) the amendment may only be made in connection with a change in circumstances that arises from a change in legal requirements, change in law, or change in the identity, nature, or status of the City or the type of activities conducted thereby, (b) the undertaking, as amended, would have complied with the requirements of the Rule at the time of the primary offering of the Bonds, after taking into account any amendments or interpretations of the Rule, as well as any change in circumstances, and (c) the amendment does not materially impair the interests of Bondholders, as determined by parties unaffiliated with the City (such as independent legal counsel), but such interpretations may be changed in the future. If the accounting principles to be followed by the City in preparing the Audited Financial Statements are modified, the Annual Financial Information for the year in which the change is made shall present a comparison between the financial statements as prepared on the prior basis and the statements as prepared on the new basis, and otherwise shall comply with the requirements of the Rule, in order to provide information to investors to enable them to evaluate the ability of the City to meet its obligations. A notice of the change in accounting principles shall be sent to the MSRB through EMMA.

(h) *Additional Information.* Nothing in this Undertaking shall be deemed to prevent the City from disseminating any other information, using the means of dissemination set forth in this Undertaking or any other means of communication, or including any other information in any Annual Financial Information or notice of occurrence of a Material Event, in addition to that which is required by this Undertaking.

(i) *Municipal Advisory Council of the Michigan.* The City shall also file by electronic or other means any information of notice required to be filed with the MSRB through EMMA pursuant to this Undertaking in a timely manner with the Municipal Advisory Council of Michigan.

(j) *Governing Law.* This Undertaking shall be construed and interpreted in accordance with the laws of the State of Michigan (the “State”), and any suits and actions arising out of this Undertaking shall be instituted in a court of competent jurisdiction in the State; provided, that to the extent this Undertaking addresses matters of federal securities laws, including the Rule, this Undertaking shall be construed in accordance with such federal securities laws and official interpretations thereof.

IN WITNESS WHEREOF, the City has caused this Undertaking to be executed by its authorized officer.

CITY OF DETROIT
County of Wayne
State of Michigan

By /s/ Cheryl R. Johnson
Its Finance Director

Dated: December 22, 2011

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UNITED STATES DISTRICT COURT
EASTERN DISTRICT OF MICHIGAN
SOUTHERN DIVISION

United States of America,

Plaintiff,

v.

Honorable Sean F. Cox

City of Detroit, *et al.*,

Case No. 77-71100

Defendants.

_____ /

ORDER

The United States Environmental Protection Agency (“EPA”) initiated this action in 1977 against the City of Detroit (“the City”) and the Detroit Water and Sewerage Department (the “DWSD”), alleging violations of the Clean Water Act, 33 U.S.C. § 1251 *et seq.* (“the Clean Water Act”). The violations, which are undisputed, involve the DWSD’s wastewater treatment plant (“WWTP”) and its National Pollutant Discharge Elimination System (“NPDES”) permit.

As set forth in this Court’s September 9, 2010 Opinion & Order (Docket Entry No. 2397):

For the more than 34 years during which this action has been pending, the City and the DWSD have remained in a recurring cycle wherein the DWSD is cited for serious violations of its NPDES permit, the City and the DWSD agree to a detailed remedial plan aimed at compliance, but the DWSD is unable to follow the plan and is again cited for the same or similar violations. Although this Court has taken various measures, designed to eliminate the various impediments to compliance that have been identified by experts and acknowledged by the City, those measures have proven inadequate to achieve sustained compliance.

(*Id.* at 1).

In September 2009, the DWSD was again unable to maintain compliance with its NPDES

permit and was again cited for violations by the Michigan Department of Environmental Quality (“DEQ”). In January of 2010, Detroit Mayor Dave Bing appointed a Chief Operating Officer who assumed the position of acting Director of the DWSD. Thereafter, the City worked with the DEQ to develop another plan for compliance and worked with Oakland County, Wayne County and Macomb County to resolve longstanding issues regarding the DWSD.

On July 8, 2011, the City and the DEQ entered into an Administrative Consent Order (“the ACO”), aimed at achieving long-term compliance with the DWSD’s NPDES permit and the Clean Water Act. After the ACO was executed, the City filed a motion asking the Court to order that the requirements set forth in the ACO are substituted for the requirements of the Second Amended Consent Judgment, find that the DWSD has made substantial progress toward achieving full compliance with its NPDES permit and the Clean Water Act, and dismiss this case.

As explained in detail in this Court’s September 9, 2010 Opinion & Order, this Court denied that motion. In doing so, this Court noted that *after* executing the ACO on July 8, 2011, the DWSD self-reported serious violations of its NPDES permit to the DEQ. Thus, the City had not established that the DWSD has achieved even short-term compliance with the ACO and the Clean Water Act. In addition, this Court concluded that the extensive record in this case establishes that, unless more fundamental corrective measures are taken to address the institutional and bureaucratic barriers to compliance, sustained compliance with the Clean Water Act and the ACO will simply not occur. This Court further explained:

Although the City has had ample opportunity to propose solutions to the root causes of noncompliance that were identified early on in this case, to date, it

has not proposed or implemented a plan that has sufficiently addressed those root causes.

To be fair, the City has been constrained in the measures it has proposed or implemented to date because the City is bound by various provisions of the City's Charter and ordinances, and by existing contracts, that prevent the City from making fundamental changes in the identified problem areas. This Court, however, has broad equitable power to order any relief necessary to achieve compliance with the Clean Water Act and this Court *is not* constrained by the provisions of the City's Charter or ordinances. Nevertheless, this Court is mindful that remedies that override state or local law should be narrowly tailored and that, to the extent possible, local officials should at least have the opportunity to devise their own solutions to remedy a violation of federal law.

(*Id.* at 2).

Accordingly, this Court ordered the Mayor of the City of Detroit (and/or his designee), the City Council President and President Pro Tem, and a current member of the Board of Water Commissioners ("BOWC") (to be chosen by the BOWC) to meet and confer and, within 60 days of the date of this order, propose a plan that addresses the root causes of non-compliance that are discussed in this Opinion & Order. (*Id.* at 44). The Court directed that, in making such recommendations to the Court, these individuals *shall not* be constrained by any local Charter or ordinance provisions or by the provisions of any existing contracts. Finally, the Court cautioned that "[i]f the local officials fail to devise and propose a workable solution to remedy the underlying causes of the recurrent violations of the Clean Water Act in this case, this Court will order a more intrusive remedy on its own." (*Id.* at 43).

Following this Court's September 9, 2010 Opinion & Order, the above individuals have been meeting and conferring in order to devise and propose a workable solution to remedy the underlying root causes of noncompliance ("the Root Cause Committee"). On November 2,

2011, the Root Cause Committee submitted a written proposed “Plan of Action” to the Special Master in this action, which the Special Master then submitted to the Court on that same date. (Docket Entry No. 2409).

I. The Court Adopts The Plan Proposed By The Root Cause Committee.

Having studied the Plan of Action proposed by the Root Cause Committee, the Court concludes that the Plan of Action adequately addresses the majority of the root causes of non-compliance that are outlined in this Court’s September 9, 2011 Opinion & Order. As such, the Court **ADOPTS** the Plan of Action proposed by the Root Cause Committee (Ex. A to this Order), which includes a DWSD Procurement Policy (Ex. B to this Order), and **ORDERS** that the Plan of Action shall be implemented in order to remedy the recurring violations of the Clean Water Act in this case.

As the Committee noted in the Plan of Action, **the changes being ordered do not restructure the DWSD as a separate entity. The DWSD, and all of the assets of the DWSD, shall remain a department of the City of Detroit.**

II. The Court Concludes That The Plan Does Not Adequately Address CBA Issues And Orders Additional Relief Necessary For The DWSD To Achieve Short-Term And Long-Term Compliance.

DWSD employees are members of 20 different collective bargaining units, each of which has its own collective bargaining agreement (“CBA”) that expires on June 30, 2012. (*See* Docket Entry No. 2409, Ex. C, Appx. 12). The Root Cause Committee reviewed the record in this case, and consulted with several outside sources, and concluded that “[i]t is evident from the various historical reports, and current conditions, that certain CBA provisions and work rules have limited DWSD from maintaining long-term environmental compliance.” (Plan of Action at

3). The Root Cause Committee agreed that certain changes to existing CBAs need to occur. Despite earnest efforts of all members, however, the Committee could not agree on how to achieve the necessary changes.

Based on the record in this case, the Court concludes that certain CBA provisions and work rules are impeding the DWSD from achieving and maintaining both short-term and long-term compliance with its NPDES permit and the Clean Water Act. Given that the Committee was unable to agree on a proposed solution for remedying these impediments to compliance, this Court shall order its own remedy.

As the Root Cause Committee recognized, this Court may elect from several potential options in ordering a remedy to these impediments to compliance, including:

(i) the approach provided in State legislation for emergency managers that would terminate all collective bargaining agreements; (ii) suspension of the duty to bargain for 5 years as provided in certain State emergency laws; (iii) establishing a regional authority as a new employer for DWSD employees; (iv) terminating the workforce so DWSD would start with a blank slate; (v) outsourcing plant operations so corporate representations or warranties of compliance could be enforced; and (vi) ordering that negotiations take place to address the various identified problems.

(Plan of Action at 3). The Court has carefully considered all options and concludes that the least intrusive means of effectively remedying these impediments to compliance is to: 1) keep all current CBAs that cover DWSD employees in force, but strike and enjoin those current CBA provisions or work rules that threaten short-term compliance; and 2) Order that, in the future, the DWSD shall negotiate and sign its own CBAs that cover only DWSD employees, and prohibit future DWSD CBAs from containing certain provisions that threaten long-term compliance.

Specifically, the Court hereby **ORDERS** that:

1. The Director of the DWSD, with the input and advice of union leadership, shall develop a DWSD employee training program, a DWSD employee assessment program, and a DWSD apprenticeship training program.
2. Any City of Detroit Executive Orders imposing furlough days upon City employees shall not apply to DWSD employees.
3. The DWSD shall act on behalf of the City of Detroit to have its own CBAs that cover DWSD employees (“DWSD CBAs”). DWSD CBAs shall not include employees of any other City of Detroit departments. The Director of the DWSD shall have final authority to approve CBAs for employees of the DWSD.
4. The Court hereby strikes and enjoins any provisions in current CBAs that allow an employee from outside the DWSD to transfer (“bump”) into the DWSD based on seniority. Future DWSD CBAs shall adopt a seniority system for the DWSD that does not provide for transfer rights across City of Detroit Departments (ie., does not provide for “bumping rights” across city departments).
5. DWSD management must be able to explore all available means and methods to achieve compliance with its NPDES permit and the Clean Water Act. DWSD CBAs shall not prohibit subcontracting or outsourcing and the Court hereby strikes and enjoins any provisions in current CBAs that prohibit the DWSD from subcontracting or outsourcing.
6. DWSD CBAs shall provide that excused hours from DWSD work for union activities are limited to attending grievance hearings and union negotiations, with prior notification to DWSD management. The Court strikes and enjoins any current CBA provisions to the contrary.
7. DWSD CBAs shall include a three-year time period pertaining to discipline actions.
8. The Director of the DWSD shall perform a review of the current employee classifications at the DWSD and reduce the number of DWSD employee classifications to increase workforce flexibility. Future DWSD CBAs

shall include those revised employee classifications.

9. DWSD CBAs shall provide that promotions in the DWSD shall be at the discretion of management and based upon skill, knowledge, and ability, and then taking seniority into account. The Court strikes and enjoins and current CBA provisions to the contrary.
10. Past practices on operational issues shall not limit operational changes initiated by management with respect to DWSD CBAs.
11. The Court strikes and enjoins any provisions in existing CBAs that prevent DWSD management from assigning overtime work to employees most capable of performing the necessary work within a classification, at the discretion of management. DWSD CBAs shall provide that management has the discretion to assign overtime work to employees most capable of performing the necessary work within a classification, at the discretion of management.
12. Any existing work rules, written or unwritten, or past practices that are contrary to these changes are hereby terminated.
13. The Court enjoins the Wayne County Circuit Court and the Michigan Employment Relations Commission from exercising jurisdiction over disputes arising from the changes ordered by this Court. The Court also enjoins the unions from filing any grievances, unfair labor practices, or arbitration demands over disputes arising from the changes ordered by this Court.

III. The Court Orders Further Study Regarding Concepts And Issues That Are Not Fully Developed At This Time.

In a section of the Plan of Action titled “Additional Considerations” (Plan of Action at 6), the Root Cause Committee discussed the concepts of: 1) an “Efficient Compliance Payment;” and 2) a Payment in Lieu of Taxes arrangement. The Plan of Action also notes that the implementation of the Plan of Action may result in a reduction in chargeback revenues to the

City of Detroit from the DWSD that will need to be addressed during the transition period. The Committee stated that while it “believes these concepts are all important and that some combination of these concepts is critical to the long-term viability of this Plan, the Committee was unable to achieve consensus on a recommended path due to the complexity of the concepts under consideration and the amount of research required to complete this task in the time available.” (*Id.*).

The Court **ORDERS** the Root Cause Committee to continue to meet and confer, and to gather necessary financial records, in order to make specific recommendations regarding how the reduction in chargeback issue should be addressed during the transition period. Within 60 days of this Order (by January 4, 2012), the Root Cause Committee shall submit a written supplement to the Plan of Action to the Special Master regarding that issue and recommendations regarding same.

The Court further **ORDERS** that the Root Cause Committee shall continue to meet and confer in order to further study the concepts of an “Efficient Compliance Payment” and/or a Payment in Lieu of Taxes arrangement. Within 90 days of this Order (by February 4, 2012), the Root Cause Committee may submit a written supplement to the Plan of Action to the Special Master regarding those concepts and any recommendations regarding same.

IV. The Court Orders Implementation Of The Adopted Plan Of Action And The Additional Relief Ordered By This Court.

The Court hereby **ORDERS** the following with respect to implementation of the Plan of Action, and the additional relief ordered by this Court:

1. Implementation of the Plan of Action shall be the responsibility of the Mayor of the City of Detroit (or his designee) until such time as a

permanent Director of the DWSD has been hired. Once a new Director of the DWSD has been hired, that new Director shall assume primary responsibility for implementing this Order and shall join the Root Cause Committee.

2. Until the Plan of Action has been fully implemented, or this case has been dismissed, the Root Cause Committee shall meet at least once per month, at which time the individual vested with primary responsibility for implementing the Plan of Action shall apprise the Root Cause Committee of the status of the implementation.
3. In order to facilitate prompt implementation, until the Plan of Action has been fully implemented, or this case has been dismissed, the BOWC member that was chosen by the BOWC to serve on the Root Cause Committee shall serve as interim Chair of the BOWC.
4. The BOWC shall amend its by-laws within 60 days of this Order (by January 4, 2012), to make them consistent with the adopted Plan of Action and this Order.
5. Within 6 months from the date of this Order (by May 4, 2012), the Director of DWSD shall prepare a written Report of Compliance with the ACO that identifies any current or anticipated barriers to long-term compliance with the ACO and the Clean Water Act (“the Director’s Report of Compliance”). The Director of the DWSD shall include within that report any additional recommendations or changes that are necessary to achieve long-term compliance.
6. The Director’s Compliance Report shall be provided to the BOWC, the Mayor of the City of Detroit, the Detroit City Council, the DEQ, and the Special Master. The Director’s Compliance Report shall request any comments, suggestions, or recommendations from the BOWC, the Mayor of the City of Detroit, the Detroit City Council, and the DEQ within 30 days.
7. To provide adequate time for review and consideration of the comments, suggestions, and recommendations made, and to allow an opportunity to

make necessary changes, the Director of the DWSD shall submit, to the Special Master, a final report to the Court on the status of compliance with the ACO, any remaining barriers to long-term compliance, together with proposed solutions, within 90 days of submission of the initial Director's Report of Compliance.

8. After receiving the final Director's Report of Compliance, the Court will determine whether it shall modify or amend this Order. If the Court determines that this Order needs to be amended, the amended order will be issued within 30 days after the Courts receipt of the final Director's Report of Compliance.
9. Thereafter, the DWSD may file a motion seeking to dismiss this case if it believes there has been substantial compliance with this Order (and any amendment of this order) and the July 8, 2011 ACO.

IT IS SO ORDERED.

S/Sean F. Cox

Sean F. Cox

United States District Judge

Dated: November 4, 2011

I hereby certify that a copy of the foregoing document was served upon counsel of record on November 4, 2011, by electronic and/or ordinary mail.

S/Jennifer Hernandez

Case Manager

November 2, 2011

Hand Delivered

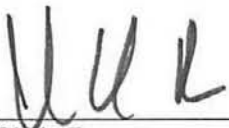
David M. Ottenwess
Ottenwess Allman & Taweel, PLC
535 Griswold Street, Ste. 850
Detroit, MI 48226

Re: DWSD Root Cause Committee

Dear Mr. Ottenwess:

Pursuant to Federal District Court Judge Sean Cox's Order of September 9, 2011, the undersigned met to develop a plan for the Detroit Water and Sewerage Department (DWSD) to comply with its NPDES permit and the Clean Water Act.

The undersigned were the Committee members as identified in the Order or appointed as representatives. We met numerous times over the last sixty days. The Committee members conducted research into the root cause issues and solutions. Enclosed is our consensus Plan of Action, which includes a separate document consisting of the Committee's proposed broad-stroke DWSD Procurement Policy. Although it is not part of the Committee's Plan of Action, because it is referenced in the Plan of Action, we are also enclosing a copy of a report that the Acting Director of the DWSD provided to the Committee. We are asking you, as the special master in Case No. 77-71100, to transmit this letter and document to the Court on our behalf.



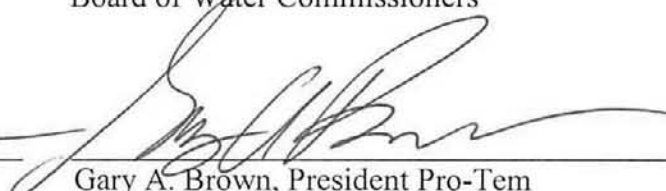
Chris Brown
City of Detroit Chief Operating Officer
Mayor's Office



James G. Fausone
DWSD
Board of Water Commissioners



Charles Pugh, President
Detroit City Council



Gary A. Brown, President Pro-Tem
Detroit City Council

COMMITTEE'S PLAN OF ACTION

November 2, 2011

I. PREAMBLE

On September 9, 2011, the Court entered an Opinion and Order that created this Root Cause Committee to review barriers to short and long-term compliance. Pursuant to that order, this Committee was given sixty days to develop a plan and present that plan to the Court for its consideration. While the Committee was bound by a Confidentiality Order to its internal process, the members of the Committee were permitted to solicit and receive input from various sources with knowledge of the Detroit Water and Sewerage Department (hereinafter "DWSD" or "the Department") operations and utility operations more generally. Specifically, the Committee received input from the following sources:

- The Detroit City Council
- The Board of Water Commissioners
- DWSD Management Staff
- Union Representatives
- Management-side Labor Counsel
- Industry Professionals
- Current DWSD Vendors
- Rate Consultant
- Regulatory Agency Input

The Committee had available and reviewed the historical reports prepared on the Department's root cause issues. After careful study of the problems and based on our meetings, our review of the Findings of Facts by the Parties, by the Court through its own findings contained in its Opinion and Order of September 9, 2011 through our review of various studies and reports contained therein, the Committee has determined that there are essentially five root cause issues which must be addressed in order to allow DWSD to achieve accountability and long-term compliance with state and federal laws. The five areas of concern we will address with more specificity below include:

- Human Resources
- Procurement
- Law
- Finance
- Rates

It is important to note that the changes recommended by the Committee in these areas are significant, but critical to changing the environment of non-compliance at DWSD. It is equally important to note that **these changes do not contemplate DWSD becoming a separate entity.**

That is to say, **DWSD, and all of the assets of the DWSD, shall remain a department of the City of Detroit**, despite any changes in structure or governance recommended by this Committee.

This Committee's recommended Plan of Action ("the Plan") is organized into 3 main categories: Governance, Legal Barriers, and Transition Issues. In putting this Plan together, the Committee has attempted to respond to all known root causes and provide recommended solutions. However, in recognizing that the Court's judicial relief must be as minimally intrusive as possible to achieve long-term compliance, we believe that there may need to be additional changes made in the future, possibly through a second-phase plan once we have the ability to work with the implementation of this Plan.

II. GOVERNANCE

The structure of DWSD is essentially a unitary department whose water and wastewater systems are currently managed and operated by the City of Detroit as a department of city government, although managed as a separate enterprise fund. The DWSD provides water service to less than four million people in Detroit and neighboring southeast Michigan communities. The DWSD also provides wastewater collection and treatment for Detroit and approximately 76 municipal suburban communities.

The combined functions of the DWSD are recommended to be broken into two divisions – operations and administration. We have examined these separate divisions in detail in order to make recommendations to address the long-term problems at DWSD and to streamline the function of both aspects of the Department.

The operations side of DWSD deals with the infrastructure and day-to-day operations of water treatment and sewage removal. The administrative component will include the functions of human resources, finance, legal and procurement services for the entire Department. These services are currently subject to the institutional procedures applied to City Departments. In general we conclude that operations can best be streamlined through recommendations in sub-paragraph (A). The administrative end of DWSD may be best addressed by streamlining the approval process in the above-mentioned key areas as outlined in sub-paragraph (C).

A. OPERATIONS

(1) Divisional Structure within DWSD Administration

DWSD shall establish an autonomous administrative structure within the Department to provide for its own divisions of Purchasing, Human Resources, Law, and Finance. These divisions shall report to the Director of DWSD and shall not have any reporting requirements to the similar functions of the City of Detroit.

(2) Procurement Policy for DWSD

Since the Committee has determined that DWSD should be exempted from following the requirements of the City of Detroit's procurement ordinance in order to promote efficiency and ensure long-term compliance, the Committee has prepared the attached DWSD Procurement Policy to govern the procurement activities of DWSD. We recognize that the policy is a broad overview of a full procurement process and may need to be expanded to be fully implemented by the Department. At the same time, we understand that this policy will ultimately require formal adoption by the Board of Water Commissioners at a later time, consistent with the parameters we have laid out.

(3) Immediate needs for Human Resources

(a) Employees Covered by Collective Bargaining Agreements

The Committee reviewed the historical reports referenced earlier which discussed the root cause issues of non-compliance. It is evident from the various historical reports, and current conditions, that certain CBA provisions and work rules have limited DWSD from maintaining long-term environmental compliance. These issues, along with others, at least contribute to not achieving and maintaining long-term compliance by limiting manpower and workforce flexibility.

The Acting Director of DWSD submitted to the Committee a report on root cause problems and solutions. That report also provided recommendations for specific collective bargaining agreement (hereinafter "CBA") and work rules changes. The Department requested relief from specific items across all CBAs. In particular, Appendix 12 of the Plan was reviewed and discussed. The Appendix listed approximately 30 specific provisions and changes in the AFSCME CBA and seeks to apply similar changes to all the CBAs that apply to DWSD employees.

The Committee was aware that there are various approaches to addressing the concerns referenced in that report that fall along a scale of intrusiveness including: (i) the approach provided in State legislation for emergency managers that would terminate all collective bargaining agreements; (ii) suspension of the duty to bargain for 5 years as provided in certain State emergency laws; (iii) establishing a regional authority as a new employer for DWSD employees; (iv) terminating the workforce so DWSD would start with a blank slate; (v) outsourcing plant operations so corporate representations or warranties of compliance could be enforced; and (vi) ordering that negotiations take place to address the various identified problems.

The Committee spent considerable time discussing the option of negotiating the changes requested, or that may be necessary, with the 20 unions that represent the DWSD workforce.

The Committee agreed that all collective bargaining agreements that apply to DWSD workforce shall remain in force. However, the Committee agreed that certain changes to the CBAs need to occur. The Committee could not agree on how to achieve the desired changes.

The problem areas that were identified and require solutions are:

1. Effective employee training programs, employee assessment programs, and apprenticeship training programs should be developed and provided for by DWSD.
2. DWSD should act on behalf of the City of Detroit to have its own collective bargaining agreements after July 1, 2012. In other words, agreements with DWSD should not include employees of other City of Detroit departments.
3. DWSD should adopt a separate seniority system for the department that does not provide for rights across city of Detroit departments. This should also eliminate the confusion caused by bumping rights from other departments into DWSD.
4. Any prohibition on subcontracting or outsourcing should be eliminated from the CBAs. DWSD must be free to explore all available avenues to achieve long-term compliance.
5. Excused hours from work for union activities should be limited to attending grievance hearings and union negotiations, with prior notification to DWSD Management.
6. The timeline on use of past discipline should be three years.
7. The number of DWSD employee classifications should be reduced to the minimum identified by the Director to assure flexibility and long term compliance.
8. Promotions should be at the discretion of management and based upon the individual's skill, knowledge and ability, and then taking seniority into account.
9. Past practices on operational issues should not limit operational changes initiated by management.
10. Overtime should be assigned to employees most capable of performing work in a classification, at the discretion of management.

It was recognized that the provisions of all the CBAs would have to be modified with respect to each of the issues listed above, and ancillary provisions interpreted consistent with these changes. Any work rules, written or unwritten, which exist that are contrary to these changes would have to be terminated.

While the Committee was able to identify the above CBA and work rule challenges, it could not agree if the solution to these challenges could/should be left to negotiations or if Court ordered implementation was required.

(b) DWSD Executive Management Team

DWSD shall develop an Executive Management Team of exempt non-union, at-will positions. The members of the Executive Management Team, other than the Director of DWSD, shall serve at the pleasure of the Director of DWSD and may be removed with or without cause. The Executive Management Team cannot exceed ten percent (10%) of the total workforce of DWSD. This Executive Management Team is in addition to the three technical advisors to the BOWC, as outlined the Court's stipulated order of February 11, 2011. Nothing in this Plan will prevent the Director of DWSD from hiring non-employees of DWSD to perform some or all of the services of the Executive Management Team if that is deemed necessary to improve the operations of DWSD to ensure Long-Term Compliance.

The DWSD Executive Management Team should develop a formal succession plan to be presented to the BOWC for its review and approval.

B. RATES

(1) Approval Authority

In the past, City Council has been required to approve water and sewerage rates charged by DWSD. The City Council assumed this responsibility pursuant to MCL §117.5e which provides that a municipal water or sewerage system:

which serves more than 40% of the population of the state shall hold at least 1 public hearing at least 120 days before a proposed rate increase is scheduled to take effect and that [a] final vote by the governing body of the city to implement a proposed rate increase shall not be taken until the hearings provided for in this subdivision are concluded and the results of those hearings are considered by the city's governing body. M.C.L. § 117.5e(b).

According to the most recent census data collected by the U.S. Census Bureau, the City of Detroit has received documentation that DWSD does not service more than 40% of Michigan's population. As a consequence, City Council no longer need to approve water and sewerage rates for DWSD customers pursuant to State law, City Ordinance, or City Charter.

It is, however, the recommendation of the Committee that retail rates for the citizens of the City of Detroit shall still require City Council approval, only after a public hearing for City of Detroit residents. All wholesale rates will be fully and finally approved by the Board of Water Commissioners.

(2) Additional Considerations

The Committee spent a substantial amount of time discussing the need to create an incentive within Detroit and DWSD to support making difficult decisions that would promote improving the efficiency of DWSD. This Efficient Compliance Payment concept would allow for a calculation and cost sharing whereby the savings associated with a reduction in operating expenses is shared by DWSD, the City of Detroit, Staff of DWSD, and the customers of DWSD. This type of arrangement will help focus everyone's efforts on the ultimate goal of insuring long-term compliance, continually improving efficiency of operations, and ultimately reducing the administrative component¹ of the rate expense. The Acting Director of DWSD presented a detailed proposal on computing the Efficient Compliance Payment at Appendix 13 of the attached report.

Additionally, the transition to a more autonomous DWSD will result in a substantial reduction in chargeback revenues to the City of Detroit from the operations of DWSD. This is the result of DWSD no longer reimbursing the City of Detroit for the cost of staff associated with City Departments within Finance, Procurement, Law, Human Resources, and Information Technology Services. Since the ability of DWSD to hire its own staff to fulfill these functions will be quicker than the City's ability to reduce its staff and expenses commensurate with those changes, a budget deficit will be created within the City that the Committee feels needs to be addressed. Therefore, the Committee discussed the need for a temporary, time-limited, transition payment to the City of Detroit to prevent the implementation of this plan from causing a deficit within the City of Detroit's General Fund. The Committee was unable to reach consensus on the amount and the number of years needed for the transition payment at this time.

Further, the Committee agreed that there was a need to explore Payment in Lieu of Taxes arrangements for DWSD that would mirror agreements in place with other public utilities throughout the State of Michigan.

While the Committee believes that these concepts are all important and that some combination of these concepts is critical to the long-term viability of this Plan, the Committee was unable to achieve consensus on a recommended path due to the complexity of the concepts under consideration and the amount of research required to complete this task in the time available.

C. **ADMINISTRATIVE - APPROVAL AUTHORITY**

In order to assist the City and DWSD in achieving substantial compliance, we have

¹It is understood that wholesale rates consist globally of two components: Capital Expenditures and Operating Expenditures. Since Capital Expenditures are tied to investing in the core business of the utility, it is not helpful to the long-term interest of DWSD to provide an incentive to lower the Cap Ex commitment. Rather, the incentive should rest on reducing the administrative expenses which are solely under the control of DWSD management.

determined that there is a need to streamline the approval process for various activities within the DWSD operations and create a more direct culture of accountability within the staff at DWSD. To achieve this objective, the Committee has agreed to reduce, and in many instances, eliminate, redundant approval processes and provide for clearer lines of approval. The approval authority we propose is divided along two lines: final approvals to be housed within DWSD and final approvals to be held by the Detroit City Council. These approvals are outlined in greater detail below.

As previously stated, the DWSD will remain a department of the City of Detroit. Nevertheless, there is an efficiency of operations need to allow final approval authority to vest in the Director of DWSD with respect to the signing of several types of legal documents on behalf of DWSD's operations. Therefore, it is recommended that the Director of DWSD be vested with delegated authority to sign documents of the type referenced within this Plan and that the delegated authority shall include the right to bind the City of Detroit to the terms of the agreements contained therein.

In addition to all powers currently vested in DWSD pursuant to the City Charter, City Ordinances, State Law, and the By-Laws for the Detroit Water and Sewerage Department Board of Water Commissioners ("BOWC"), DWSD, acting through its Director upon authorization by the Board of Water Commissioners, shall have final authority to approve the following types of documents without any further approvals from other departments, board, agencies, or offices of the City of Detroit:

- Legal Settlements and Claims paid by DWSD;
- Collective Bargaining Agreements for employees of DWSD;
- Terms and Conditions of Employment for employees of DWSD;
- The Budget for DWSD (Subject to approval of Rates) as outlined above;
- Wage scales for DWSD employees, subject to City Council's veto rights as outlined below; and
- Those procurements not covered by the Board of Water Commissioners' and the Detroit City Council's approval outlined in the attached DWSD Procurement Policy.

The Committee also examined the process for the recruitment, hiring, and dismissal of the DWSD Director and believes that there is an opportunity to improve that process. At the same time, we recognize that efforts to fill the current vacancy in the Director position is well on its way to completion and that a new process for recruitment should not impact the current search. With this in mind, we recommend that the process be amended as follows:

- (a) A Director search committee should be established that will include representation from the Mayor's office, a member of the Board of Water Commissioners selected by the Board and who is not a resident of Detroit, and a member of the Detroit City Council appointed by the President.
- (b) The hiring of the Director should be unchanged from the current process.
- (c) The removal of the Director should require either

- a. Five (5) votes by the Board of Water Commissioners; or
- b. A two-thirds (2/3) vote of the Detroit City Council and the approval of the Mayor.

The Detroit City Council, as the legislative branch of the City of Detroit, recognizes the need to increase accountability for performance within DWSD in order to achieve long-term compliance with the Clean Water Act. As a result, the role of the Detroit City Council in approving actions of DWSD will be more targeted to broader policy issues. Specifically, the Detroit City Council will retain authority to approve the following items, subject to ratification by the Mayor:

- DWSD Rate approval as outlined in the Rate Section, above,
- Approval of the final City of Detroit Budget, which shall incorporate the DWSD enterprise fund budget as an attachment. However, there shall not be a need for DWSD to appear for a budget hearing as the components of the budget are approved within the Rate approval vote that has already taken place prior to the budget approval.
- Salary ranges for City employees are contained within a document commonly known as the “white book.” With respect to non-represented employees of DWSD, the rates shall be deemed approved by the Detroit City Council if they are not rejected by a majority vote of the Detroit City Council within 30 days of their being presented to the Council.

In addition to the specific approval authority cited above, the Detroit City Council will continue to serve an important role in monitoring the overall performance of the Detroit Water and Sewerage Department. The Director of DWSD shall provide the City Council with copies of its quarterly MDEQ reports on the status of its implementation of the compliance program as required by Section 3.10 of the ACO and shall be required to make appearances before the Detroit City Council no less than semi-annually to explain efforts to remain in compliance with the ACO. The monitoring role shall include requesting reports on environmental compliance, scheduling meetings with the DWSD Director and DWSD staff, and reviewing DWSD’s compliance with the court orders.

III. Legal Barriers

One of the key areas of concern throughout the Court’s oversight of DWSD’s non-compliance with the Clean Water Act is the existing City of Detroit procurement process. While this Committee does not have the time needed to perform an exhaustive review of the existing procurement process and to make specific recommendations to modify that system, it is clear that the current process has failed DWSD. In order to achieve long-term compliance, this committee agrees that DWSD will need to be relieved of the requirement to fully comply with the existing provisions of the City of Detroit’s Procurement Ordinance. As a by-product of this decision, it is also clear that DWSD cannot be expected to fully comply with the Charter provisions related to Privatization (Charter Section 6-307).

While we agree that DWSD should be free from the language of those laws outlined

above, as currently written, we do believe that several of the key concepts must still control the operations of DWSD's procurement process. That discussion will occur under the Procurement Section of this report.

There are two provisions of the Detroit City Charter that speak to the approval authorities for the sale of property of DWSD. After considerable discussion in the Committee on DWSD's need to find better ways to operate in an efficient and effective manner and adapt the system to meet the needs of the current customer base as opposed to the capacity that the system was originally designed to support, the Committee felt that there was a need to seek relief from Charter Sections Charter 7-1504 and Charter 4-112. The Committee suggests that the sale of property by DWSD shall be overseen by the Detroit City Council as provided by the procurement policy. Therefore, the Committee suggests that the sale of property within DWSD should be solely governed by the provisions of the proposed procurement policy attached to this Plan.

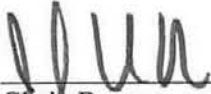
IV. TRANSITIONAL PLAN

In order to assist DWSD in obtaining the administrative support services that it needs to insure accountability in order to achieve long-term compliance, it is agreed that DWSD will be free to seek its own new staff in filling the newly created administrative positions within DWSD's Administrative Division with respect to HR, Finance, Law, and Procurement. Existing staff within City of Detroit Departments of Finance, Budget, Human Resources and Labor Relations, and Law that support the activities of DWSD will be addressed through the City of Detroit's traditional process for addressing staffing reduction or bumping decisions, consistent with this order.

Finally, the Committee recognizes that we may need the assistance of professional labor and bond attorneys to help us navigate the transitional issues associated with Collective Bargaining Agreements and existing and/or future Bond transactions within the context of the Governance and Approval recommended changes outlined above. It is our intent to vest the Director of DWSD with the exclusive authority to sign CBAs on behalf of DWSD for its employees and to negotiate the terms and conditions of employment for DWSD employees. Equally, it is our intent to support all existing bond commitments that have been made by the City of Detroit as well as to avoid impairing DWSD's ability to issue future bonds to support our Capital Expenditure needs.

At the end of this process, we would recommend that the Court's final order instruct the Board of Water Commissioners to amend their By-laws to make them consistent with this Plan as we have outlined.

We the undersigned, hereby submit this Plan, as presented, to the Special Master upon our recommendation that the Court accept this proposal.



Chris Brown
Chief Operating Officer
Mayor's Office



James Fausone
Board Member
Board of Water Commissioners



Gary Brown
President Pro Tem,
Detroit City Council



Charles Pugh
President
Detroit City Council

Attachment

Detroit Water and Sewerage Department Procurement Policy
November 2, 2011

(1) General Policy Statement

The Detroit Water and Sewerage Department ("DWSD") shall procure all goods and services through the use of competitive bidding as outlined in this policy, unless an express exception is provided to that general rule. The DWSD Director shall take all necessary measures to ensure this policy is adhered to.

(2) Types of Competitive Bidding

In the procurement of goods or commodities, DWSD shall only use an Invitation for Bids in which the price factor shall be the only factor considered in the award of a contract. An Invitation for Bids shall not be due any sooner than 14 calendar days from the date of issuance.

In the procurement of professional services, DWSD shall use a Request for Proposals. A Request for Proposals shall not be due any sooner than 21 calendar days from the date of issuance.

In the procurement of construction services, the Department is free to determine the type of competitive bidding and the time frame for response that is appropriate for the complexity of the project.

(3) Minimum Qualifications for Response

DWSD shall provide within each competitive solicitation the minimum qualifications needed to submit a responsible and acceptable response. These minimum qualifications may include, among others, insurance requirements, compliance with the Ethics code, Section 2-6-91 *et seq* of the Detroit City Code, disclosure statements, certificates of good standing with the State of Michigan, etc.

(4) Exceptions to Competitive Bidding

While the general rule is that all procurements by DWSD shall be done pursuant to competitive bidding, there is a need for narrow exceptions to this general rule that will promote efficiency of operations and assist with insuring long-term compliance. The exceptions are as follows:

(A) Emergency Procurements

The DWSD Director, without prior approval of the Board of Water Commissioners ("BOWC") or Detroit City Council, may make, or authorize others to make, an emergency procurement when public exigencies require the immediate delivery of articles or performance of services or when there exists a threat to public health, welfare or safety or to prevent an imminent violation of a required environmental permit or

Administrative Consent Order under emergency conditions where prior approval would be impossible or impracticable under the circumstances; provided that:

(i) Emergency procurement shall be made with such competition as is practicable under the circumstances; and

(ii) The DWSD Director or other person he or she authorizes to make emergency procurement shall, within one (1) week of the procurement, notify the Board of Water Commissioners and the Detroit City Council in writing of the procurement and the basis for the emergency and for the selection of the particular contractor. The DWSD Director shall submit the procurement contract for any necessary approval within four (4) weeks of the procurement.

(B) Sole Source Procurements

Competitive bidding is not required when the DWSD Purchasing staff certifies that only one (1) source of supply is available.

(C) Small Purchases

(i) *General.* Any contract not exceeding \$25,000.00 may be made in accordance with the small purchase procedures authorized in this section. Procurement requirements shall not be artificially divided so as to constitute a small purchase under this section.

(a) When a dollar limit is specified upon the authority delegated by this subsection, it shall be construed to apply to the cumulative amount of contracts awarded to a specific business for a kind of supplies, service or construction within the same fiscal year. DWSD shall requisition and solicit procurements in amounts which are based upon their reasonable and foreseeable needs and storage capacities, and upon other relevant factors, such as, economies of scale in purchasing, shipping and handling; or the shelf-life, useful life, or seasonal availability of a product. Contracts shall not be divided into smaller parts to circumvent the need for Board of Water Commissioners or Detroit City Council approval.

(b) Separate contracts may however be used if:

(1) There is a need to document expenditures as against various restricted funding sources; or

(2) It is not economically practical to store a one-year supply of a given commodity, because of shelf-life, or storage costs and capacities; or

(3) Product price often changes, and more often than not in a downward trend; or

(4) Different users have significant differences in the timing of their needs for a service or product; or

(5) The initial or continuing need for a product or service is not readily foreseeable so as to enable consolidated purchasing; or

(6) The cost of coordinating consolidated purchasing will exceed any savings which are likely to be generated; or

(7) To promote greater utilization of small businesses.

(ii) *Small purchases over \$5,000.00 but not exceeding \$25,000.00.* Insofar as it is practical, solicitations of verbal or written quotes from a minimum of three qualified sources of supply shall be made and documentation of the quotes recorded on or attached to the purchase requisition. Reasonable best efforts shall be made to solicit bids from Detroit Based Businesses. The award shall be made to the lowest responsive/responsible source. Monthly, the Board of Water Commissioners shall be provided a list of purchases, vendors and amounts which fall into this category.

(iii) *Small purchases under \$5,000.00.* Any purchase not exceeding \$5,000.00 may be accomplished without securing competitive quotations if the prices are considered to be fair and reasonable. Competitive quotations need only be taken when the DWSD Director suspects the price may not be fair and reasonable, e.g., comparison to previous price paid, personal knowledge of the price range of the item involved. The maximum amount for purchases that may be achieved by using this method of procurement is \$5,000.00. Every effort should be made to distribute such purchases equitably among qualified suppliers.

(iv) *Protest rights.* The provisions of Section 7 shall not apply to contracts awarded under the procedures set forth in this subsection.

(v) *Evaluation Credits for Small Purchases.* Evaluation credits under Section 5 shall not be considered for small purchases under \$25,000.00.

(D) Cooperative Purchases

The DWSD Director may either participate in, sponsor, conduct, or administer a cooperative purchasing agreement for the procurement of supplies, services, or construction services with one or more public procurement units in accordance with an agreement entered into between the participants. Such cooperative purchasing may include, but is not limited to, joint or multi-party contracts between public procurement

units. Examples of such cooperative purchasing is State of Michigan contracts, General Services Administration (GSA) contracts, supplies and/or services procured from another governmental agency, and U.S. Communities.

(i) *Sale, acquisition or use of supplies.* The DWSD Director may sell to, acquire from, or use any supplies belonging to another public procurement unit independent of the requirements of the general bidding requirements of this policy.

(ii) *Cooperative use of supplies or services.* The DWSD Director may enter into an agreement, independent of the general bidding requirements of this policy, with any public procurement unit for the cooperative use of supplies or services under the terms agreed upon between the parties.

(iii) *Joint use of facilities/equipment.* The purchasing director may enter into agreements for the common use or lease of warehousing facilities, capital equipment, and other facilities with another public procurement unit under the terms agreed upon between the parties

(iv) *Cooperative Purchase Agreements.* In the event that the DWSD Director determines that it is advantageous to take advantage of a Cooperative Purchase Agreement for the procurement of goods from a vendor that is neither a Detroit Based Business nor a Detroit Resident Business, the DWSD Director shall provide an opportunity for Detroit Based Businesses or Detroit Resident Businesses to submit a bid that is equal to or less than the cost of the Cooperative Purchase price.

(E) Personal Services Contracts

Competitive bidding is not required for personal services contracts. A personal services contract is one that furnishes labor, time, or effort by an individual not required to deliver specific end product, other than reports which are merely incidental to required performance. This term does not include employment agreements or collective bargaining agreements.

(5) Price Equalization Credits

(A) Price Equalization Credit Categories shall be:

(i) Detroit Based Business

(ii) Detroit Resident Business

(iii) Joint Venture

(iv) Mentor Venture

(v) Customer Based Business

In order to claim entitlement to a credit pursuant to this section, the vendor must submit proper documentation of their entitlement to the credit at the time that the vendor responds to the competitive solicitation. Failure to provide documentation at the time of the bid submission shall negate any application of the equalization credits to the evaluation of that bid.

(B) Price Equalization Credits

	Contracts Up to \$1 million	Contracts ≥\$1 million
Detroit Based Business	2%	1%
Detroit Resident Business	2%	1%
Joint Venture	1%	0.5%
Mentor Venture	1%	0.5%
Customer Based Business	1%	0.5%

(C) Use of Price Equalization Credits

In evaluating the bids of competing vendors, the Price Equalization Credits contained within this policy can be used to reduce the relative cost of the price component of any bids provided by vendors responding to a Request for Proposals or a competitive solicitation related to construction services. The relative reduction in price shall be in accordance with the percentages outlined above in Section B.

A potential vendor is entitled to use multiple credits in their bid in accordance with the chart contained in subsection (B) above provided that:

- (i) a potential vendor cannot claim both a **Joint Venture** and a **Mentor Venture**; and
- (ii) a potential vendor cannot claim to be both a **Customer Based Business** and a **Detroit Based Business**.

Price Equalization Credits will not be utilized in the award of contracts pursuant to an Invitation for Bids for the procurement of goods or where prohibited by applicable law. Federal law prohibits such equalization credits on projects utilizing federal funds.

(6) Approval of Contracts

(A) Approval by the Director of DWSD

The DWSD Director shall have full and final approval to approve procurements of the following types of goods and services at dollar values that do not exceed the following limits:

- (i) Personal Services contracts that do not exceed \$50,000;
- (ii) Goods or commodities contracts that do not exceed \$100,000;
- (iii) Professional Services contracts that do not exceed \$250,000;
- (iv) Construction contracts that do not exceed \$500,000; and
- (v) Sale of land or equipment contracts that do not exceed \$500,000, pursuant to a written appraisal from a licensed appraiser.

(B) Approval by the Board of Water Commissioners

The Board of Water Commissioners shall be required to approve the following types of procurements prior to execution by the DWSD Director:

- (i) Personal Services contracts that exceed \$50,000;
- (ii) Goods or commodities contracts that exceed \$100,000;
- (iii) Professional Services contracts that exceed \$250,000;
- (iv) Construction contracts that exceed \$500,000; and
- (v) Sale of land or equipment contracts that exceed \$500,000, pursuant to a written appraisal from a licensed appraiser.

(C) Approval by the Detroit City Council

In addition to requiring approval of the Board of Water Commissioners, the following types of procurements shall also require the approval of the Detroit City Council prior to execution by the Director of DWSD:

- (i) Personal Services contracts that exceed \$150,000;
- (ii) Goods or commodities contracts that exceed \$2,000,000;

- (iii) Professional Services contracts that exceed \$2,000,000;
- (iv) Construction contracts that exceed \$5,000,000; and
- (v) Sale of land or equipment contracts that exceed \$2,500,000, pursuant to a written appraisal from a licensed appraiser.

(7) Bid Protests and Appeals

- (A) A potential vendor who is not recommended for award of a contract after participating in DWSD's competitive solicitation process may protest the award of the contract by filing a written notice of protest with the Board of Water Commissioners within seven (7) days of the notice of award. The written notice shall reference the solicitation number and the basis for the protest.
- (B) Upon receiving a bid protest, the DWSD Director shall immediately halt the processing of the relevant contract award until the protest has been resolved.
- (C) The Bid Protest shall be reviewed by the staff of the Board of Water Commissioners in an expeditious manner. The Board of Water Commissioners shall vote to either accept or reject the bid protest within fourteen (14) days of the date upon which the protest was filed. If the Board of Water Commissioners accepts the bid protest, the DWSD Director shall act in accordance with the Board of Water Commissioners findings. If the Board of Water Commissioners rejects the Bid Protest, the Director of DWSD shall notify the protestor of that decision and their opportunity to appeal to the Detroit City Council.
- (D) A potential vendor may appeal a denial of their bid protest to the Detroit City Council. To be valid, the appeal must be filed with the Detroit City Clerk within seven (7) days of receipt of the denial of their bid protest. The Detroit City Council, acting through its Committee on Public Health and Safety, shall decide whether to accept or reject the appeal within ten (10) days of receipt of the Appeal.

(8) Definitions

Procurement - A written agreement for the purchase or sale of goods, services, land and fixtures attendant to the land.

Detroit Based Business – A business which pays city income taxes on the business's net profits and pays city property taxes on a plant or office and equipment which are ordinarily required for the furnishing of the goods or the performance of the services required by the contract and referred to in the application for certification as a Detroit-based business, or other real or personal property in the city equivalent in value to such

plant or office and equipment for not less than one (1) taxable year immediately prior to the date of the application for certification as a Detroit-based business, which shall comply with the following requirements:

- (1) Provide verification that the firm has the physical resources including, but not limited to, inventory, equipment, vehicles, etc., as well as the ability to provide the services indicated in its application for certification at the city location; and
- (2) Provide verification of the ability of the business to carry out the service or repair the product to be sold to the city at the city site; and
- (3) Provide references, licenses, or other means of verification acceptable to the city that the services the firm offers to the city has been provided at the city site for at least one (1) year prior to the date of application; and
- (4) Provide verification that the business has or can procure an adequate number of employees based at its city site to perform services indicated in the application

Detroit Resident Business - means any business which employs a minimum of four (4) employees at least fifty-one (51) percent of which are city residents.

Joint Venture - means a joint venture of separate firms, one of which is a DBB, or DRB which has been created to perform a specific contract, and is evidenced by a written agreement which provides at a minimum that the DBB or DRB:

- (1) Is substantially included in all phases of the contract, including, but not limited to, bidding and staffing; and
- (2) Provides at least fifty-one (51) percent of the total performance, responsibility, and project management of a specific job; and
- (3) Receives at least fifty-one (51) percent of the total remuneration from a specific contract; and
- (4) Shares in profits and losses.

Mentor Venture - means a joint venture of separate firms, one of which is a D-BB, D-BSB, D-RB or D-BMBC, which has been created to perform a specific contract, and is evidenced by a written agreement which provides at a minimum that the D-BB, D-BSB, D-RB or D-BMBC:

- (1) Is substantially included in all phases of the contract including, but not limited to bidding and staffing; and
- (2) Provides at least thirty (30) percent of the total performance, responsibility and project management of a specific job; and
- (3) Receives at least thirty (30) percent of the total remuneration from a specific contract; and
- (4) Shares in profits and losses.

Customer Based Business – A business that is headquartered and operating in the region and that receives water or wastewater services from DWSD.

	IFB - Good and Commodities (No. Days)	RFP - Professional Services (No. Days)
<u>General Requirements Time</u>		
Solicitation Preparation and Advertisement	14	20
Days to Respond from Date of Issuance of Solicitation*	14	21
Scoring Responses and Issuing Notice of Award	3	7
Negotiating Final Documents	14	14
Total General	45	62
<u>Approval Time</u>		
Board of Water Commissioners Approval	30	30
Detroit City Council Approval	7	7
Total Approval Time	37	37
<u>Protest Time</u>		
Days to File Protest with BWC*	7	7
BWC Decision on Protest*	14	14
Appeal Adverse Decision to DCC*	7	7
DCC Decision on Appeal*	10	10
Total Protest Time	38	38
<u>POSSIBLE TIMING</u>		
General, No Approval, No Protest	45	62
General, BWC Approval Required, No Protest	75	92
General, DCC Approval Required, No Protest	82	99
General, No Approval, Protest	83	100
General, BWC Approval Required, Protest	113	130
General, DCC Approval Required, Protest	120	137

Notes:

1. Items marked with * are those with time requirements defined by the policy
2. Actual times for protested contracts may be shorter if some of the approvals are made to overlap
3. Approval time for DCC is added to BWC because it is assumed that DCC will only review contracts already approved by BWC

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APPENDIX H

OVERVIEW OF THE CITY'S RETIREMENT SYSTEMS

Retirement Systems in General

The City has two retirement systems. The General Retirement System ("GRS") covers all employees other than police officers and firefighters, who are covered by the Police and Fire Retirement System ("PFRS"). Each system is governed by its own Retirement Board ("GRS Board" and "PFRS Board," respectively), which invests and administers the system's assets as trust funds solely for the benefit of its participants, retirees and their beneficiaries.

The assets of each Retirement System are separate and distinct from assets of the City, are outside the City's control and are not available to pay any obligation or expense of the City.

The GRS Board is comprised of 13 members. Five members of the GRS Board are elected by the active membership of the GRS to serve six-year, staggered terms. One member is elected by the retiree membership to serve a two-year term. One member is appointed by the Mayor of the City from the citizens of the City to serve a six-year term. Six members serve ex-officio – the Mayor of the City (or designee), the Treasurer of the City, the Finance Director (or designee), the Budget Director (or designee), the Corporation Counsel (or designee), and one representative from the Detroit City Council.

The PFRS Board is comprised of 11 members. Six members are elected by the active membership of the PFRS to serve three-year, staggered terms. Five member serve ex-officio – the Mayor of the City (or designee), the Treasurer of the City/or Deputy Treasurer), a representative from the Detroit City Counsel, the Detroit Chief of Police (or designee) and the Detroit Fire Commissioner (or designee).

Each Retirement System receives an annual actuarial report from its consulting actuary as of each June 30, providing actuarial valuations of its vested benefits, prior service costs and UAAL. Each Retirement Board uses those actuarial valuations, together with certain actuarial assumptions, to determine the annual contribution amounts requested from the City to fulfill its constitutional and statutory pension funding obligations. As part of their regular, periodic review of the actuarial assumptions used to administer their respective Retirement Systems, the GRS Board and the PFRS Board may receive recommendations from time to time to increase or decrease the interest rate and to change other actuarial assumptions.

The most recent annual actuarial reports available for the Retirement Systems are as of June 30, 2010. As of June 30, 2010, the two Systems had combined total net assets held for benefits of approximately \$7.09 billion and covered 12,264 active employees and 19,895 retirees and their beneficiaries. According to the actuarial study of Gabriel, Roeder, Smith and Company ("Actuary") the GRS and PFRS also had estimated combined UAAL of \$7.70 billion as of June 30, 2010.

The Actuary does actuarial studies annually, and the Charter provides that the assumptions used to value the liabilities of both Systems are to be studied in depth every five years. Actuarial assumptions were revised following the 1997-2002 in-depth experience study. Both Systems use the entry age normal actuarial cost methodology to determine age and service liabilities, vested liabilities, casualty liabilities and normal cost. As of the June 30, 2006 actuarial reports, the following significant assumptions are utilized in calculating the present value of vested benefits and the actuarially determined prior service cost: (1) the future investment return rate is assumed to be 7.9% per annum for the GRS and 7.8% per annum for the PFRS; (2) the GRS assumes that total active member payroll expense will increase 4% annually, while the PFRS assumes that payroll expense will increase 4.8% annually; and (3) the GRS UAAL and the PFRS UAAL both are amortized over a period of 30 years. Both Systems amortize their respective UAAL to produce contribution amounts (principal and interest) which are a level percentage of payroll contributions.

The GRS Board has historically established or changed the amortization period for the funding of GRS UAAL by resolution from time to time. On February 8, 2006, the GRS Board adopted a resolution establishing a 30-year amortization period for funding GRS UAAL. The City Council adopted an ordinance, which became

effective on February 8, 2006, establishing a 30-year amortization period for funding PFRS UAAL. In an appeal over whether the City or the PFRS Board has authority to determine the appropriate amortization period for funding PFRS UAAL, the Michigan Court of Appeals ruled in the PFRS Board's favor on February 28, 2006, granting a declaratory judgment that the PFRS Board has the authority under applicable law to set the amortization period for the PFRS. On March 30, 2006, the PFRS Board adopted a resolution establishing a 30-year amortization period for funding PFRS UAAL. On April 11, 2006, the City applied for leave to appeal the Michigan Court of Appeals decision to the Michigan Supreme Court, which was subsequently denied.

The mortality table for both Systems is 90% of the 1983 Group Annuity Mortality Table (adopted June 30, 1998 for the PFRS, and June 30, 2003 for the GRS), and the probabilities of retirement and separation from service (including death in service and disability) were revised (based on the 1997-2002 in-depth experience study) for the June 30, 2003 valuations for both Systems. Valuation assets recognize investment returns above or below the actuarial assumed rate over a three-year period.

In July 2004, GASB issued *Statement No. 43, Financial Reporting for Post employment Benefit Plans Other Than Pension Plans* and *Statement No. 45, Accounting and Financial Reporting by Employers for Post employment Benefits Other Than Pensions*. These Statements establish accounting and financial reporting standards for employers that participate in a defined benefit "other post employment benefit" (OPEB) plan. Specifically, the City will be required to measure and disclose an amount for annual OPEB cost on the accrual basis for health and insurance benefits that will be provided to retired City employees in future years. The City is also required to record a net OPEB obligation which is defined as the cumulative difference between annual OPEB cost and the employer's contributions to a plan, including the OPEB liability or asset at transition, if any. The City implemented Statement No. 43 beginning with the year ended June 30, 2007, and Statement No. 45 beginning with the year ended June 30, 2008. For the City, the implementation of Statement No. 45 resulted in a total of \$146.5 million in increased expenses and a related liability for the year ended June 30, 2008, adversely impacting the net assets and cumulative surplus/deficit of the government and business-type activities of the City. The implementation of GASB Statement No. 45 increased expenses and liabilities by \$114.1 million and \$32.4 million in the governmental activities and business-type activities categories, respectively, and contributed to the decline in net assets and increase in the cumulative deficit of the City. The actuarial accrued liability for post employment benefits other than pensions for all City employees was estimated to be \$4.8 billion at July 1, 2007 and the value of assets was zero resulting in an unfunded actuarial accrued liability of \$4.8 billion.

The following table sets forth the contributions of the City to the GRS and the PFRS for fiscal years 2004 through 2010.

Annual City Contributions to the Retirement Systems

	For the Fiscal Year Ended June 30,				
	2006	2007	2008 ¹	2009	2010
GRS	\$84,071,346	\$41,444,808	\$43,168,448	\$42,311,524	\$37,338,690
PFRS	\$78,157,729	\$57,423,366	\$41,113,934	\$61,151,056	\$32,808,485

¹ For the fiscal year ended June 30, 2008, the PFRS System gave a credit to the City for current year contributions.

General Retirement System - Historical Funding Progress Actuarial Value

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
6/30/06	3,373,687,677	3,434,288,153	60,600,476	98.2	361,151,456	16.8
6/30/07	3,586,550,485	3,629,217,059	42,666,574	98.8	361,701,481	11.8
6/30/08	3,641,197,523	3,609,558,628	(31,638,895)	100.9	368,470,990	-
6/30/09	3,412,411,183	3,689,065,726	276,654,543	92.5	357,072,833	77.5
6/30/10	3,238,130,553	3,719,586,762	481,456,209	87.1	334,343,506	144.0

Source: General Retirement System of City of Detroit annual actuarial valuation

Police and Fire Retirement System - Historical Funding Progress Actuarial Value

Actuarial Valuation Date	Actuarial Value of Assets (a)	Actuarial Accrued Liability (AAL) (b)	Unfunded AAL (UAAL) (b-a)	Funded Ratio (a/b)	Covered Payroll (c)	UAAL as a Percentage of Covered Payroll ((b-a)/c)
6/30/06	3,980,254,576	3,808,952,741	(171,301,835)	104.5	228,140,160	-
6/30/07	4,307,194,763	3,896,814,229	(410,380,534)	110.5	230,173,964	-
6/30/08	4,316,263,291	4,071,053,752	(245,209,539)	106.0	232,812,606	-
6/30/09	3,945,205,453	4,221,291,045	276,085,592	93.5	231,795,528	119.1
6/30/10	3,853,279,381	3,987,524,204	134,244,823	96.6	228,829,999	58.7

Source: Police and Fire Retirement System of City of Detroit annual actuarial valuation

The following table sets forth the actuarial valuation results for the GRS and the PFRS for the fiscal years 2004 through 2009 actuarial valuations by the City's consulting actuary.

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Summary of Retirement System Actuarial Valuation Results

	2006	2007	2008	2009	2010
General Retirement System:					
Number of Active Employees	9,047	8,971	8,823	8,599	8,072
Number of Retirees and Beneficiaries	11,541	11,478	11,388	11,407	11,539
Number of Deferred Vested Beneficiaries	1,109	1,672	1,665	1,682	1,629
Accrued Actuarial Liabilities (Millions)	\$3,434.28	\$3,629.21	\$3,609.55	\$3,689.06	\$3,719.58
Available for Benefits (Millions)	3,373.68	3,586.55	3,641.20	3,412.41	3,238.13
Assets as % of Accrued Actuarial Liabilities	98.24%	98.82%	100.90%	92.00%	87.10%
City Contributions (% of Payroll)					
- Applicable Fiscal Year ²	2008	2009	2010	2011	2012
- Normal Cost	9.26%	9.29%	10.09%	10.84%	10.97%
- UAAL Amortization Amount	0.95%	0.67%	0.53%	4.54%	8.14%
- Total % of Payroll City Contribution	10.21%	9.96%	9.56%	15.38%	19.11% ¹
Police and Fire Retirement System:					
Number of Active Employees	4,312	4,212	4,078	4,037	3,992
Number of Retirees and Beneficiaries	8,550	8,498	8,442	8,424	8,356
Number of Deferred Vested Beneficiaries	24	111	111 ⁴	111 ⁴	N/A ³
Accrued Actuarial Liabilities (Millions)	\$3,808.95	\$3,896.81	\$4,071.05	\$4,221.29	\$3,987.52
Available for Benefits (Millions)	3,987.46	4,307.18	4,316.26	3,945.20	3,853.28
Assets as % of Accrued Actuarial Liabilities	104.69%	110.53%	106.02%	93.5%	96.6%
City Contributions (% of Payroll)					
- Applicable Fiscal Year ²	2008	2009	2010	2011	2012
- Normal Cost	25.09%	26.71%	26.27%	26.57%	24.54%
- UAAL Amortization Amount	N/A	N/A	N/A	7.40%	3.27%
- Total % of Payroll City Contribution	N/A	N/A	N/A	35.22%	19.11%

SOURCE: Derived by Finance Department from annual actuarial reports.

¹ Computed Employer Rate with Interest Adjustment.

² City contribution percentages calculated and published in each annual actuarial valuation apply to the second following fiscal year.

³ Not explicitly valued since the June 30, 2007 actuarial valuation due to incomplete reporting subsequent to June 30, 2007.

⁴ Estimated.

Payment Obligations under Retirement System Service Contracts

The City is a party to two Service Contracts, dated May 25, 2005 and June 7, 2006, with the Detroit General Retirement System Service Corporation, and two other Service Contracts, dated May 25, 2005 and June 7, 2006, with the Detroit Police and Fire Retirement System Service Corporation. Those two Service Contracts dated May 25, 2005 are called the “2005 Service Contracts” below, and those two Service Contracts dated June 7, 2006 are called the “2006 Service Contracts” below. The GRS and the PFRS are not parties to any of the Service Contracts.

Pursuant to Ordinance No. 05-05 of the City (the “Funding Ordinance”), the City entered into the 2005 Service Contracts as a means to fulfill its State constitutional and statutory obligations to provide funding for an approximately \$1.37 billion portion of outstanding unfunded accrued actuarial liabilities (the “2005 Subject UAAL”) of the City’s two retirement systems, the GRS and the PFRS. On June 2, 2005, a funding trust created by the two Service Corporations issued and sold Certificates of Participation Series 2005-A and 2005-B (“Series 2005-A COPs” and “Series 2005-B COPs,” respectively, and collectively “2005 COPs”), evidencing undivided proportionate interests in the rights to receive certain payments (“2005 Scheduled Payments” and “2005 Service Charges,” and collectively “2005 COP Service Payments”) to be made by the City under the 2005 Service Contracts.

A portion of the proceeds of the 2005 COPs was irrevocably paid to the GRS and the PFRS, fully funding the 2005 Subject UAAL on June 2, 2005.

The periods for payment of the City's scheduled 2005 COP Service Payments under the 2005 Service Contracts were limited to 13 and 20 years in regard to the PFRS and GRS, respectively, the amortization periods then in effect for PFRS UAAL and GRS UAAL. Pursuant to the Funding Ordinance and an authorizing resolution of the City Council adopted on April 26, 2006, the City entered into the 2006 Service Contracts, as anticipated and authorized in the Funding Ordinance, as a means of enabling the City to utilize a now permitted longer payment period for the obligations it incurred to fulfill its constitutional and statutory obligations to provide such funding for the 2005 Subject UAAL. A new funding trust created by the two Service Corporations issued and sold Certificates of Participation Series 2006-A and 2006-B ("Series 2006-A Certificates" and "Series 2006-B Certificates," respectively, and collectively "2006 Certificates" and collectively with the 2005 COPs, the "COPs"), evidencing undivided proportionate interests in the rights to receive certain payments ("2006 Scheduled Payments" and "2006 Service Charges," and collectively "2006 Certificate Service Payments") to be made by the City under the 2006 Service Contracts. A portion of the proceeds of the 2006 Certificates was used to optionally redeem certain outstanding Series 2005-A COPs and to purchase and cancel certain outstanding Series 2005-B COPs, thereby extinguishing the City's obligations to pay the 2005 COP Service Payments related to the 2005 COPs thus redeemed or purchased and canceled.

The Series 2006 Certificates were issued to provide moneys to fund the optional redemption of \$104,055,000 aggregate principal amount of Series 2005-A COPs and the purchase and cancellation of \$800,000,000 aggregate principal amount of Series 2005-B COPs. The 2005 COPs and the 2006 Certificates are wholly independent of each other. The City's contractual payment obligations underlying the 2006 Certificates are totally separate and distinct from its contractual payment obligations underlying the 2005 COPs. Holders of 2006 Certificates will have no rights or interests in the City's payment obligations under the 2005 Service Contracts, and holders of 2005 COPs will have no rights or interests in the City's payment obligations under the 2006 Service Contracts.

The following table sets forth the combined annual amounts of 2005 Scheduled Payments and 2005 Service Charges (i.e., 2005 COP Service Payments) that the City will be obligated to pay under the 2005 Service Contracts, and the combined annual amounts of 2006 Scheduled Payments and 2006 Service Charges (i.e., 2006 Certificate Service Payments) that the City is obligated to pay under the 2006 Service Contracts, and the optional redemption of the Series 2005-A COPs to be redeemed from proceeds of the 2006 Certificates and the purchase and cancellation of the tendered Series 2005-B COPs to be purchased from proceeds of the 2006 Certificates.

Payments made by the City under the service contracts are not debt of the City but are contractual obligations and are payable in addition to the debt discussed under "INDEBTEDNESS OF THE CITY AND RELATED ENTITIES."

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2005 COP Service Payments and 2006 Certificate Service Payments

Twelve months ending <u>June 15,</u>	<u>2005 COP Service Payments</u>	<u>2006 Certificate Service Payments¹</u>	<u>Total</u>
2010	\$ 30,512,441	\$ 58,833,035	\$ 89,345,476
2011	36,512,526	59,597,480	96,110,005
2012	41,950,067	59,633,035	101,583,103
2013	47,428,624	59,633,035	107,061,659
2014	52,928,206	59,633,035	112,561,241
2015	55,205,504	59,633,035	114,838,540
2016	57,345,528	59,633,035	116,978,564
2017	59,582,125	59,633,035	119,215,160
2018	61,915,480	59,633,035	121,548,515
2019	45,501,634	74,262,035	119,763,670
2020	47,237,920	72,512,044	119,749,964
2021	49,053,745	70,682,217	119,735,962
2022	50,931,865	68,790,901	119,722,766
2023	52,894,682	66,816,810	119,711,492
2024	54,938,837	64,762,493	119,701,329
2025	57,065,475	62,625,938	119,691,413
2026	—	119,684,896	119,684,896
2027	—	119,620,663	119,620,663
2028	—	119,552,095	119,552,095
2029	—	119,480,259	119,480,259
2030	—	119,407,677	119,407,677
2031	—	119,331,345	119,331,345
2032	—	119,251,006	119,251,006
2033	—	119,164,947	119,164,947
2034	—	119,079,247	119,079,247
2035	—	<u>119,009,749</u>	<u>119,009,749</u>
Totals:	\$801,004,659	\$2,209,896,085	\$3,010,900,743

¹ Series 2006-B Certificates interest calculated at fixed swap rates.

At the end of fiscal year 2008, the City had eight (8) interest rate exchange agreements (the “Swap Agreements”) in effect. These Swap Agreements were issued in conjunction with the issuance of the COPs and were subject to termination as a result of recent credit rating downgrades of the City. Specifically, the Swap Agreements provided that a termination event would occur if the credit ratings on the COPs were withdrawn, suspended or downgraded below “Baa3” (or equivalent) and if the bond insurers’ ratings fell below an “A3” (or equivalent rating).

On January 8, 2009, the City received formal notice from the counterparty to four of the eight Swap Agreements stating that an event had occurred, which, if not cured by the City, would constitute an additional termination event. On January 14, 2009, the City also received formal notice from the counterparty to the four remaining Swap Agreements stating that the applicable bond insurers had been downgraded below the thresholds set forth in the Swap Agreements. In June 2009, the City avoided termination payments by amending the Swap Agreements with the counterparties to include a collateral agreement. The collateral agreement requires the City to

provide for the direct deposit of daily casino tax revenues from the casinos to a trustee to ensure payment of the quarterly interest payments due under the Swap Agreements. The collateral agreement also provides for an increase of approximately 1.5% or 10 basis points in such payments beginning in fiscal year 2011 and further provides that the counterparties may terminate the Swap Agreements if certain increased coverage levels of the wagering taxes over the required quarterly interest payments are not met or if the debt ratings of the COPs are withdrawn, suspended or downgraded below “Ba3” (or equivalent). Should such termination events occur in connection with these Swap Agreements, and not be cured, there presently exists a significant risk in connection with the City’s ability to meet the cash demands under the terms of the amended Swap Agreements. “See CAPITAL ASSETS AND DEBT ADMINISTRATION – Long Term Debt” in APPENDIX B and “Note IV. Subsequent Events – Subsequent Economic Events – Swap Agreement Termination Events” in APPENDIX B for more detail regarding the Swap Agreements and termination provisions.

The following table sets forth a summary of the outstanding swaps relating to the Series 2006 Certificates.

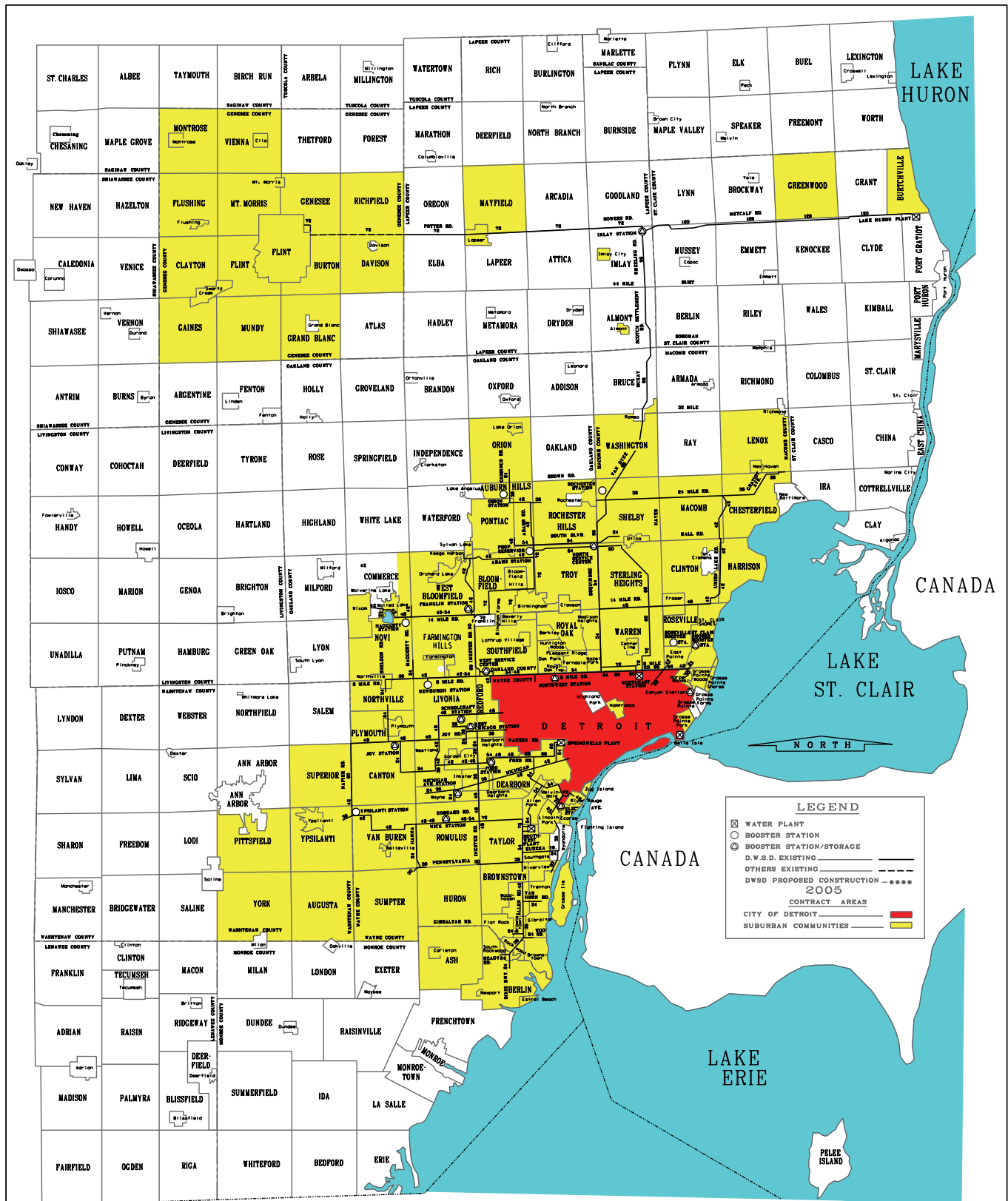
Summary of Outstanding Swaps Related to Certificates of Participation

(Table follows on next page)

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Related Bond Series	Taxable Certificates of Participation Series 2006-B (Floating Rate) (General Retirement System-FGIC)	Taxable Certificates of Participation Series 2006-B (Floating Rate) (Police and Fire Retirement System-FGIC)	Taxable Certificates of Participation Series 2006-B (Floating Rate) (Police and Fire Retirement System-Syncora, Formerly XLCA)	Taxable Certificates of Participation Series 2006-B (Floating Rate) (General Retirement System-Syncora, Formerly XLCA)	Taxable Certificates of Participation Series 2006-B (Floating Rate) (General Retirement System-FGIC)	Taxable Certificates of Participation Series 2006-B (Floating Rate) (Police and Fire Retirement System-FGIC)	Taxable Certificates of Participation Series 2006-B (Floating Rate) (Police and Fire Retirement System-Syncora, Formerly XLCA)	Taxable Certificates of Participation Series 2006-B (Floating Rate) (General Retirement System-Syncora, Formerly XLCA)
Original Notional Amount	\$96,621,000	\$153,801,500	\$104,325,500	\$45,252,000	\$96,621,000	\$153,801,500	\$104,325,500	\$45,252,000
Current Notional Amount	\$96,621,000	\$153,801,500	\$104,325,500	\$45,252,000	\$96,621,000	\$153,801,500	\$104,325,500	\$45,252,000
Termination Date (s)	June 15, 2034	June 15, 2034	June 15, 2029	June 15, 2029	June 15, 2034	June 15, 2034	June 15, 2029	June 15, 2029
Termination Provisions	The City can terminate with five day written notice.	The City can terminate with five day written notice.	The City can terminate with five day written notice.	The City can terminate with five day written notice.	The City can terminate with five day written notice.	The City can terminate with five day written notice.	The City can terminate with five day written notice.	The City can terminate with five day written notice.
Termination Values ⁽¹⁾	(\$21,856,883)	(\$34,793,571)	(\$20,679,295)	(\$9,322,243)	(\$21,743,216)	(\$34,615,775)	(\$20,654,776)	(\$9,323,025)
Type of Swap	Floating to Fixed	Floating to Fixed	Floating to Fixed	Floating to Fixed	Floating to Fixed	Floating to Fixed	Floating to Fixed	Floating to Fixed
Rate Paid By Counterparty	3 Month LIBOR + 34 bps (Cost of Funds)	3 Month LIBOR + 34 bps (Cost of Funds)	3 Month LIBOR + 30 bps (Cost of Funds)	3 Month LIBOR + 30 bps (Cost of Funds)	3 Month LIBOR + 34 bps (Cost of Funds)	3 Month LIBOR + 34 bps (Cost of Funds)	3 Month LIBOR + 30 bps (Cost of Funds)	3 Month LIBOR + 30 bps (Cost of Funds)
Rate Paid By City	2007 - 4.991%, 2008 - 5.666%, 2009 - 6.256%, 2010-2034 - 6.356%	2007 - 4.991%, 2008 - 5.666%, 2009 - 6.252%, 2010-2034 - 6.352%	2007 - 4.991%, 2008 - 5.666%, 2009 - 6.223%, 2010-2029 - 6.323%	2007 - 4.991%, 2008 - 5.666%, 2009 - 6.223%, 2010-2029 - 6.323%	2007 - 4.991%, 2008 - 5.666%, 2009 - 6.256%, 2010-2034 - 6.356%	2007 - 4.991%, 2008 - 5.666%, 2009 - 6.252%, 2010-2034 - 6.352%	2007 - 4.991%, 2008 - 5.666%, 2009 - 6.223%, 2010-2029 - 6.323%	2007 - 4.991%, 2008 - 5.666%, 2009 - 6.223%, 2010-2029 - 6.323%
Counterparty	SBS Financial Products Company, LLC (Merrill Lynch as CSP)	SBS Financial Products Company, LLC (Merrill Lynch as CSP)	SBS Financial Products Company, LLC (Merrill Lynch as CSP)	SBS Financial Products Company, LLC (Merrill Lynch as CSP)	UBS AG	UBS AG	UBS AG	UBS AG
Counterparty Rating	A1/A+/A+ (CSP Rating)	A1/A+/A+ (CSP Rating)	A1/A+/A+ (CSP Rating)	A1/A+/A+ (CSP Rating)	Aa2/A+/A+	Aa2/A+/A+	Aa2/A+/A+	Aa2/A+/A+
Swap Insurer	FGIC	FGIC	Syncora (Formerly XLCA)	Syncora (Formerly XLCA)	FGIC	FGIC	Syncora (Formerly XLCA)	Syncora (Formerly XLCA)
Counterparty Bond Rating Downgrade Event	Counterparty senior unsecured rating is withdrawn, suspended or falls below Baa3/BBB- (1 of 2).	Counterparty senior unsecured rating is withdrawn, suspended or falls below Baa3/BBB- (1 of 2).	Counterparty senior unsecured rating is withdrawn, suspended or falls below Baa3/BBB- (1 of 2).	Counterparty senior unsecured rating is withdrawn, suspended or falls below Baa3/BBB- (1 of 2).	Counterparty senior unsecured rating is withdrawn, suspended or falls below Baa3/BBB- (1 of 2).	Counterparty senior unsecured rating is withdrawn, suspended or falls below Baa3/BBB- (1 of 2).	Counterparty senior unsecured rating is withdrawn, suspended or falls below Baa3/BBB- (1 of 2).	Counterparty senior unsecured rating is withdrawn, suspended or falls below Baa3/BBB- (1 of 2).
Bond Rating Downgrade Event	Insurer < (A-/A3) (1 of 2) and City's rating is suspended or below (Baa3/BBB-) (1 of 2) or Insurer < (Aaa/AAA) (1 of 2) and fails to pay a claim greater than \$100,000,000.	Insurer < (A-/A3) (1 of 2) and City's rating is suspended or below (Baa3/BBB-) (1 of 2) or Insurer < (Aaa/AAA) (1 of 2) and fails to pay a claim greater than \$100,000,000.	Insurer < (A-/A3) (1 of 2) and City's rating is suspended or below (Baa3/BBB-) (1 of 2) or Insurer < (Aaa/AAA) (1 of 2) and fails to pay a claim greater than \$100,000,000.	Insurer < (A-/A3) (1 of 2) and City's rating is suspended or below (Baa3/BBB-) (1 of 2) or Insurer < (Aaa/AAA) (1 of 2) and fails to pay a claim greater than \$100,000,000.	Insurer < (A-/A3) (1 of 2) and City's rating is suspended or below (Baa3/BBB-) (1 of 2) or Insurer < (Aaa/AAA) (1 of 2) and fails to pay a claim greater than \$100,000,000.	Insurer < (A-/A3) (1 of 2) and City's rating is suspended or below (Baa3/BBB-) (1 of 2) or Insurer < (Aaa/AAA) (1 of 2) and fails to pay a claim greater than \$100,000,000.	Insurer < (A-/A3) (1 of 2) and City's rating is suspended or below (Baa3/BBB-) (1 of 2) or Insurer < (Aaa/AAA) (1 of 2) and fails to pay a claim greater than \$100,000,000.	Insurer < (A-/A3) (1 of 2) and City's rating is suspended or below (Baa3/BBB-) (1 of 2) or Insurer < (Aaa/AAA) (1 of 2) and fails to pay a claim greater than \$100,000,000.
Bond Rating Downgrade Remedies	City must provide substitute credit support provider acceptable to Counterparty within 30 days.	City must provide substitute credit support provider acceptable to Counterparty within 30 days.	City must provide substitute credit support provider acceptable to Counterparty within 30 days.	City must provide substitute credit support provider acceptable to Counterparty within 30 days.	City must provide substitute credit support provider acceptable to Counterparty within 30 days.	City must provide substitute credit support provider acceptable to Counterparty within 30 days.	City must provide substitute credit support provider acceptable to Counterparty within 30 days.	City must provide substitute credit support provider acceptable to Counterparty within 30 days.
Source of Payment	General Fund Revenues	General Fund Revenues	General Fund Revenues	General Fund Revenues	General Fund Revenues	General Fund Revenues	General Fund Revenues	General Fund Revenues

(1) Estimated values are from the City's perspective. A negative value would have required a payment by the City if the swap had been terminated at mid on December 31, 2009. Swap values were provided by each respective swap counterparty.



DETROIT WATER AND SEWERAGE DEPARTMENT
 WATER TRANSMISSION SYSTEM
 FOR THE
 SOUTHEASTERN MICHIGAN METROPOLITAN AREA
 2005

